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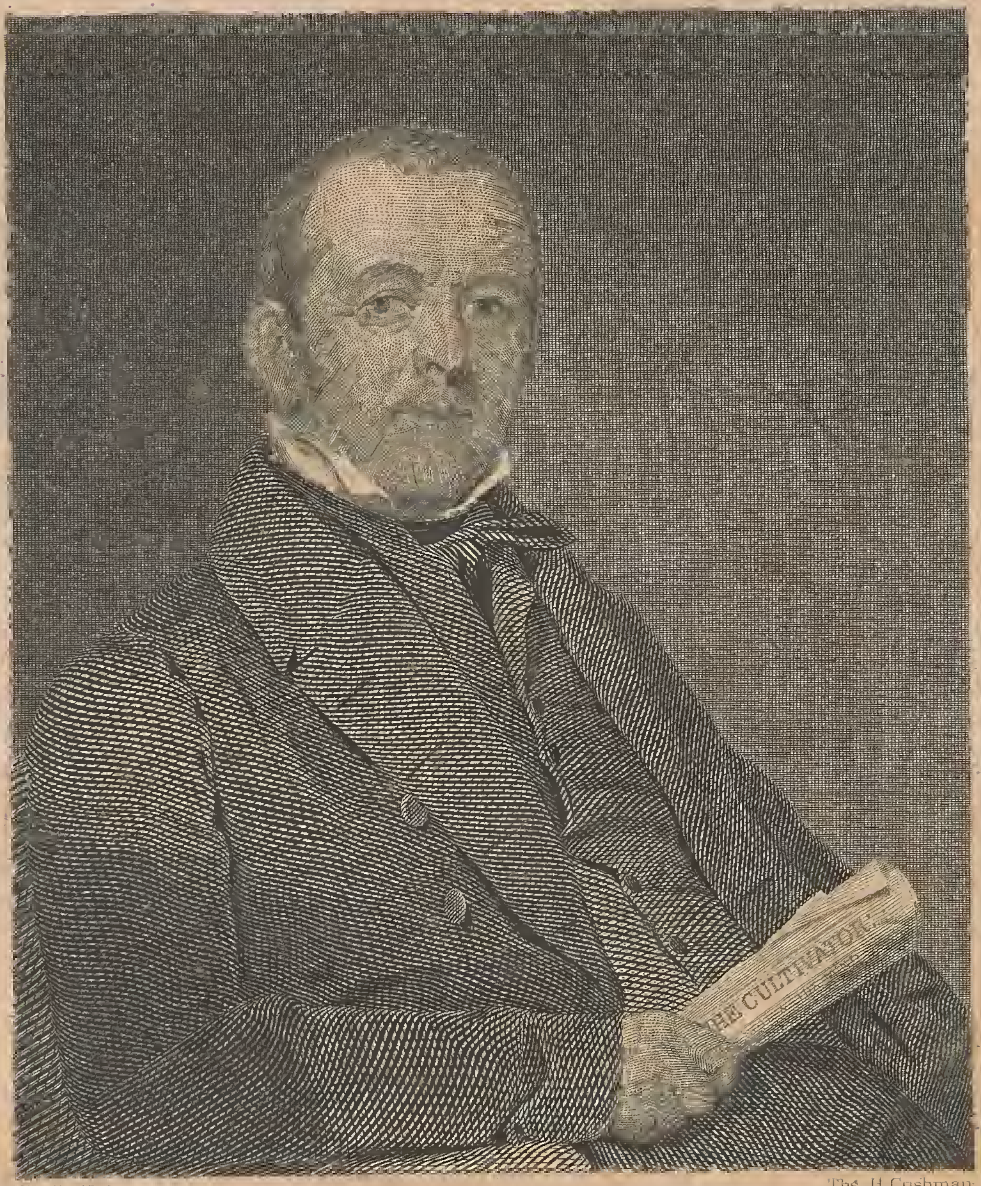


Fredk. Fink. Ths. H. Cushman.

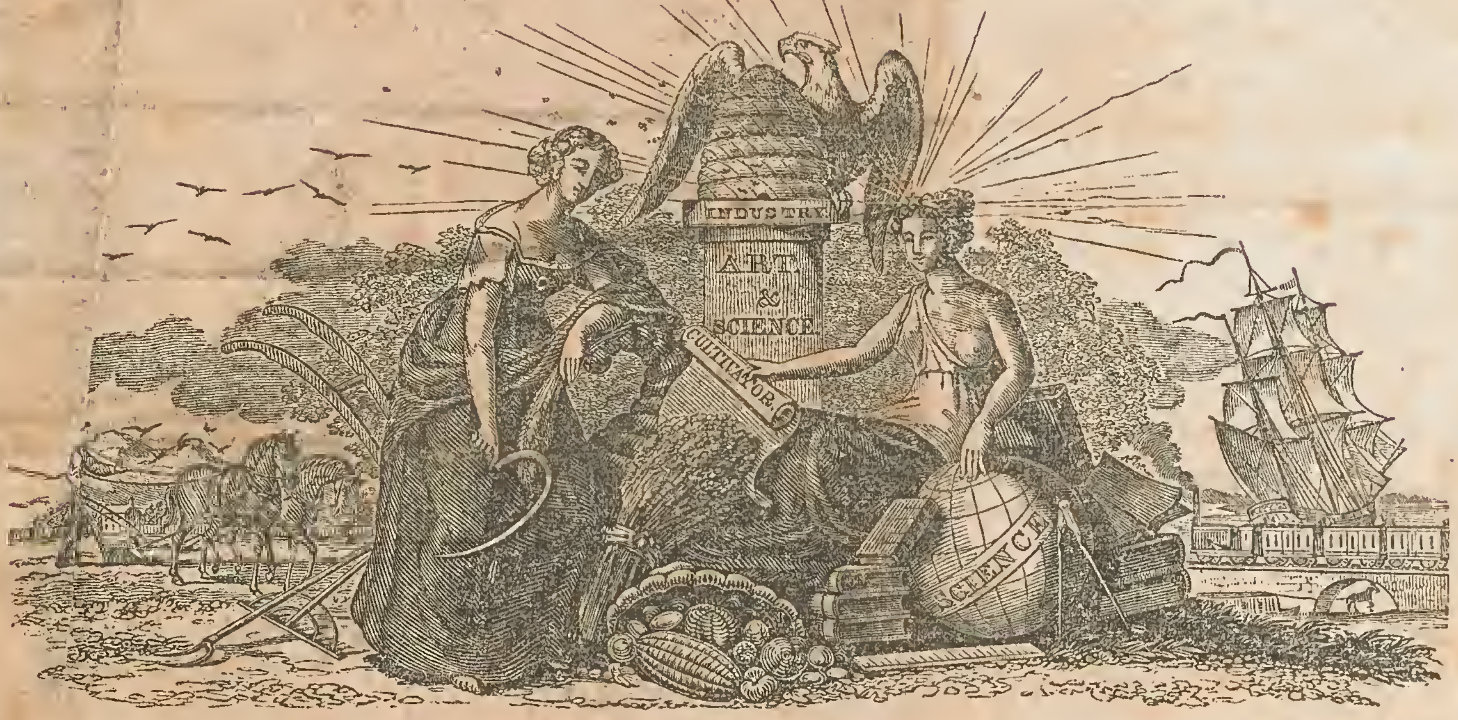
With affectionate regard
Jesse Buel

THE CULTIVATOR,

A MONTHLY PUBLICATION,

DESIGNED TO

IMPROVE THE SOIL AND THE MIND.



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THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. V. NO. 3, WASHINGTON-ST. ALBANY, N. Y. MARCH, 1838. NO. 1.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance. Subscriptions to commence with a volume.

Special Agents.—L. & R. HILL, Richmond, Va.; BELL & ENTWISLE, Alexandria, D. C.; GIDEON B. SMITH, Baltimore, Md.; JUDAH DOBSON, bookseller, and D. LANDREITH, seedsman, Philadelphia; ISRAEL POST, booksellers, 88 Bowery, ALEX. SMITH, seedsman, P. WAKEMAN, office of the American Institute, Broadway, N. York; E. M. HOVEY, Merchants's Row, Boston; ALEX. WALSH, Lansingburgh, gratuitous agent. For general list of agents see No. 12, vol. iv.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Our Fifth Volume.

Agreeable to our proposition, we commence our fifth volume upon an enlarged sheet, and at an advanced price. To the individual subscriber the advance in price is trifling, while the aggregate will enable us greatly to improve the utility of our paper; and of our disposition to do this, we give a substantial evidence in the outset, in the number and expensiveness of the cuts, and in the entire sheet of extra matter, containing the very interesting proceedings of the State Agricultural Society, and State Agricultural Convention, recently held in this city. By this extra sheet we incur an individual expense, to the printer alone, of *five hundred and fifteen dollars.* And we beg gentlemen of intelligence and candor, after they have carefully perused the thirty-two pages which we give to-day, to put to themselves the question—"Am I not likely to derive a benefit, in the management of my farm the coming year, from the information contained in these two sheets alone, greater, far greater, than the paltry amount of a year's subscription to the Cultivator?" If, as we believe, the response will be in the affirmative, we hope they will be induced, from a spirit of philanthropy and patriotism, to endeavor to extend these benefits to their friends and neighbors, by enlarging the sphere of our circulation.

The better to enable us to carry out our views of public usefulness, we invite the co-operation of our old and of new correspondents, particularly of such as can furnish us any thing new and useful, in their practice, in any of the departments of husbandry. Next to the satisfaction arising from honorable endeavors to promote our individual interest, is that which results from a consciousness of doing good to our neighbors, and to society at large: And it is by publishing our improvements in the great business which employs most of our population, that we make ourselves truly useful. There is no monopoly in the business of agriculture; there should be none; there can be none. The best requital we can make for distinguished benefits, resulting from an enlightened system of practice, is to tender to others a participation in the benefits which our better practice confers. It abstracts nothing from our enjoyments,—it adds to them—while it often contributes much to the stock of human comfort and public virtue. Acts of beneficence, though they may sometimes provoke the sneers of envy, are sure to receive the applause of the liberal and enlightened.

Agricultural Movements.

If we are permitted to judge from the spirit of our agricultural journals, and from the oral evidence which we daily hear of a like spirit among the people, we should consider this as the commencement of a new and auspicious era in the history of American husbandry. A disposition is every where manifested to enlighten, improve, and elevate our agriculture, and our agriculturists. In most of the states, geological surveys have been made, or are in progress. In several states, bounties are awarded for the culture of the mulberry and the production of silk. Maine gives a liberal bounty on the culture of wheat, from her state treasury; and a bill is now before the legislature of Massachusetts to pay a like bounty. Massachusetts has also made provision for an agricultural survey of the state, and a very able gentleman, Rev. H. Colman, as already devoted a year to the labor. A proposi- n is before the legislature of Maryland to establish icultural schools. Kentucky is organizing a state rd of agriculture, or state society; while our ver sisters, Ohio, Indiana, Illinois, Michigan, and even one-year-old Wisconsin, from the spirit they are manifesting, seem determined not to be outdone in rural improvements, by the older states.

But let us come to New-York. The meetings of the State Society and State Convention are fraught with great public usefulness. The reports and other documents which we give to-day, abound in valuable information, and will be read with great interest. The subjects which they embrace are intimately interwoven with our prosperity. The matters to be reported upon at the next meetings are numerous and interesting; and from the character of the gentlemen to whom they are severally assigned—and the time allowed them to collect and mature their reports, we hazard little in saying, that they will furnish an invaluable fund of information in the practical business of our husbandry. There seemed to be in these meetings no shyness,—no diffidence—no doubt of the propriety of asking from the legislature, as matter both of expediency and right, an appropriation—a liberal appropriation—towards improving our soil, and the minds of those who are destined hereafter to cultivate it. Many of the members of the legislature partook in the deliberations of the convention, and accorded heartily in the measures which were there adopted.

A small matter set Right.

"The Conductor of the Cultivator has, however, gi-
"ven notice of his intention to enlarge that paper *to the*
"*size of this sheet.*"

The above is quoted from the first number of the Monthly Genesee Farmer for the current year. Whether intended to be so understood or not, it would seem to imply, that the Monthly Genesee Farmer and the Cultivator, in its enlarged form, contain a like quantity of matter. We asked our printer to make an estimate of the quantity of matter in each, and he has given us the following as the result:

This number of the Cultivator contains, by printer's computation,	120,610 ems.
The first number of the Monthly Genesee Farmer contains, by like computation,	101,556 ems.
Difference in favor of Cultivator,	19,054 ems.

This balance, multiplied by twelve, the numbers in a volume, gives as the difference in a volume of each, 192,640 ems, equivalent to thirty pages of the Monthly Genesee Farmer—in favor of the Cultivator; and if we add the extra sheet which accompanies this, and which contains as much as twenty-two pages of the Monthly Genesee Farmer, the difference in matter, in the two papers, will amount to 52 pages in favor of the Cultivator, to say nothing of our great expense for cuts. We make this statement merely to set the matter right, without the least wish to charge our cotemporary with a wanton error; for, until he saw our sheet, which he could not have seen when he made the comparison, he could not judge correctly of the matter which it does contain. We would only say, he is not good at *guessing*.

Cultivator Premiums.

We have reason to believe, that the premiums which we offered in the first number of our last volume, have been productive of highly beneficial effects, not only as regards tillage crops, and the management of the dairy, but in reference to the construction of barns and other out-buildings. If the plans which we have published, and publish to-day, are not the best, they are certainly much better than are usually followed, and by directing the public attention to this branch of improvement, the result cannot but prove beneficial. Influenced by these considerations, we are induced to offer the following premiums for the coming year.

For the best plan of a farm dwelling-house, of stone, brick or wood, to cost from six hundred to two thousand dollars, a premium of *twenty dollars.*

For the discovery and publication of an effectual means of preventing the ravages of the grain-worm, *fifty dollars.**

For the most profitable acre of Indian corn, *ten dollars.*

For the second most profitable crop of Indian corn *five dollars.*

For the most profitable acre of ruta baga, *ten dollars.*

For the second best do. *five dollars.*

The plans for a dwelling-house must be accompanied by drawings of the elevation and ground plan, and must comprise estimates of expense of wood and brick or stone. The premium on the mode of preventing the ravages of the grain-worm will be withheld until the remedy has been satisfactorily tested. We shall require, in the tillage crops, the same details of expense, product and profit, as are embraced in the statements published in our last number, and, where the competitor is a stranger, a like certificate of a magistrate as to his credibility. The large premiums will be paid in medals or plate, and those of five dollars in bound volumes of the Cultivator.

There is great room for improvement in the construction of our farm houses, both as regards economy and comfort. It is a subject well worthy the study of our architects; and if we can be a means of turning the public attention to the matter, the result cannot but be beneficial.

The New Husbandry.

We have been asked, and have promised, to explain, what we mean by the *New System of Husbandry:* and we now proceed to redeem our promise.

The system is *new* only comparatively, and in contradistinction to the *old* system, which is generally adopted in the first settlement of a country, in some degree as a matter of necessity; but which, being once established, is too often persisted in, with a reckless indifference to ulterior consequences, long after the necessity for it has ceased. This particularly happens in countries like ours, where new and virgin soils are continually inviting to emigration. What we denominate the new system, has long been in operation in the valley of the Po, in Italy,—indeed it seems to have been practiced there by the Romans, in the meridian of their greatness—and in Flanders,—and for the last half century in Great Britain; and it has, besides, for sometime, had many faithful followers in the United States. By the *old* system, we mean that which, generally speaking, has impoverished, and is still impoverishing, the soil on our Atlantic border, and which is already causing indications of premature exhaustion and poverty in some portions of the new west. "As much vacant land as this district contains" (says a late writer of East Virginia)—there is but little uncultivated [old fields] which, until enriched, will yield any clear profit. Therefore, Eastern Virginia, in its present state, is fully populated, and no increase can be expected, *except from the improvement of the soil, and the consequent increased means of subsistence.*" This remark will hold good in many portions of the older states. By *New Husbandry*, we mean the *art*,—and to many yet a *mystery*—of progressively increasing the fertility and products of our soils, and the intrinsic value of our farms—and of thereby providing the means of subsistence for our increasing population.

There are no universal rules for doing this. Much depends upon climate, soil, and upon the distance and demands of the market. The products of the soil, as well as the demands for them, vary generally with latitude. Grain, pulse, roots, and grass, are the natural products of higher latitudes; rice, cotton, and tobacco, constitute the staples of more temperate regions; while the productions of the torrid zone vary from both of those before referred to. Though there are no definite rules of practice, that will apply to all, yet there are essential requisites to success that have a general application. These are capital, industry and perseverance, and knowledge to apply them wisely with effect, under the varied circumstances of climate, soil and market. Great success cannot be expected in any laudable undertaking, without persevering industry; and in regard to knowledge, the laws which govern matter, upon which our labors are to be expended, are the same every where; and we are endowed with capacities for investigating, comprehending and applying many of them in aid of labor—the profits of which are in a measure graduated by the intelligence which governs and directs it.

The New System of Husbandry, or the art of increasing the fertility and products of the soil, consists in

1. Manuring.
2. Draining.

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* Should the legislature offer a bounty for this discovery, this premium will be withdrawn, and the amount offered upon other objects. Should they not offer such bounty, we shall be glad to add to the fifty dollars such sums as other gentlemen may please to contribute, in order to make the amount more respectable.

3. Good Tillage.
4. Alternating Crops.
5. Root culture. And,
6. In substituting fallow crops for naked fallows.

Most of all these are necessary to good farming, according to soil, climate and location. They are the distinguishing traits of the new husbandry; and as they are practised with more or less fidelity and judgment, in that proportion are they likely to advance the condition of our agriculture, and to benefit the commonwealth.

These objects have become so hackneyed, from our repeated attempts to illustrate their bearing upon the prosperity of our country, that we almost despair of interesting our readers by what we have to offer; but as we labor in our vocation, and deem the matters in question of deep interest to the farmer, we shall again throw our seed abroad, trusting to the indulgence of our patrons, and in the hope, that, at least a portion of it may fall upon good ground, and yield a reasonable increase.

We intend to discuss the several subjects we have named, and shall endeavor to show the *why*, and the *how*, each of them tends to benefit the farmer, and to advance improvement in our husbandry. In the remarks we shall offer, it will be our endeavor rather to explain the principles upon which the new system is founded, and which have a common application, and to demonstrate their beneficial influence in husbandry generally, than to detail the minutæ of practice, which must, in some degree, ever be influenced and controlled by local causes.

I. MANURING.

The first requisite to improving the fertility of the soil, is plenty of food for the crop, which it is destined to nourish. The meal chest must be occasionally replenished, or it will not long serve to supply the wants of the family. The kine must have daily her forage, or her grain, or she will withhold her accustomed tribute of milk. The field which yields an annual contribution to the husbandman, will become sterile, if nothing is returned to replace the crops annually carried off. Philosophers have speculated for ages, as to *What constitutes the food of plants?* Without recapitulating the various theories which have had their day, upon this point, every farmer can readily respond to the question, from personal knowledge—that it is MANURE—vegetable and animal matters,—which constitute the true food of farm crops. Mineral, fossil and earthy substances, may meliorate the soil, and increase its capacities for the healthy development and maturity of plants—or may impart wholesome stimuli to the organs of plants themselves,—but vegetable and animal substances, after all, constitute mainly the elementary food of plants: Crops are always good, on well prepared grounds, when these, in a soluble state, are known to abound; and they are always defective, or prove a failure, when these are wanting. Farmers should hence regard manure as a part of their capital—as money—which requires but to be properly employed, to return them usurious interest. They should husband it as they would their cents, or shillings, which they mean to increase to dollars. They should economise every animal and vegetable substance on the farm, and when it has subserved other useful purposes, apply it, by mixing it properly with the soil, to the increase of the coming harvest—put it to interest, that it may return the owner its per centage of profit, in grain, roots and forage, and ultimately in the increase of meat, and in the products of the fleece and dairy. Every load of manure, well applied to the farm, will increase its products to the value of one dollar. The farmer, therefore, who wastes a load of manure, is as reckless and improvident, as he who throws away a bushel of corn, in these dear times. Not only what is denominated manure, as the contents of the cattle and hog yards, and the cleanings of the stable—the amount of which may be greatly increased, by stalks, weeds, vines, and other vegetable matters—may be transformed into farm produce—but the rich earth of swamps, ditches and waters, the leaves of the forest, urine, soap suds, &c., are all convertible to a like use. He that will not feed his crops with manure, should not complain if his crops fail to feed him with bread.

As the grain, roots and forage destined to feed the family, and the farm stock, require the best care of the husbandman, to prevent waste and injury, so does the manure which is destined to feed his crops. Fermentation, if suffered to exhaust its powers upon it, materially lessens its value; the wind and the sun dissipate its virtues, and rains leach it, and waste its fertilizing powers. The same care given to the food of vegetables which should be given to the food of animals, will be richly recompensed in the increased product of the harvest.

Lime, marl, gypsum and ashes, are all beneficially applied to increase fertility, under certain circumstances, which it is unnecessary for us here to particularize. Stiff clays are also benefitted, by the application of sand; light sands are improved by the admixture of clay; while both clay and sand are improved by the addition of marl, or other calcareous substances.

If we contrast the common with the improved practice, in regard to the management of dung, we shall readily see, that the difference, in preserving the fertility of the soil, is incalculably great—enough to induce poverty in one case, and to enrich the proprietor in the other. Even the best class of our farmers, who are deemed judicious managers, seldom avail themselves of half the resources of fertility which their farms or neighborhoods afford—not half that are put in successful requisition by the farmers of Great Britain and Flanders. Besides, what manure they do make is in general badly husbanded. They suffer the gaseous portions to waste in the air, instead of being absorbed by, and enriching the soil; and the liquid to course down hill to the highway or the brook. But what shall we say of the mass of our farmers?—We have travelled hundreds of miles to the west, and seen great quantities of manure, in the yards and about the barns, often the accumulation of years, seemingly considered by the owners rather as an incumbrance, or a nuisance, than as a source of fertility and of wealth. In the new system of husbandry, the farmer's profits are in a measure graduated by the quantity of manure he is enabled to produce from his farm. In the first number of our fourth volume, we gave estimates, from high authorities, of the amount produced upon farms in Great Britain. Dr. Coventry, Agricultural Professor in the Edinburgh University, gives four tons of manure to each acre of straw manufactured by farm stock. A Berwickshire farmer, quoted by Sir John Sinclair, obtained four cart loads, of 30 to 35 cubic feet each, from every ox wintered upon straw and turnips. Meadow land is stated to produce from four to six tons of manure to the acre, and the available sources of fertility upon a farm are estimated to be sufficient to give a full supply of manure once in every course of the four year system of husbandry. Arthur Young, with six horses, four cows, nine hogs, and suitable litter, made 118 loads of dung, 36 bushels each, in a winter. Cattle fed with turnips are computed to make double the manure that those do which are fed on dry fodder alone; and an acre of turnips, with an adequate quantity of straw, has produced sixteen cart loads of dung. It will be readily perceived, that by this mode of management, ample means are provided for keeping up the fertility of the soil, when put under a four shift system of husbandry.

What now is the common quantity of manure under the old system? Taking our state, or our country at large, we are confident the average quantity which is judiciously applied, will not amount to one load an acre, and we are doubtful if it will amount to half a load. Can it be wondered, then, that under such reckless management, of returning to the soil only a quarter, or an eighth, of what we take from it, of the food of plants, that our lands should continue to grow poor, till they no longer yield a reward to culture?—The cultivated lands in this state are estimated at eight millions of acres. On the supposition that one half of them is appropriated to tillage and meadow—and this is a low estimate—we might produce and apply annually, under the new system of husbandry—and we ought to do so—sixteen millions tons of manure, worth to the country, at a low computation, sixteen millions of dollars;—whereas, we now produce, under the old system, certainly not more than four millions of tons—thereby suffering an annual loss, independent of the certain and constant diminution in the product and value of our lands, of twelve millions of dollars in the single item of manures! This is not a visionary speculation—it is sober truth—and we ask any intelligent man, to show, from facts, a less unfavorable conclusion.

We will merely remark here, in regard to the application of manures, that if used in an unfermented state, they should be buried with the plough, and applied to a hoed or autumn-ripening crop; if used in a rotted state, they may be blended with the surface, and applied to a summer-ripening crop. We will give our reasons for this practice. Manure fertilizes in two ways—by the gaseous matters which are evolved in fermentation, and which *rise;* and by liquid matters, which *sink*. If used before it has parted with its gases, manure should be buried, that the incumbent soil may imbibe these fertilizing elements. If the manure has been rotted, it has parted with its gaseous matters, and all its remaining fertilizing properties are liable to be carried down by the rains—hence this may be deposited near the surface. Again, fresh manures, even in a liquid form,[*] induce a rank growth of *herbage;* but they do not produce good plump *seed.* Hence if applied to common small grains, they cause a great growth of *straw* at the expense of the *grain:* Fermentation being most rapid at midsummer, when the seed, and not the straw, requires the food. But the autumn-ripening crops, as corn, &c., are in that state, at midsummer, which requires strong food to perfect their stalks and leaves; and the fermentation of the manure has subsided before the *grain* matures in autumn. Fossil manures, as lime, marl, gypsum, are applied upon the surface, or buried superficially, because their disposition is to settle down, and they give off no gaseous food.

Individuals, it is true, are but units—yet the aggregation of units make millions, and the aggregation of individuals constitutes nations. We should all act as though individual example had an imposing influence upon the whole. In the matter which we have just discussed, every farmer may be assured, that by adopting our suggestions, he will unquestionably promote his own interest, and by his example, benefit society.

Analysis of Wheat.

Wheat is composed almost wholly of starch and gluten. It is the latter which gives grain a pre-eminent value, it approximating most to animal matter. Yet starch imparts to flour its greatest excellence in market. Summer wheat contains more gluten, ordinarily, than winter wheat. The wheat of cold latitudes contains more starch, and that of southern latitudes more gluten. The summer wheat of Italy is chiefly employed, at Naples, for macaroni, on account of the gluten with which it abounds, and which renders its paste peculiarly adhesive. Wheat ordinarily contains from eighteen to twenty per cent of gluten, according to Davy; while, according to Chaptal, rye affords but one per cent, barley from five to eight, and oats one to two. The more gluten there is in flour, the more readily it ferments, or rises in the dough trough; and if the gluten is destroyed, the dough turns sour by fermentation. Hence the nutrient quality of wheat is in some measure determined by the gluten it contains.

A friend having submitted several kinds of wheat to rather an imperfect analysis, with a view to determine the quantity of gluten in each, has given us the following as the result. All the specimens were submitted to a like process; and although the result may not indicate the *whole* of the gluten in either, the relative proportions are presumed to be accurate. Twelve grains of each were submitted to experiment.

Kinds of wheat.	*Weight.*		*Gluten.*	
Italian, from Utica, ...	9	grains.	1½	grain
Siberian, ...	9	"	1½	"
Tea, from Vermont, ...	8½	"	1	"
Common Spring Wheat, ...	8½	"	¾	"
Early May, from Virginia, ...	7	"	¼	"
Red River, from Galena, ...	8	"	⅛	"
Egyptian, from Vermont, ...	10½	"	½	"
Giant, from England, ...	10	"	none.	

The only inference we would venture to draw from this analysis, is, that the Italian and Siberian wheat seem to be identical—and that even the tea wheat may be the same, differing in the quantity of its gluten only from the circumstance of its being grown in a higher latitude, so far as this test can be relied on.

Things which we Want.

We want, imprimis, stronger inducements to agricultural labor, through our public authorities, by means of a liberal policy of patronage, in bounties and rewards; and we want a stronger guarantee for recompense, in the establishment of a better system of practice.

We want more *public,* and less *party* spirit—more devotedness to the *state,* and the interests of the people at large, and less to local interests, individual cupidity, and personal aggrandizement.

We want more stimulus to individual effort, and less to joint stock companies. Men will be guilty of acts of injustice and oppression, in a corporate capacity, which they will be ashamed to commit on their individual responsibility. In the one case they do but *share,* and they generally contrive to shift on to others, the odium of a bad act. But alone, they have no subterfuge, no excuse.

We want, for our boys, who are destined to till the earth, scientific and industrial schools, that they may acquire, simultaneously, and in the scholastic period of life, a knowledge of the best practices in farming, and of the principles upon which it can now alone be judiciously and successfully conducted.

We want, in due time, an *agricultural* survey of the state, which shall collect and make known to all, the best practices in farming which prevail in each district—as also the labor-saving implements employed in each, and their relative usefulness, the breeds of domestic animals, products and profits of crops, new subjects of culture, &c.

We want more *practical* business men in our legislative halls as well as upon our farms—men of sound judgment and independent bearing—and who, though they do not *talk* as much, can *think* and *act* as correctly and as promptly, as *professional* talkers; and who, knowing best the true interests of the mass of our population, are likely to do the least injury, if they do not do the most good.

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[*] Col. Le Courteur—(see Farmers' Magazine)—tried stable manure, and liquid manure, the latter diluted, upon his wheat. The grain tillered much, or gave a great growth of straw and grass; but the product in grain was diminished. When the liquid manure was applied a second time, by being poured upon the growing wheat, the straw was very rank; the plants produced only a few ears of wheat, and those were very defective in grain.

We want a more extended circulation of agricultural periodicals—because they disseminate useful knowledge, stimulate industry, call into action latent genius, awaken laudable competition, induce general improvement, bring into exercise the noblest feelings of our nature, and inculcate good will to our fellowman.

We want to have inculcated and taught, by precept and example, in our public halls, in our social circles, and in our schools, high and low, the great moral and political duty, of identifying our individual with the public interest, and of considering the one as in a great measure inseparable from the other.

ON OUR FARMS,

We want more system—more employment for our females, that they may be more healthy, more robust, and more serviceable to posterity—more contentment with our rural employments—a greater desire to increase our knowledge, to improve our practice, and to bring our sons up "in the way they should go"—as independent tillers of the soil.

We want more attention paid to augment our manures, the food of our farm crops, that our lands, instead of growing poorer every year, may increase in fertility, in products and in profits.

We want to understand, better than we do, the principles and the practice of draining, that much of our best land, now unproductive and noisome, may be rendered productive, profitable and healthy.

We want to extend the culture of roots and clover, as tending to perpetuate fertility, fatten cattle, furnish manure, and fill the granary.

We want the conviction that we *can* improve, the determination that we *will* improve, and we shall then soon become conscious that we *have* improved, in the management of our farms.

On the Improvement of Grass Lands.

Although the alternation of grass and grain crops is deemed most profitable, on soils and in situations which will admit of this kind of husbandry, yet there are many situations in which this alternate change cannot be carried into effect without manifest prejudice to the interests of the cultivator. There are some soils so natural to grass, as to yield an undiminished product for many years, almost without care or expense. There are others upon the banks of streams which frequently overflow, which it is prudent to keep in grass, lest the soil should be worn away by the rapid flood of the waters. Others again are too precipitous, or too stony, to admit of arable culture. Nor should we conceal the fact, that it is still a controverted point, whether rich stiff clays are not most profitable, when permanently appropriated to grass. Whatever causes prevail, the fact is indisputable, that a considerable portion of our lands are and will continue to remain in meadow and pasture. It is with the view to aid the farmer in correcting any defects that may exist in such grass grounds, and in improving and keeping them in condition, that we offer the following suggestions. And first,

OF PASTURE.

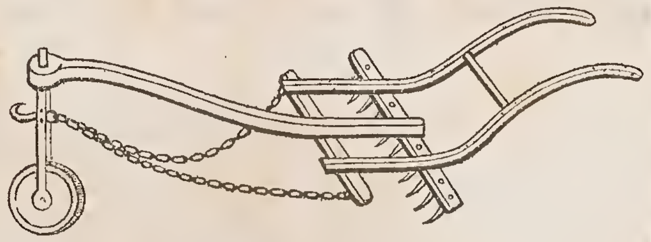
The evils that are experienced in pasture grounds, are, the gradual disappearance of the best grasses; the growth of mosses and weeds in their stead; and the prevalence of coarse herbage in situations where there exists a superabundance of moisture. Wherever there are stagnant waters, as upon flat surfaces, the pasture is rendered peculiarly unhealthy for sheep; but it is remarked, that if the water is in continued motion, as is generally the case upon the declivities of hills and mountains, no ill consequences follow.

To remedy the evils we have enumerated, and to improve the condition of pasture grounds, one or more of the following expedients may be advantageously resorted to, viz. sowing and harrowing in grass seeds, scarifying, bushing, draining, manuring, top-dressing with marl or lime.

Grass seeds may be sown either in the autumn or spring, followed by the harrow, and if practicable by the roller. The harrow partially extirpates the mosses, breaks and pulverizes the surface, and buries the seeds; and the roller presses the earth to the seeds, and smooths the surface. The bush harrow is to be preferred. This may be constructed by interweaving some strong, but pliant branches of trees, through the open squares of a heavy harrow, which thus forms an efficient brush, and when drawn over the ground performs its duty perfectly during a short distance; but the branches being pressed close, and worn by the motion, soon become so flat as not to have the effect of spreading the earth, thrown upon the surface by earth-worms or ground-mice or ants. It is therefore recommended in British Husbandry, as a better mode, to fix the branches upright in a frame, placed in the front part of the carriage of the roller; by which means they can be so placed as to sweep the ground effectually, and when worn can be moved a little lower down, so as to continue the work with regularity. This operation also completely breaks and scatters the manure dropped on the field by the stock, and partially incorporates it with the surface mould.

Scarifying is cutting the sod and loosening the surface. Concklin's Press Harrow is a suitable implement for this purpose. We also subjoin the drawing of an implement constructed for this purpose, which we take from British Husbandry, calculated to be drawn by a one or two horse team. [See fig. 1.]

[Fig. No. 1.]



This implement is intended to cut the sod perpendicular, so far down as to sever the roots of the grass, which occasions it to throw out fresh roots. It slices the sod, without tearing it, and should be constructed with a number of very sharp coulters, fixed into a cross beam at such distances as may be thought advisable, from six inches to a foot, and of a width according to the strength intended to be employed in drawing it. The blades should be occasionally whetted to preserve their edge, and the implement should be used when the ground is in a moderate state of moisture, and the grass short. If the land is poor or moss bound, it may be passed crosswise. It is best adapted to moist clays, which do not contain stones or gravel. It is advantageously used to precede the sowing of grass seeds. The foot wheel is to regulate the depth of the work.

Draining improves the quality of the herbage, and marling or liming increases the quantity. It is remarked, that animal dung, when dropped on coarse pastures, produces little or no benefit, but when calcareous matters have been laid upon the surface, the finer grasses soon take possession of it.

Manures are seldom applied to pasture, especially with us; but applied in the form of compost, as a top-dressing, they are serviceable. Gypsum and spent ashes may be applied with undoubted benefit in most cases.

It need hardly be added, that bushes, thistles and other perennial weeds obstruct the growth of grass, and that they ought to be carefully extirpated.

Our pasture grounds are generally left to take care of themselves; but there is no doubt but some expense bestowed upon their improvement, in some of the modes above suggested, would be profitably laid out.

OF MEADOW.

The crop being here annually carried off, it becomes a matter of necessity, if the field is to be kept permanently in grass, to apply manure occasionally, if we would prevent a diminution of product. It is affirmed, that a perfectly thick bottom cannot be maintained on permanent meadows, in England, unless it is manured every second year. Gypsum will effect much here, upon dry soils, though there its effects are equivocal; but gypsum alone will not suffice here. The average product upon our old grass lands will hardly average over a ton and a half an acre. With a biennial or triennial top-dressing of dung or compost, where the sod is in good condition, it is believed the average would be double.

Meadows are subject to all the evils that are experienced in pastures, from mosses, wetness, and the diminution of the finer grasses, besides the greater exhaustion of fertility consequent upon carrying off the annual growth; and the same measures are best adapted to renovate them. Meadows are generally depastured after the hay has been taken off, and the rowen partially grown. "After the cattle have been removed," says an English writer, "the land is *bush harrowed and rolled*." It has been stated, though some question the fairness of the experiment, that the operation of heavy rolling has been found to add six or seven hundred weight of hay per acre to the produce of the crop.*

The effect of pasturing meadows in the spring, upon the coming grass crop, has been a matter upon which farmers have differed—though all agree that heavy cattle should not be kept on so late in autumn, or put on so early in spring, as to injure the sole of the sod, by poaching it when in a wet state. Mr. Sinclair has stated, that a given space of the same quality of grass having been cut towards the end of March, and another space of equal size left uncut unthe last week in April, the produce of each having afterwards been taken at three different cuttings, that of the space last cut exceeded the former in the proportion of three to two; and in one instance during a dry summer, the last cropped space exceeded the other as nearly two to one.* It is generally conceded, that it is better to feed off rowen, than to cut it as a second crop.

Preserve your best Animals for Breeding.

The complaint is general, at least throughout the eastern states, that the stock of neat cattle has been greatly diminished within a few years, and that prices have consequently advanced to an unprecedented pitch. And it is believed to be a general fault among farmers, that they sell their best young animals to the butchers. The season has arrived when it becomes the farmer to improve his practice in these matters. He should preserve his best animals for breeding; raise more stock, if his farm will permit, and substitute improved breeds, or at all events cross upon them.

He should preserve his best individuals for breeding. For a dollar or two extra the farmer sells his best calf to the butcher; which, if kept as a breeder, would not only serve to improve his whole stock, but the individual thus sacrificed for a dollar or two, would in many cases, be worth, at the working or milking age, and with no extra expense of keep, ten, twenty, or fifty dollars more, than the poor calf rejected by the butcher, and which consequently serves as a breeder upon the farm, still further to depreciate the character of the farm stock. The farmer who breeds from poor or inferior animals, in a manner throws away capital. He who breeds only from select animals gets common interest. And he who breeds from select animals, of the choice breeds, gets compound interest. Choice working oxen, of four or five years old, of common stock, or with the Devon cross, have recently been sold for one hundred to one hundred and fifty dollars the pair. This surely affords a handsome remuneration to the breeder. There is generally a difference of about one-half, in cows and oxen, between select and inferior individuals of the common breeds.

He should raise more stock.—Many of our farmers have been "penny wise and pound foolish," in destroying calves at their birth, in order to turn a few gallons of milk into ready money, thus retarding the increase, and enhancing the value of dairy stock. Cattle are the source of fertility to the farm—dung makes fat crops, and fat crops make fat cattle. In districts remote from market, where land is cheap, the rearing of neat cattle should certainly be a profitable business. It is so upon well managed farms, in the contiguity of markets, where lands are high. It may be made still more so at remote points, where lands are comparatively low, particularly if select breeds, or select individuals, are employed as breeders. But,

He should select the breeds best adapted to his farm; and we refer to the report upon neat cattle in our extra sheet, for advice, as to the breed which *is* best adapted to his farm. Having determined upon this, let him stick to it; preserve his finest animals to propagate from; make it his business to improve, and he will soon find, that instead of ten and twelve dollars, his yearlings and two year olds will bring him twenty, fifty, and even a hundred and fifty dollars each—nay, the last summer has demonstrated, that choice animals, of improved breeds, will bring 1,500 to 2,100 dollars sometimes.

Our Agricultural Journals, continue to increase and to improve. The Genesee Farmer has been enlarged; and it has been announced that Willis Gaylord and John J. Thomas, both gentlemen of high standing as agricultural writers, are to assist in the editorial department. The Rev. Mr. Colman, very favorably known as an agricultural writer, and a practical farmer, has promised to lend all the aid to the New-England Farmer that his official duties will permit. In the mean time it will be seen, by this and our previous numbers, that several new agricultural journals have been started in the west. However individuals are likely to be affected by these arrangements, it is certain that the public will be greatly benefitted. We estimate, that every additional subscription to these journals, increases the annual products of the soil at least ten dollars; so that five hundred thousand new patrons would add five millions to our annual agricultural products. May these journals all deserve success, and all receive it.

Daubenton on Sheep.—We ask of the sheep farmer a careful perusal of this article, inserted under extracts—of the *whole* article. In this latitude, the loss in this useful animal, in winter, is often very great. If we mistake not, this article satisfactorily explains a prominent cause of the mortality, and suggests a preventive, which is, or easily may be, accessible to every keeper of a flock. The change which takes place in the quality of the food, when sheep are changed rom grass to hay, or where, from the ground being covered with snow, sheep are deprived of access to the turf, it is here pretty conclusively shown, must become a primary cause of disease, though the disease itself may not assume a formidable appearance for some time afterwards. The preventive suggested, is to give the animals, once a day, and particularly at the time of change in regimen, roots or other succulent food. So far as we have been advised, but very few sheep have died in flocks which have had a daily supply of ruta baga, or other roots. Half a peck a day, or seven pounds and a half, would constitute an abundant ration. Estimating the average product of ruta baga at 600 bushels, two acres of these roots would suffice to feed one hundred sheep about one hundred days, or during the winter months, and would in a great measure supersede the use of hay. But as the ground is not ordinarily covered with snow more than six weeks or two months, half the quantity would very much contribute to their health and thrift. The observations of Mr. Daubenton apply, with perhaps no less force, to the ox and other ruminating animals, and suggest the value of green food, during the unrelenting severities of a northern winter. As a substitute for turnips and other roots, we have no doubt that well cured corn stalks, cut and steamed, and given once a day, would answer a valuable purpose in counteracting the tendency in sheep to sickness, on a change from green to dry food. Browse, particularly the branches of resinous trees, as hemlock, spruce, pine, &c. it will be seen from the examination which is given to the subject, are also likely to prove highly beneficial; and even clay, by correcting the humors of the stomach, has undoubtedly been serviceable.

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* Derbyshire Report; vol. ii, p. 88.

† Woburn Grasses, p. 389.

Horticulture.—While agriculture supplies our absolute wants, horticulture, her sister, furnishes us with many of the innocent luxuries and delicacies of the table,—with a succession of choice fruits and vegetables, grateful to the palate, and promotive of health,—and, as coming within the products of the garden, with a succession of fragrant and beautiful flowers, eminently calculated to add to our intellectual enjoyments. The inhabitants of large towns must be dependent, in a great measure, for these rural luxuries, upon the market gardners of their neighborhood; and the quantity and quality of the supply, and even the price, will materially depend upon the encouragement which is given to the producers—and upon the competition which is induced among them. Nothing tends more to bring into market choice fruits and vegetables, at an early season and in quantities, than the emulation produced among the growers by pecuniary rewards; and where this practice has obtained, the most beneficial results have been experienced. The cities of Philadelphia and Boston have shared largely in these benefits, in consequence of the premiums which have been annually awarded by their horticultural societies. The Philadelphia society awards annually from three to four hundred dollars to gardners and florists, for articles exhibited at their monthly exhibitions; and the consequence is, a constant improvement in the quality of the garden productions, and an increase in their quantity, which go directly and materially to benefit the consumers. We saw at the Philadelphia monthly show on the 16th May, a great display of fruit, flowers and vegetables; among the latter, quantities of new potatoes, cucumbers, cauliflowers, lettuces, &c. We have referred to this subject with the view of impressing upon the citizens of towns, who depend upon the market for the productions of the garden, the patronizing horticultural societies, as the surest means of being better and more cheaply supplied.

Mixed Crop of Corn and Potatoes.—John Lorrain planted ten acres of Indian corn, in rows eight feet three inches distant, and hills with three plants at eighteen inches in the rows. Between each row he planted two rows of potatoes. The product was 430¾ bushels of corn, and 848 of potatoes, or 43 of corn and 84 of potatoes on each acre. At another time he obtained 50 bushels of shelled corn, and 150 bushels of potatoes from an acre. A gentleman has just assured us, that he made a similar experiment last summer, alternating two rows of corn, at two and a half feet, and two rows of potatoes, with very great success. This mode of culture gives to the corn the advantages of air and sun, which it requires, while the shade of the corn does not prejudice, or but partially, the growth of the potato crop.

Value of Ruta Baga.

Our neighbor Bement has kept twenty of his Berkshire hogs, mostly full grown breeders, from the first of November to the 15th of February, upon ruta baga and buckwheat bran, at the rate of six bushels of roots and one of bran per diem, fed them two raw meals a day, and one warm meal, boiled. When he began to feed with the roots, the hogs were low in flesh; at the termination of the three and a half months, they were too thrifty for breeding, and some of them fit for the butcher. He estimates that four quarts of corn to each hog per day, for the time they have been fed with the roots, would not have brought them into a better condition than they now are. What then has been to him the value of his ruta baga?

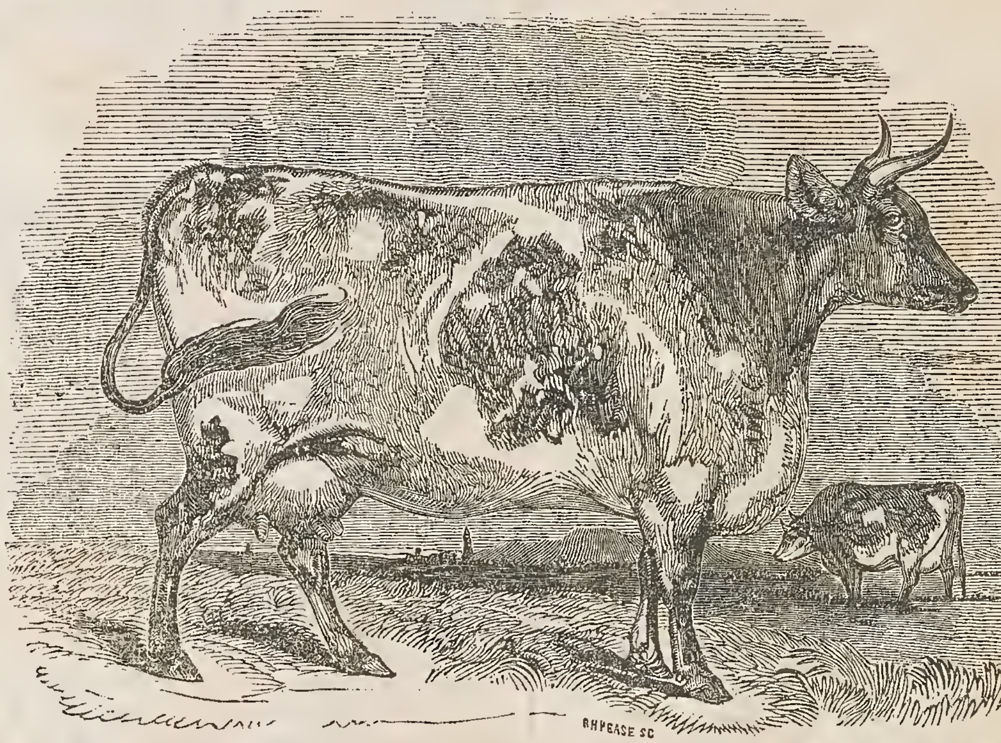
Four quarts of corn per day to each hog, would have amounted, in the 105 days, to 262 bushels, which, at 75 cents per bushel would be, ...	$196 50
Add 105 bushels buckwheat bran, at 15 cts.	17 50
And it shows that the ruta baga was worth the balance, to wit, ...	$179 00

Which, divided by 630, the number of bushels fed out, gives the value of a bushel, used in this way, at about 28½ cents. Deduct for the cost of raising, the quantity being about the average product of an acre, four cents the bushel, and it shows a nett profit of 24½ cents per bushel, or of $154.25 per acre. We call this a demonstration of the profits of root culture.

Select Breeds of Cattle.

We gave in our last volume, figures of the Improved Short Horns, of the Devons and Ayershire cattle, a bull and cow of each. We now present two other cuts, one (fig. 2,) the Yorkshire cow, and the other (fig. 3,) the Devonshire ox, which are correctly copied from the most approved British works.

[Fig. No. 2.]



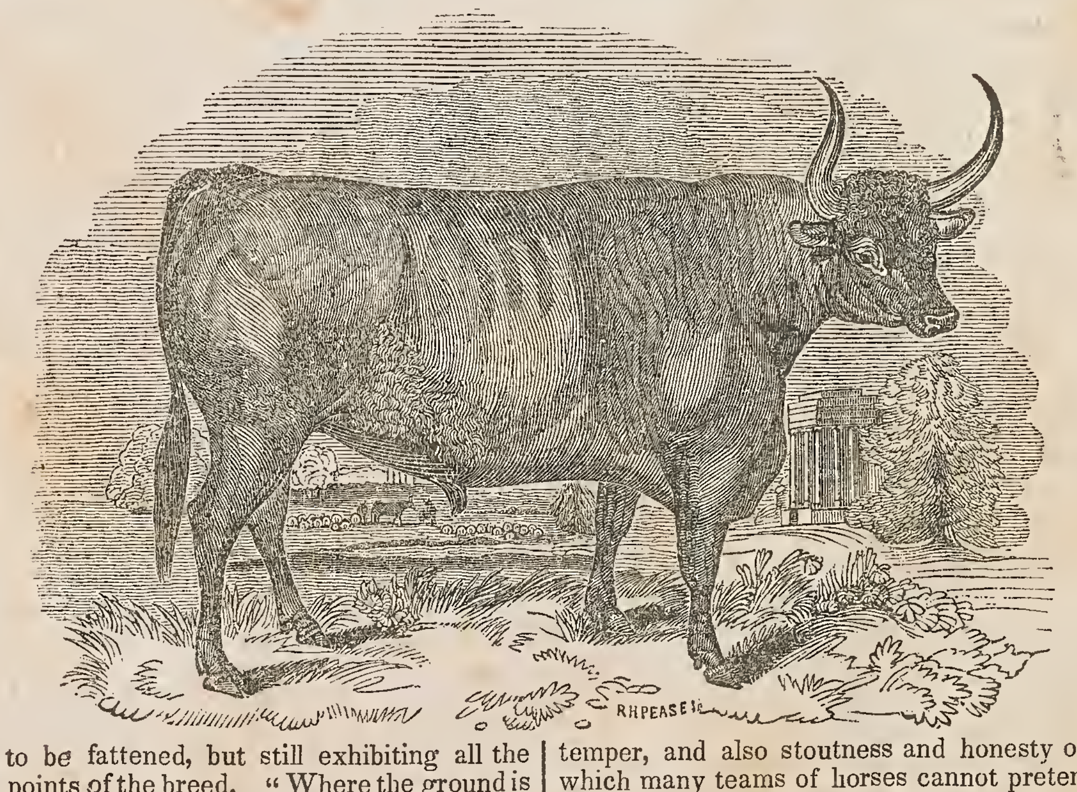
This, says the author of British Cattle, is a fair specimen of one of these cows, the character of the Holderness and Durham beautifully mingling. These constitute almost exclusively the stock of the London milkmen, and the numbers there kept to supply the metropolis with milk, amount to about nine thousand. They are celebrated alike for their milking and fattening properties. They are kept in houses, fed upon hay, turnips and brewers' grains, and milked without being suffered to go to the bull, till they no longer yield a profit on their keep, when they are dried off, and in a few weeks turned into good beef. They are said to give in some cases thirty, and even thirty-six quarts of milk per day. Loudon states the average product for the entire year at nine quarts per day—British Husbandry the average quantity given by each cow (probably when they are flush in milk only,) at twenty-two to twenty-four quarts. The good points of these cows are said to be well expressed in the following doggrel lines, from the Farmer's Magazine:—

> " She's long in her face, she's fair in her horn,
> She'll quickly get fat without cake or corn,
> She's clean in her jaws, and full in her chine,
> She's heavy in flank, and wide in her loin.
> She's broad in her ribs, and long in her rump,
> A straight and flat back, without ever a hump,
> She's wide in her hips, and calm in her eyes,
> She's fine in her shoulders, and thin in her thighs.
> She's light in the neck, and small in her tail,
> She's wide in the breast, and good at the pail,
> She's fine in her bone, and silky of skin,—
> She's a grazer's without, and a butcher's within."

Several of the Yorkshire cows have been imported into our country, on board the London and Liverpool packets, to supply milk on the voyage, though not under their proper distinctive name—having been generally classed with the Improved Short Horns. One has been upon the farm of the Messrs. Townsends, which adjoins ours on the west, and another is owned by Mr. Bloodgood, whose farm adjoins us on the east. The latter, in February last, two weeks after she had dropped her calf, gave, upon moderate feed, thirty-three quarts and a pint of milk per diem. It is desirable that this valuable breed of milkers should be better identified, and their purity preserved among us, particularly in the great dairy district embraced between lat. 40° and 45°.

We have already given a general description of the Devon cattle, and the criteria of fine animals, vol i, p. 26, 40. The figure (3) here presented is that of an ox begun to be fattened, but still exhibiting all the prominent points of the breed. " Where the ground is not heavy, the Devonshire oxen are unrivalled at the plough. They have a quickness of action which no other breed can equal, and which very few horses exceed. They have also a degree of docility and goodness of temper, and also stoutness and honesty of work, to which many teams of horses cannot pretend."—*British Husbandry.* The greatest objection to Devon oxen is, that they are not stout enough for ploughing in heavy clay; and for this reason the Hereford cattle, which are a cross of the Devon upon a larger ani-

[Fig. No. 3.]



mal, are often preferred. We consider the Devon as admirably fitted to cross, for working cattle, with some of our native breeds. The Devons were introduced into Berkshire county some dozen years ago by Col. Dwight; and at the last fair in that county we thought the working cattle surpassed any we had before seen, and we attributed their excellence in a great measure to the Devon blood which we saw strongly developed in some of the finest individuals. We unhesitatingly recommend a cross of the Devons upon our native cattle, as a certain means of improving both their working and fattening properties.

Beet Sugar.

We have received several inquiries for information in regard to the manufacture of beet sugar, particularly the household manufacture. The sugar beet has been raised in various parts of our country, but we do not learn that any advances have been made in the manufacture of beet sugar. It seems to be well settled, that the manufacture is carried on more economically and profitably in large establishments, where steam power is employed, than it can be in small, and particularly in household establishments. The best directions we have seen for the latter, are contained in the report made to the French Royal Society, translated by Dr. Spoor, and published in the last volume of the Cultivator.

In general terms, the manufacture of beet sugar may be managed like the manufacture of maple sugar, after the roots are rasped and the juice expressed. The juice is to be boiled down, the syrup clarified, or defecated, and the process finished in the same manner that should be practised with the sap of the maple. The principal difference in the two operations is, that better materials are used, and more care employed, in clarifying the beet, than is ordinarily used in the maple process. Animal charcoal may be obtained in any family, by charring common bones in an iron covered vessel, say a bake pan. Cream of lime is but another name for whitewash. These are the chief materials used in purifying the beet, which are not used in the process of clarifying maple sugar.

It will be seen by a letter from A. Dey, Esq. in the extra which accompanies this, that a new process of manufacturing beet sugar has been patented in Great Britain, which promises important advantages. We are at the same time notified, through the National Gazette, that an important discovery has recently been made in the Duchy of Baden, for the desiccation, or drying the beet root, without impairing its saccharine qualities, by which means the manufacturing process may be continued throughout the year. The saccharine matter is besides in a double state of concentration. One hundred pounds of the root (we presume in its undried state,) are said to give, under the new process, ten pounds of sugar. The process has been examined by two commissions, one of Bavaria, and the other of Wurtemburgh. After six weeks labor in the manufacture, the two bodies declared as certain the advantages announced. Several companies have been formed on the continent to profit by the improvement. Our late agricultural convention have charged a competent committee to investigate and report upon the subject of beet sugar, at their next meeting; and from the character of the gentlemen named on the committee, we anticipate an able and valuable report.

While on the subject, we will repeat, what does not appear to be generally understood, that *large roots do not yield near so much sugar, in proportion to weight, as roots that are of medium or diminutive size.* And further, a fact that we have seen demonstrated by three years' experience, after the beet has attained to maturity, which is known by the tops ceasing to grow, and the under leaves becoming shrivelled and yellow, *the roots deteriorate—the sugar is changed to potash—according to the time they are left in the ground after the plant has ceased to grow.* These remarks apply equally to the sugar beet, common beet and mangold wurtzel—whether raised for the table, for sugar, or for farm stock.

Egyptian Wheat.

This was spoken of, with the other varieties of spring wheat, in our September number, volume iv. Since that time our attention has been particularly turned to this grain, by the receipt of several parcels kindly sent us, and by repeated inquiries where the seed could be purchased, and at what price. It has also been highly commended in the news journals.

This wheat is known under the various names of *Egyptian*, *Syrian*, *Smyrna*, *many spiked*, *reed*, and *wild-goose* wheat. It derives its latter name from a story, which is current in the north, that four or five kernels, from which the American stock has proceeded, was found in the crop of a wild goose, which was shot about four years ago, on the west shore of Lake Champlain. It is called *reed* wheat from the great strength of its straw, which serves to prevent its being prostrated in the field.

The first notice we have of this species of wheat in the United States, is in the Memoirs of the Philadelphia Society for Promoting Agriculture. A parcel of it was received in 1807, by the society, from Gen. Armstrong, then our minister at Paris. This grain was grown five or six years by Judge Peters, and proved to be very productive; a pint of seed, sown in drills and hoed, giving one bushel and a peck of grain. But we find the judge saying, after three or four years' trial, that it had not "thriven so as to encourage extensive culture." In a more *southern* latitude, he expresses a belief that it would do well. It was extensively distributed; but from our not having heard more about it in the last twenty-six years, we believed it had not proved a valuable accession to our husbandry.

We have seen beautiful fields of this wheat. We sowed a sample specimen two years ago, but on being assured by a friend that it was inferior for flour, we gave it up. In the Philadelphia edition of the Domestic Encyclopædia, printed in 1821, we find it stated, that this kind of grain does not yield so much flour or meal as any of the other kinds of wheat, and that "the flour is scarcely superior to that obtained from the finest barley."

Having said thus much, which we felt bound to say in the line of duty, as to the character and introduction of this grain into our country—it remains only for us to add, that the seed may be procured of *our* friend Mr. Thorburn, at *five* dollars a bushel.

Harrowing Grain.—This is the proper season to call the attention of farmers to this subject, as the operation should be performed as soon as the ground is sufficiently settled to bear the cattle. We have published several articles, showing the manifest utility of spring harrowing winter grain, and explaining the why and the wherefore. The harrow should be light, and if the teeth are long, it is well to intertwine a few branches of pine or other wood among them, to prevent them cutting too deep. The operation closes the fissures caused by the earth contracting as it does, pulverizes and opens the surface to the genial influence of heat and moisture, and, by covering the crowns of the plants, causes them to tiller more abundantly. We advise, that *in every case*, eight or ten pounds of clover seed be sown to the acre before the harrow is introduced. It will more than repay the expense of seed, in the fertility it imparts to the soil, to say nothing of the value of the herbage for farm stock.

Trimming Hedges.—Anderson, who is good authority in agricultural matters, makes this an essential rule in clipping hedges: *not to cut the top of the* STEM, *until it has acquired sufficient stability to resist even a bull.* The sides are of course to be clipped, in a sloping direction, so as to give the hedge a conical form.

Meteorological.—The mean temperature at Albany, from Dec. 26, 1837, to January 24, 1838, was 32°, 96′. During the same period in 1836–7, the mean temperature was 14°, 96′,—showing the remarkable difference of 18 degrees in the temperature of the seasons. On referring to the meteorological tables for the eleven years previous to 1837, it appears that the mean temperature of 1836 was about two degrees colder than that of any of the other eleven years, and eight degrees colder than the mean average of the whole period. We have not seen noted the mean temperature of 1837, but it was probably lower, some two or three degrees, than even that of 1836; or this at least must have been the case during the summer months, as many garden productions, as melons, egg-plants, grapes, &c. were more backward in ripening, and even indigenous seeds, as the butternut, walnut, three thorned locust, &c. did not attain to that maturity which they reached in 1836. On consulting the meteorological tables for past years, there appears much to warrant the opinion, that we have had a succession of cold, and afterwards of comparatively warm seasons. We had a succession of cold seasons subsequent to the great solar eclipse in 1806; another succession of them in 1816 and the following years; and the last few years have been progressively growing colder up to the present period. Whether the present mild winter is indicative of a favorable change, we do not pretend to conjecture. We give below the mean temperature of the last eleven years, as copied from the Academic Report of 1836:

1826 ..	51.07	1830 ..	50.65	1834 ..	48.53
1827 ..	48.62	1831 ..	49.15	1835 ..	46.17
1828 ..	51.36	1532 ..	48.10	1836 ..	44.73
1829 ..	48.20	1833 ..	47.62		

The conversion of Winter into Spring Wheat is effected in this way: When sown in the spring, winter wheat is said to send up only a comparatively few seed stocks, the lateral shoots will be weak, and the crop consequently light. If the seed from this, however, be sown the next spring, it will throw out stronger stems, will tiller with more luxuriance, and, if the operation be repeated in the following year, it will then be found converted into summer wheat.

A sample of the products of the New Husbandry.—"In the year 1810," says the late John Lorrain, in his System of Husbandry, "besides soiling forty head of cattle and seven horses, the following products were obtained from eighty-five acres of land, to wit:

1750 bushels of potatoes.
817 do. Indian corn.
222½ do. barley.
60 tons of hay.
1391 loads of manure, of 32 cubic feet each.

The manure, however, was the product of winter as well as summer feeding. The above product, without enumerating the value of the dung, was estimated at 2,799 dollars"—p. 312—equal to an average product, lacking a fraction, of $33 the acre.

Dutton Corn.—There is nothing good and commendable but what has its counterfeit; and we regret to notice, that some late agricultural writers would not only make us answerable for the faults of the counterfeit, but responsible for the impositions which have been practised upon Mr. Thorburn, our worthy seedsman. Having cultivated the Dutton corn eighteen years, *without having it once materially injured by frost*, we ventured to recommend it as an excellent and *early* field variety for our latitude—but not as the *earliest* variety of corn. But it seems our neighbor Thorburn has sold seed, as Dutton corn, which was not early. It is proper to say, that *our* seed forms but a small portion of what Mr. Thorburn sells—and is generally off his hands early in January. Mr. Wm. Thorburn has been imposed upon, and has bought and sold seed, as Dutton corn, which was not such—and which he afterwards ascertained either did not grow, or did not ripen early. We have nothing further to offer in support of our opinion in regard to this variety of corn, than the numerous testimonials in its favor from our correspondents, published in the volumes of the Cultivator.

Baden Corn.—To those who have applied to us for *Baden Corn*, we remark, that the seed is not to be had in this neighborhood, and probably not north of Philadelphia or Baltimore. We cultivated a few hills, but it lacked some weeks of coming to maturity when the frost killed it. It will not ripen, we think, in New-York.

Texian Corn.—We have received samples of this from Harrisburgh and from North Carolina. Each kernel is enveloped in a husk—the grain is handsome, but light. We have tried it. It will not ripen in our climate.

Deterioration of Soil.

Our misfortune has been, and still is, we do not properly appreciate the exhausting influence of our system of husbandry upon the fertility of our soil. There are many in the fertile west who affect to believe, that their lands will bear constant cropping with wheat, or wheat and clover alternately, and who hence disregard their manures, the primary source of fertility.—The pioneers in the valleys of the Hudson and Mohawk once, no doubt, thought the same, and acted, or practised upon this belief, till made sensible of their error by the contrast in the products of old and new lands. Although many have now become sensible of the ruinous effects of the old system, but few, as yet, have commenced the needed reform.

In regard to West New-York, where we admit the soil is naturally more fertile, and more abiding in fertility, than the lands originally were in the eastern part of the state, we have pretty good evidence that the fertilty is diminishing, especially where wheat is made the continued object of culture. Thomas Burrall, Esq. has a most excellent wheat farm in the neighborhood of Geneva, which he began to clear and improve twenty-one or twenty-two years ago, and on which he has made and applied much manure. Mr. Burrall informed us, in the summer of 1836, that he had noted down the average product of his wheat crop every year; that dividing the 20 years into three periods, he found that his wheat had averaged 29 bushels per acre during the first of these periods, 25 bushels the acre during the second, and but 20 bushels the acre during the third period—[illegible] showing a diminished fertility of nearly one-third, under what may there be denominated a good system of husbandry.—We do not precisely know what Mr. Burrall's practice has been; but we presume that if it has been faulty, the fault has consisted in making wheat the great and primary object of culture, thereby impairing the amount of its specific food; and that a remedy for the evil would be found, in cultivating other crops more, and wheat less. At all events, his experience admonishes wheat growers, that their lands will deteriorate, if they return this grain too often to the same field.

Judge Cowen's Report,

On the propriety of introducing elementary books upon agriculture into common schools, made in pursuance of a resolution passed in the agricultural convention.

The committee to whom it was referred to consider the propriety of introducing books which treat on agriculture into district schools, respectfully report,

That so far as reading lessons on agriculture can be properly introduced into common schools, your committee are not aware that the books now used there are deficient. Such schools are not the places for learning the practical details of any business or profession. The utmost that can be done is by short, easy and interesting lessons to create an appetite for and a skill in general reading. School books in that line should therefore be of a miscellaneous character, having reference in a degree to the virtues which pertain to the agriculturist in common with others; industry, frugality, integrity, &c. If they be deficient in any respect, it is perhaps in not inculcating sufficiently at large the peculiar advantages enjoyed by the farmer. Beside mastering his appropriate reading lessons, the scholar is put to his geography, history, &c.; and these, when added to his spelling, writing, grammar and arithmetic compose about the sum of learning which the common farmer ordinarily can bestow upon his son consistently with the diligent pursuit of his business; and a thorough knowledge of these rudiments is about all which the son can acquire. Even this must be done in those intervals which can be allowed from the service of his father; and he is then left till he reaches full age, and for the remainder of his active life, to his own efforts for improvement upon the foundation thus laid.

He has already acquired a knowledge of the essential branches of his profession while laboring for and under the tuition of his father; and, in the usual course of things, will make a competent, perhaps a good farmer in the ordinary acceptation of the word. To make him more, it is at this stage, we apprehend, that agricultural books should be put into his hands. He now, in an educational point of view, has two objects before him. His primary object is that course of instruction which will make his profession available to its utmost extent in bettering his fortune; his secondary is that more general improvement of the mind which is to fix his intellectual rank among his fellow-citizens. The latter is of course left to his taste, his means and his leisure. But the former is a mean by which this common farmer ought to be enabled, in the course of a few years, to double his capital and the nett profits of his business by the additional knowledge which he brings into it, without adding a single acre to his domain. We assume that all this is feasible, even supposing him to be placed where a majority of our agricultural population now stand, on a farm exhausted of its primitive fertility. The history of agriculture will here teach him that soils naturally worse and more reduced by neglect, in a climate less favorable than his own, and in countries borne down by rent and taxes, have, by the application of that very skill which, by due attention, he can easily acquire and apply in his turn, been raised to greater strength than his own land possessed when first reclaimed from the forest, and put under cultivation, with all the vigor of its vegetable mould. Being capable of reading and understanding so much, and of studying and finally mastering the details by which such a result has been accomplished, and being, moreover, stimulated by considerations of personal gain, he will successfully aim at a similar result in his own case, if the requisite means of instruction be placed within his reach.

Such a great desideratum in the most important branch of national industry, never has been and never can be placed below the anxious notice of an enlightened legislature; and their refusal to act can be accounted for only by doubts concerning the means which are proper for promoting it. State and county agricultural societies have heretofore been formed, and are again proposed by some; by others an agricultural college, to be connected with a pattern farm. We have witnessed the operation of the former on an extensive scale and under vigorous legislative patronage. Although they proved to be useful in a high degree, yet many complained that the promised results would by no means warrant the continuing on foot such a cumbrous, troublesome and expensive machinery. The effect of the latter has not yet been seen. It is not to be denied that it may do well in what would be called the higher walks of agriculture; and in time extend its influence to the rank and file of the profession. But the whole army should be disciplined by the speediest methods. It is on an extended scale only that agricultural skill can be felt as a national benefit; and it is feared by many that its diffusion through such a medium as a college must be indirect, slow and perhaps, after all, stop short with but a small portion of community.

It appears to your committee that we should, therefore, as far as possible, avail ourselves of what may not improperly be called a *common school of agriculture.*—This may, as we believe, be done by placing more within reach of our intelligent yeomanry such books as insinuate agricultural instruction in a plain and practical way. We cannot doubt that such a method would be decidedly effectual with all that class of young men, already very numerous, who have been educated in the manner we have before mentioned. We may assume that their course of life has formed them to habits of application and disciplined them in the manipulations of farm-labor; and though, so far, trained in some respects on an imperfect plan, their minds are not yet shackled by prejudice in favor of a slovenly and negligent system. They have at home the advantage of theory and practice, of an intimate connection between reading and action, the acquisition of book knowledge and the means of applying it in their own business. In short, the family of such a man, his own fire side is his school of study, and his farm a laboratory where his learning not only may be instantly applied but turned to account.

Such is the only true system of instruction in other professions. A distinction is carefully kept up between the preparatory and professional education of the student. In the latter it is deemed essential that he should be put to practical details as well as reading; and his progress is very commonly measured by the diligence of his application, entirely independent of the character of his instructor. Give him the stimulant of necessity, his books and his field of exertion, and he will be sure to make good progress under the most careless tutor. He is put into a vigorous course of *self-education.*

Something much like this is already apparent among us, with those who may be called students in the profession of agriculture. A spirit of inquiry has been aroused, and evidences of improvement have, within a few years, presented themselves, more striking in character and aggregate than could be collected in the history of many years before. It is true these evidences are yet but sparsely exhibited; and it is to be lamented that they are far from being numerous enough to countervail the delusive encouragement heretofore holden out to the more splendid but less useful branches of industry.—The fact, however, presents itself; and your committee feel at no loss in attributing it to the more extended introduction of agricultural books among a reading community. The more conspicuous instances are obviously connected with the recent establishment of a periodical paper called the *Cultivator* at the city of Albany. This paper has been remarkable for its steady series of well selected lessons, with various information on the subject of agriculture, imparted in a plain and familiar style, and withal for so moderate a price as to be accessible like a common school book. Up to the time of its appearance, so low was the state of agricultural knowledge, that a great portion of the old and long cultivated parts of the state were surrendered in the minds of the proprietors, to a course of hopeless deterioration. Such gloomy prospects have been dissipated, confidence has succeeded to despondency, and has acquired steadiness mainly by carrying into practice the suggestions derived from the *Cultivator*. The Genesee Farmer, also, a paper conducted on similar principles, but with a more particular view to the western part of the state, has exercised a like influence within the sphere of its circulation.—The able conductors of these papers have eviscerated from numerous and ponderous volumes, such portions of instruction as they believed would best subserve the wants of our general farming population, and sent them forth modified by their own local experience and information, and divested as far as possible of every thing technical or obscure. They have placed the professorial chair in the farm-house. Their success has added to the number of instances, in which, since discovering the art of printing, the practice of assembling in organized classes for the purpose of acquiring knowledge, may be dispensed with. Ten thousand eyes can now be simultaneously turned to almost any branch of instruction, more easily, cheaply, and with greater effect than one hundred could before. The wealthy farmer can avail himself of a full library, both European and American. But the ingenious purveyor of the periodical press has, we think, demonstrated, that, if his system be properly followed out, the distinction between the greatest and the most humble means may, in this respect, be nearly annihilated. To resume the figure we before used; the power of this press can be made most rapidly available in arousing the *esprit du corps,* in contributing the material, and perfecting the discipline of our whole agricultural force.

Your committee have adverted to the two papers mentioned, because to us at least they present the most striking instances in favor of the proposition we mean to submit. It is no slight evidence that by individual means of this kind, a good school is already established. We see from what has been done that it has taken the most appropriate form; and the inference is not less certain than it is gratifying, that such an effort properly encouraged, will eventually bring up the energies of our farming population to a par with what may be seen in the best cultivated regions of Europe. The object should be here as it has been there, to add to the intellectual power of the common farmer, and direct it into the line of his profession. The inductive philosophy of agriculture should be snatched from its hiding places and presented at the door of the cottage.

While, therefore, your committee disapprove the introduction of books on agriculture into common schools for children, they have not thought it impertinent to distinguish the circumstances under which, in their opinion, such books may and should be used. And they would suggest whether, among the various plans for agricultural improvement which have been submitted as worthy of legislative encouragement, the multiplication of such useful publications as have been found to answer the wants of our yeomanry, does not present high pretensions. Notwithstanding their present circulation, (and the committee are rejoiced to believe a circulation which not only has fully indemnified the proprietors, but will continue to do so) there are doubtless yet many parts of the state where they have not been introduced. One method of supplying the defect would be by new editions to be put in the market at a moderate price; or a copy might be placed at the expense of the state, with the clerk of each school district, to be open at his discretion for perusal by his constituents. Various other and perhaps better systems of distribution may occur should legislative attention be thought due to the subject.

Respectfully, E. COWEN.

The Mulberry and Silk Culture.

We call the attention of our northern readers, who are disposed to embark in the silk business, to the plan of rearing the Mulberry, practised by a correspondent in Michigan, as mentioned in a former number of the Cultivator, viz: to cultivate them in stools, and not as trees. To do this, seedlings of a years growth are chosen. The whole ground is ploughed; the plants are laid in the furrow, in a sloping direction, so that the top of the stem shall, after a furrow has been turned upon the plants, project a little above the surface. The plants may be laid in rows at six to nine feet apart, and like intervals between the rows. Nearly every bud will grow and become a shoot; and consequently there will be stools of several stocks instead of a single stem. The advantages of this mode of culture are,

1. The leaves are more readily gathered than from trees;
2. There will be more and larger leaves, because the system of roots will be larger in a stool than in a single tree, and the growth consequently more vigorous;
3. More leaves will be obtained from the same area of surface; And
4. And principally, if the winter kills the tops, wholly or partially, the dead parts can be easily cut away, and a new and vigorous growth ensues—because the roots are seldom injured if planted on dry ground. In case the tops are killed, it will only be necessary to retard somewhat the hatching of the eggs, till the growth of the new sprouts is somewhat advanced.

In this way it is probable the multicaulis may be rendered useful in the northern counties, or they may be cut down in the fall, and the stumps covered with litter or earth. In the mean time we would recommend more attention to the culture of our native red mulberry, which is hardy. The fruits ripen in midsummer, when they may be easily saved for seed.

Proceedings of Agricultural Societies.—We have received the proceedings of several societies, and anniversary addresses, for publication. All of these possess a local, and many of them a general interest.—But it will be perceived, that as the Cultivator has a national circulation, were the practice of publishing these proceedings gone into, all might claim an equal participation in our columns, and at particular seasons would entirely engross them, to the exclusion of other matter, of more general interest. We hope these considerations will serve as a sufficient apology for what might otherwise be considered in us a want of courtesy. There are probably fifty or sixty societies who would have an equal claim to our columns; and as we cannot gratify all, we are compelled to deny all, except so far, as in our judgment, these proceedings possess pre-eminent merits.

The ruta baga crop possesses an advantage over other root crops, not only in the shorter time it is upon the ground and requires nursing, but from the greater facility with which it is harvested. Mr. Hollis, of Butternuts, pulled and topped 214 bushels in three hours and fourteen minutes. It will require at least eleven days for a man to harvest this quantity of potatoes. The mode of proceeding was, to draw a turnip with each hand, and lay them in rows, the roots to the drills; and then return upon the next row, in the same way, thus bringing the tops of both rows together. In topping, the tail of the root was slightly raised with the left hand, while with the right, armed with a heavy knife, the top was severed with a blow.

Carrots.—We are gratified to learn, that the field culture of this root is rapidly increasing, and that several farmers are successfully feeding them to fattening animals.

Oat Pasture.—We find in the second volume of the Transactions of the Philadelphia Agricultural Society, an interesting communication from William Young, of Delaware, describing the mode which he had successfully adopted, of renovating lands, which had become so exhausted as to be "incapable of producing any crop." This was effected by "ploughing and sowing, for the purpose of producing pasture, and an accumulation of vegetable soil." For this purpose wheat, rye, Indian corn, buckwheat and oats were severally tried, and the latter adopted as the best. The soil was a cold heavy clay. His practice was to sow oats as early as possible in the spring, upon land ploughed in the fall, or in fields which were in pasture or oats the preceding autumn. These afforded early feed, and were fed till July or August, when the ground was reploughed, and again sown with oats; and these last afforded pasture from early Sept. to Dec. Fertility was so far induced by this practice, that clover could be grown the second or third year. And when once in luxuriant clover, says Mr. Young, "there is no farmer at a loss how to make his fields as rich as he pleases; and having got them into good heart, *it will be his interest to put them in such rotation as shall increase the vegetable soil, and consequent fertility of his fields.*" We beg the reader here to remark, that the great object of this excellent manager was, to make his fields grow clover—this attained, he considered further improvement easy. How much easier is it, to *prevent*, than to *cure*, barrenness? There is much land in the Atlantic states, however, so exhausted by bad husbandry, as to be incapable of growing clover. Mr. Young points out a mode by which it can be reclaimed, in a practice of some years; and on fields where no crop would grow, he, by his mode of management, maintained a dairy, fattened beef, and produced good crops, without the aid of any extraneous manures. Mr. Young's letter will be found at p. p. 187 to 199. Those who would profit by his example, should consult his whole practice. Dr. Mease bears testimony to the correctness of Mr. Young's statements, having visited his farm in 1806 and 1808.

Sheep-killing dogs.—"A young dog, having wantonly bitten and mangled a large lamb, so that it died, was muzzled by one of my servants, and tied to the dead lamb, for a day and a night, and severely beaten. He was entirely cured of his propensity for chasing sheep, and would never afterwards approach them."—*Judge Peters.*

The Veterinary Art.

We have been favored with an essay on the veterinary art, by P. A. Brown, L. L. D., of Easton College, Pa., "setting forth its great usefulness, giving an account of the veterinary colleges in France and England, and exhibiting the facility and utility of instituting similar schools in the United States," &c.

As it is not generally known what is implied by the term veterinary art, we make the following quotation from Dr. Brown's essay by way of explanation.

"The word SCIENCE, in its most comprehensive sense, means *knowledge;*—in its general acceptation it is "knowledge reduced to a system;' that is to say, arranged in regular order, so that it can be conveniently taught,—easily remembered,—and readily applied to useful purposes.

"An ART is the application of knowledge to some practicable end,—to answer some ornamental or useful purpose. The arts are divided into the *fine** and the *useful.*

"If the knowledge be merely accumulative experience, the art is called empirical; but if the knowledge is experience, guided by reason,—based upon general principles,—and brought under their control, it is a *scientific art.*

"Veterinary comprehends a knowledge of the external form, as well as the internal structure and economy of domestic quadrupeds, the appropriate management of them, and the nature, causes and cure of their diseases.

"The VETERINARY is "a SCIENTIFIC ART" in the strictest sense of the term. It invites its votaries to the following studies, viz:—

"1st. The different *species*, and various *races*, of domestic animals;—their different *breeds;*—the uses to which each breed is applicable;—the useful crossings of breeds; and the most economical and best methods of *producing*, *raising* and *feeding* each class and breed.

"2nd. The *breaking*, *educating*, *training*, and *fattening* certain domestic animals.

"3rd. *Commercial jurisprudence*, as regards domestic animals; including the uses to which can be applied, to the best advantage, their *flesh*, *hides*, *offal of their hides*, *tallow*, *hair*, *wool*, *horns*, *teeth*, *hoofs*, *entrails*, *blood* and *bones*.

"4th. The study of the *outward forms* of domestic animals, pointing out their *beauties*, marks of *strength* and *speed*, and their *defects;* together with the methods of ascertaining their *ages*.

"5th. The *internal structure* of domestic animals; their *anatomy;* their *comparative anatomy;* and the most humane and economical methods of making use of their *speed* and *strength*.

"6th. The various *foods* used for the nourishment of different domestic animals;—the different methods of *raising*, *curing* and *preserving* them with the greatest economy, and in the greatest abundance.

"7th. The various *medicines* required for domestic animals;—the most approved methods of *raising*, *curing*, and *preserving* those that are *botanical;*—a general knowledge of those that are *mineralogical;* together with the manner of *mixing*, *preparing* and *administering* both those that are botanical and those that are mineralogical.

"8th. The most effectual methods of *preserving* domestic animals from *contracting diseases;* and the most approved means of *curing* those that contract diseases; together with methods used to prevent *contagion* and *infection* among them.

"9th. The most approved plans for preserving domestic animals from *accidents* and *injuries*, and the performance of all kinds of *surgical operations* upon those that require them.

"10th. The most approved methods of *shoeing* certain domestic animals; either generally, or when diseased or lame."

Such are among the important and useful studies which would be taught in an agricultural school.—Those which appertain to mechanics, in the construction and application of farm implements;—to tillage, embracing the economy of manures, the adaptation of crops to particular soils—alternation of crops and root culture;—and to the department of horticulture, embracing the useful and the ornamental—fruits, or vegetables and flowers—their propagation, culture and preservation—all these, we say, would form branches of instruction in rural affairs, of perhaps as great importance to the individual and the community, as those that have been recapitulated as belonging to the veterinary art.

In giving an account of the Veterinary colleges in France and Great Britain, Prof. Brown has omitted to notice the eminent school in Edinburgh, under Prof. Dick. There are three veterinary colleges in France, at Lyons, Altfort and Toulouse. That at Altfort has 300 students, six professors, costs the government about 124,000 francs, about $22,000, per annum, including the interest on the capital of 100,000 francs, invested in the farm and buildings. The school yields an income to the government, in return, of 198,000 francs. This school is furnished with a library, of three or four thousand volumes, principally veterinary, agricultural and natural history; a very extensive gallery of anatomical preparations; an hospital for the reception of sick animals, and for practical instruction; a botanic garden, in which there are upwards of 800 species of plants scientifically arranged, and a farm, large enough to instruct the students, practically, in the culture of all the plants employed in the nourishment of domestic animals, as well as all those used as their medicines. This abstract will serve to give some idea of the wise provisions made by monarchical governments to improve the condition of their agriculture. We gave in our last another evidence, in the policy adopted by the Great Frederick of Prussia, who annually expended upon agricultural improvements more than a million of dollars, and which he considered as "manure spread upon the ground," and which did not fail to make him a liberal return. Will republics be the last to appreciate the value of these stimulants to agricultural labor, and the last to apply them? We are already seriously suffering from this neglect, by being obliged to import bread-stuffs from Europe to subsist our population.

Prof. Brown, closes his essay with an estimate of the expense of establishing a Veterinary college in the United States, and a proposition to make such an establishment. He estimates the cost at $47,500, viz. 125 acres of land, at $100, making $12,500, buildings $30,000, and library and apparatus $5,000. He proposes to raise $50,000 by subscription, in shares of $50 each, and to extend certain privileges to subscribers.

Dr. Ives on Horticulture.

We have received a pamphlet, entitled, "Extracts from an address delivered by Prof. Eli Ives, before the New-Haven Horticultural society, Oct. 1837," embracing a list of the premiums awarded at the annual exhibition, and a list of the officers and members of the society.

It is highly gratifying to see the men of the schools honoring rural labor, by studying to enlighten, to encourage, and improve its condition, and to see them dignifying these pursuits by adding example to precept. We may say, in the spirit of Cicero, when eulogizing Socrates—these men bring down science to our wants, domesticate it in our dwellings, in our gardens and on our farms—ruralize it, and render it more familiar, more useful in common life, and more in the reach of common capacities.

The following extracts will serve to show, that the professor justly appreciates the benefits, to the mind as well as to the body and the appetite, of horticultural pursuits.

"GENERAL REMARKS.

"Horticulture, in its simplest form, treats of the improvement of the qualities of vegetables, flowers and fruits; or, in other words, it is the art which comprehends the various methods of producing all sorts of fruits, vegetables, roots, herbs and plants, for the support and luxury of mankind. It is the most perfect and productive mode of cultivation, confined, comparatively, within narrow limits. In its higher departments, it assumes the character of the elegant arts, and teaches the disposition of grounds and gardens."

"MORAL TENDENCY OF HORTICULTURE.

"The practice of horticulture has a happy influence on the morals of the community. The contemplation of whatever is beautiful serves to refine the taste and elevate the mind. The beauties of the fine arts, painting and sculpture, may find a substitute in the forms of vegetable life not less curious or beautiful. The beauties of the garden are within the reach of the great mass of the population.

"It becomes the philosopher, the politician, the moralist; indeed it is incumbent on all classes of society to encourage gardening in our republican country. Every community must have its amusements;—those of a moral tendency should be preferred. The objection on the score of morals, brought against some of the amusements of large cities, cannot be urged against horticulture. It is believed that a public exhibition of fruits and flowers every month, in those parts of the year which are favorable, would have a good moral tendency, and excite emulation among the cultivators, and would be accompanied by a very trifling expense, if a general interest were once excited."

After remarking on the history and objects of the society, and citing instances of horticultural taste and industry in eminent men, Professor Ives gives the following illustrious example, in the late President Dwight, of Yale College.

"He had the largest garden, the best culinary plants, and the finest fruits in the city, and all cultivated by his own hands. This fact will excite surprise, when it is recollected that he delivered a lecture to his class six days in a week—performed the duties of Professor of Divinity, and superintended the government of the college. He was the first in this city who cultivated the strawberry extensively and successfully. He demonstrated that an abundance of delicious fruit might be cultivated at a very little expense. He was a minute and accurate observer of the habits and laws of vegetables, and delighted in conversation to give or receive instruction in horticulture. He infused into his conversation, music and poetry, and was listened to with delight, even when his theme was the cultivation of cabbages. He taught that the proper time to prune fruit trees, *was in June*, when the plant was in the most rapid growth; and the reason was, that the wound will heal most readily at that season. Dr. Dwight, was enabled to perform so much and so various mental labors, by invigorating his constitution by exercise in the open air. No one felt more strongly the sentiment of the poet—

> "The idler is a watch that wants both hands,
> As useless when it goes as when it stands.
> Want of occupation is not rest;
> A mind unoccupied is a mind distressed."

Mention is made of Gov. Edwards having reared more than forty seedling pears, all of which may be denominated rich, and some of them very delicious. Reference is then made to Dr. Van Mons, and his theory and practice, in the paragraph we here quote.

"Slow and uncertain is the advancement of every science and art, unless aided by principles founded on inductive reasoning. This assertion is verified by the discoveries of Prof. Van Mons, in relation to the causes of the varieties of fruits and flowers. He commenced planting in a garden in Brussels, seeds of roses and other shrubs;—planting successive generations with a view to observe the variations. Afterwards he began with the seeds and stones of fruit. By means of a series of experiments with the seeds of flowers and fruit, he arrived at the following conclusions: so long as plants remain in their natural situation, they do not change, and their seeds always produce the same, but by changing their climate or territory, they commence varying from their natural state, and never return to it, but are removed still farther by every successive generation. It is not so much the effect of climate as of cultivation. In a state of nature, seeds do not improve or degenerate; but he remarks that the seeds of old trees produce trees more like the original or wild plant, than seeds from a young tree. Hence he recommends to plant the first seeds of a new variety, whether fruit trees or flower, if it intended to improve a variety. Another important fact for the cultivator of fruit is this; that the seeds of the fruit of young seedlings will produce trees which will bear fruit much earlier than the seeds obtained by planting the seeds of old trees. He also gives directions by which to discriminate those plants which may be expected to produce good fruit, from those which will produce bad or inferior fruit. The improvement in the quality of the fruit is at the expense of the life of the tree: Those trees which produce the most delicate fruit are short lived. The seedling pear trees of Professor Van Mons, of the eighth generation, bore pears at the age of four years. Double flowers he does not consider a variety, but rather a sign of feebleness. An augmentation of any part of the flower, is accompanied by a paucity of fruit.

"For almost half a century he has been pursuing his labors, disseminating new and healthful varieties. He remarks, that his intention has not been to establish a science, but to do a good act, which would be useful by the dissemination of good fruit."

Dr. Van Mons is entitled to the credit of not only doing good acts himself, but of causing good acts to be done by others. He has not only produced and disseminated many new and choice varieties of fruit, particularly of the pear, but he has awakened the zeal of others, who have been successful in obtaining like results. Among the new pears of high repute, produced by Van Mons, most of which are now growing, and many of them have fruited in the United States, we may enumerate the Beurre Diel, which is in eating from November to January; the Napoleon, at maturity in November; Maria Louisa, ripening in October, besides many others of proved excellence. The *good* varieties which Van Mons has produced it is said amount to three or four hundred.

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*The fine arts are architecture, painting, sculpture and engraving.

Highland Agricultural Society of Scotland.—Some unknown friend has kindly sent us the Scotsman, printed at Edinburgh, several columns of which are occupied with an account of the meeting of this society at Dumfries. There were more than two hundred cattle entered for premium, of the Galloway, Short Horn, Ayreshire, and other breeds; more than 500 sheep, besides horses, swine and other domestic animals; many new implements, seeds, grains, roots, &c. The Messrs. Lawsons, who have one of the best arranged seed establishments any where to be found, and who have been justly commended for their zeal and taste in getting up an agricultural museum, exhibited several new seeds of wheat, barley, oats, &c., which promise to be an acquisition to husbandry; they also exhibited the Rohan potato. But what strikes us as particularly characteristic of Scotland, is the interest which the leading men of the nation—the nobility, clergy and men of fortune—take in these associations, and the encouragement they impart to them by personal attendance at their meetings, as well as by pecuniary contributions. And we observe, that on this occasion, many gentlemen, of distinguished agricultural repute, attended from England, Ireland, and a deputation from an agricultural society in France.

Two experiments were made by Hart Massy, Esq. of Watertown, Jeff. last spring, according to the Watertown Standard, one in his corn field, and the other in his orchard, which produced uncommon results.—He planted five rows in his corn field with seed soaked in a solution of salt petre,—and the product of these five rows was greater than the product of 25 like rows along side, similarly treated in all respects save in preparing the seed. The steeped corn was not touched by the worm, while the rest of the crop was nearly destroyed by them. We have been in the habit of dissolving salt petre in our steep for seed corn, for many years; but as we have steeped it *all*, we are not able to judge of its *comparative* advantages.—Great benefit has been ascribed to nitre, in the preparation of seed wheat as well as corn, in communications from Robert Johnson and Dr. Graham, formerly senators, to the old society of agriculture, &c.

Mr. Massy's other experiment was to scatter plaster upon the blossoms of an apple tree, which had been shy in bearing—and had never given over two bushels of fruit. The tree bore almost twenty bushels, presumed to be caused principally by the gypsum. The fecundation of the fruit blossom is effected by the pollen of the male organ coming in contact with the female organ. Whatever prevents this contact, as strong winds or heavy rains, renders the blossoms abortive. The female organ in this case, could not have been rendered fertile by the mere contact of the plaster; but this might have operated beneficially, by adhering either to the pollen, and thereby rendering it less liable to be blown or washed away; or to the stigma of the female organ, and causing the pollen to adhere, when it chanced to fall upon it.

Vetches.—Vetches, sometimes called tares, are extensively used in England as a green crop, to be cut and fed green, like luzern and clover, to working and other cattle. They are of two kinds, winter vetches, sown in autumn, and cut in the spring, and summer vetches, sown in the spring, and cut at mid-summer, in time to sow the ground with winter wheat or rye. The late Chancellor Livingston made experiments in cultivating them as a fallow crop, in 1794, and the result is recorded in the memoirs of the old society.—Sown upon a light loam in May, and plastered, they produced a good crop. They were cut when in bloom, in August, and cured like hay. The product was about 25 cwt. Three bushels were sown upon a slaty gravel and plastered. These were intended for seed; but continued to grow, while the seed at the bottom was moulding and wasting; they were five feet long in October, but only three pecks of seed was obtained. The summer vetch has been tried in this neighborhood. It gave a great product in vines, but very little seed. Cattle are fond of them; and if the seed could be readily procured from abroad, they might no doubt be profitably cultivated, on a small scale, for working cattle or milch cows, particularly in the vicinity of large towns, where pasture is scarce.

Cuttings and Grafts, intended for propagation this spring, should be made before the buds begin to swell. They may be preserved in the cellar, or buried in the ground till wanted. Cuttings of the grape, currant, gooseberry, quince, &c. should be cut square and smooth, at a joint or bud, and the former should, if convenient, embrace half an inch of old wood, that is, wood two years old. Four eyes are enough to a cutting, of well ripened wood; and all the buds save the upper one, may be inserted under the surface; and in the grape the upper bud may be slightly covered with loose earth. All cuttings strike best in a sandy soil, which is not wet; and where sand does not exist, it is well to throw a handful into the hole where it is designed to place a cutting. See pages 6 and 138 last volume.

Correspondence Condensed, &c.

We are obliged, from the number of communications on hand, to give a portion of them in a condensed form, or to content ourselves with a sort of summary of the matters which they embrace. And here we are disposed to remonstrate against a growing evil—that of communicating or asking information under false names. We verily are disposed to be more accommodating to gentlemen who give us their proper names, than to those who are anonymous, although we mean to be civil to all; and we believe the public are much of our way of thinking. Gentlemen who are able and willing to advertise the public of what they believe, or know, to be useful, will very much enhance the value of the obligation, by giving it the sanction of their names. It is creditable—it is highly praise-worthy—to enlighten and instruct our fellow-men, in whatever may tend to improve their condition in life; and the public are apt to think, that those who are not willing "to take the responsibility"—by giving their names, are either influenced by a false modesty, or distrust the information which they offer for the guidance of others. But to our task.

ROOT CULTURE.

We have a score of queries from an anonymous correspondent in Tennessee, in regard to the culture of roots, a subject on which we have endeavored heretofore to be full and explicit. Among them are the following—

1. *Can the root culture be brought to as high a degree of perfection, and cultivated to as great an extent in the present state of labor, as in England?* We answer in the affirmative—as much as any other branch of tillage husbandry. Labor costs more, but land costs less, with us; while the excess, if any remains, is counterbalanced by the rents, tithes, and poor rates, which the English farmer pays more than the American farmer. We are neither deficient in climate nor soil; but we are deficient in good implements and good culture. The expense of securing the turnip crop during the winter, though not great, when custom has rendered it common, is in a measure saved to the British farmer. But we do not think the culture requires to be as extensive here as in Great Britain, as, from the extent of our lands, compared to our population, winter forage is cheaper here and more abundant, than there. And besides, our Indian corn crop is a great source of winter cattle food, and of excellent food when properly secured and fed out, which the farmers of Great Britain cannot command. The ruta baga can be raised here as a second crop, after clover has been taken off; there it cannot. It can be raised here, under good management, at *four* cents the bushel. These facts will enable the farmer to decide, after a fair trial, how far root culture is adapted to his soil, his location, and the profits of his business.

2. *In what soils do they best flourish and give the most abundant product?* And,

3. *Which is the most profitable for stock, ruta baga, mangold wurtzel, or sugar beet?* The ruta baga does best on good sands, gravels or light loams; the beets on loams, either of sand or clay. Both require dry soils and rich soils; and long manure, spread and ploughed under, may be economically applied to either. We think the Swede ordinarily gives the largest crop, demands the least expense in culture, in harvesting, and securing for the winter; and according to the tests which have been accurately made in Scotland, it is rather superior to mangold wurtzel for feeding stock. The beet requires to be sown early in May—the ruta baga may be sown from the middle of June to the middle of July, according to latitude; and of course the former requires from six to eight weeks longer tending than the latter. The difference between the sugar beet and mangold wurtzel for cattle, it is presumed is not material. The latter will ordinarily give the largest crop, but the former contains the most saccharine or nutritious matter.

STARCH AND SUGAR.

W. Edwards, of Lima, who will please accept our thanks for his friendly offices in our behalf, asks us to publish the process of making potato starch, and also the process of converting this starch into sugar. We comply as far as it is in our power.

To make potato starch.—Wash the potatoes, and grate them into water, for which latter purpose a large grater should be procured from the tin-man; or, if on a large scale, the potatoes may be reduced to pulp in a grater cider-mill. Then take out the refuse pieces, if any, with the hand, and next strain the whole of the water in which the potatoes have been grated through a thin cloth, rather coarse, or fine sieve, and afterwards frequently put on and pour off water, until it comes clear from the starch, which is always allowed to settle or fall to the bottom of the vessel in which the operation is performed. Frozen potatoes may be profitably employed in this way, if grated before they thaw, they are found to yield half as much starch as fresh or unfrozen ones. The refuse pulp, when taken from the sieve, possesses the property of cleansing woollen cloths without hurting their colors; and the water decanted from starch powder is excellent for cleansing silks, without the smallest injury to their color.

We have said that the constituents of sugar and starch are the same, though differing in their proportions. The component parts of each, in 100, are given in Davy's Agricultural Chemistry as follows:

		Sugar.		Starch.
Carbon,	(Lavoissier,) .	28	(Thenard,)	43.55
Oxygen, .	" ..	64	"	49.68
Hydrogen,	" ..	8—100	"	6.77—100
Or, Carbon,	(Thenard,)	42.47	"	43.55
Of water or its elements,	"	57.53—100	"	56.45—100

We have also stated, in the 12th number of our first volume, on the authority of the Edinburgh Quarterly Journal of Agriculture, that starch may be converted into sugar, by means of sulphuric acid, &c. Our correspondent wishes to know the quantity of acid employed, and the whole process of transmutation. Upon these points we cannot enlighten him or the public farther than we have already published; and we do not know that the process has yet been promulgated.

To raise carrot seed, Mr. E. is informed, it is not necessary to use either long or short manure, if the soil is rich, as it ought to be. Plant out the roots in the last of April, or first of May, three feet apart, and drive a stake down by each plant; and as the seed stalks rise, tie them to the stakes, and gather the seed as it ripens.

Devastation by Blackbirds.—O. H. Otis writes us from Bristol, Wisconsin, that the times have proved disastrous there, to new settlers, on account of the ravenous birds, which destroyed the crops of the last season almost entirely, with the exception of potatoes. He implores our advice, how to diminish the unaccountable number of blackbirds that visit them during the harvest season; and we are sorry that it is not in our power to offer him relief.

"*Interior*," who dates at Little-Falls, admonishes against the use of tobacco water, in destroying lice upon cattle; and states, that where it has been used, some have sickened and died. He quotes Prof. Muzzy on the poisonous quality of the *oil* of tobacco, in support of his hypothesis. There is a manifest difference between the decoction and the oil; and as immence numbers of cattle and sheep have been washed with the former, or immersed in it, without it having caused sickness and death, we suspect that in the fatal cases noted by our correspondent, the calamity would have befallen the animals, even if the decoction had not been applied.

Another anonymous correspondent, who dates from Masonville, advises that calves tails be shortened some eight or ten inches, in order to prevent the "horn-ail," when they become of age! We cannot become a party in the outrage against the works of Providence which this practice would inflict; and therefore protest against the preventive, as contrary to reason as well as humanity. To atone for this, however, our correspondent recommends improvements in feeding hay and constructing milk-houses, which are better entitled to notice. In the first he recommends a free use of the hay knife, that the fodder may be taken from a small, rather than a large surface—the former being more snug, economical, and less injurious to the hay than the latter. He has his milk-house raised above the surface of the ground, instead of its being sunk below it, as in a cellar or spring house, with a trap-door in the floor, for the purpose of letting in fresh air from below. He has windows, with shutters which are closed in a hot day, and his house is shaded by surrounding trees. He thinks he gets more cream in this way than in any other, as his milk-room is generally cool and dry. The suggestions are worthy the notice of dairymen.

After culture.—G. W. Latham, of Jeffersonton, Va. wishes us to explain what we mean by "*after culture*," as applied to the corn crop. We mean all the culture that is given to the crop *after the seed is deposited in the ground.*

Miller's Toll.—A correspondent in Owego, wishes to know what toll millers have a right to take by law for grinding grain. The communication of our correspondent would be given entire but for the press of other matter. Our correspondent weighed all the grain he had ground, for some months, took it to mill himself, and afterwards weighed the product. The result was, he found that *twenty* per cent had been abstracted for toll, instead of ten per cent, which he supposed was the legal allowance. Assuming that our population is two millions, and that each inhabitant consumes five bushels annually, the difference between ten and twenty per cent toll, gives an aggregate to the millers of *one million of bushels* of grain annually, more than he thinks they are entitled to. We confess our surprise at not finding any law regulating this matter, and on being told that there was no such law. We have weighed our grain also, and have found the same result—a diminution of twenty and twenty-two per cent abstracted for toll. These impositions are so gross as to call for legislative enactments on the subject. As long as the matter is left to the discretion of the miller, impositions will continue. It is at all events proper, that the miller should be required to put up a notice on his door, of the rate of toll he does take, and to be obliged to abide by his rule, that his customers may be apprised of the fact, and be enabled thereby to select the most reasonable. At present, custom, which, in the absence of law, has the binding force of law, seems to have settled the toll at ten per cent. If the miller can with impunity take twenty, he may by the same rule take fifty per cent. The business really requires to be regulated by some definitive and binding regulations.

Spent Tan Bark.—A correspondent, who dates from West Haverford—asks us some puzzling questions about tan as a manure, and the chemical combinations which take place on its being mixed with caustic lime. We can only answer, in general terms, that tan is among the most stubborn materials to render soluble in the vegetable kingdom, and that until it is rendered soluble, it imparts no fertility, but rather abstracts from it. It is doubtful whether lime will so decompose it as to render it fertilizing; as Sir Humphrey Davy lays it down, that it must undergo fermentation to render it nutritive, and that like peat earth, it will not ferment "unless some substances are mixed with it which act the same part as the mucilage, sugar, and extractive or albumenous matters with which it is usually associated in herbs and succulent vegetables." Hence we should try fresh stable dung, instead of lime, to effect a fermentation, or the decomposition of tan.

Ed. Carpenter, of Glassborough, having come into the possession of a worn-out farm, a year ago, has detailed to us his practice the last summer, and asked our advice as to the best means of improvting it. Mr. C. has began well, in gathering fertilizing matters, and in raising ruta baga—(at the rate of 600 bushels to the acre,) and in feeding these to his stock. All farm stock may be kept entirely on these roots, if desired, with the addition of straw. If Mr. C.'s land will bear clover, the seed of this may be profitably sown with every small grain crop; and, until he has succeeded in restoring fertility, no field should be cropped more than two, or at farthest three seasons, before it is again stocked with clover and other grass seeds. Marl, if good, may be profitably transported four miles to improve his land. If Mr. C. will carefully save and apply all the manure he can gather,—dress his land with marl,—alternate his crops—and stick to clover and roots, with industry and good management—he will renovate the fertility of his soil, and prosper, in despite of the laugh of his neighbors. And we beg to be advised of the fulfilment of our prediction.

Experiments in feeding roots.—W. Catton, of Lenox, N. Y. writes us, that he has gone to some extent in the culture of roots; that he has made several experiments in feeding them to stock; and that he finds carrots and sugar beets to be the most profitable for fattening cattle, and the ruta baga for milch cows and sheep. He raised the sugar beet at the rate of 1,000 bushels to the acre, and thinks them preferable to the mangold wurtzel.

Fred. Seitz, of Easton, Pa. having prepared a piece of ground, a sward, last fall, for ruta baga, asks if he can manure and crop it in the spring, with tares or other vegetables, in time to sow ruta baga. He might have sown it with rye, in the fall, upon the ley, to be fed off in the spring, and he may yet do it early in the spring, covering with the harrow—putting two bushels of seed to the acre. He can put on no crop that will mature in time. Tares, we believe, are not to be had in the country. Let the manure be reserved for the turnips, and the seed be drilled or sown upon the fresh turned soil.

Tea wheat, Mr. Edgerton assures us, produces from twenty to thirty bushels per acre in Wallingford, and is sown there from 15th to 20th May.

Ruta baga in Pennsylvania.—S. Mayleet, who dates at Montrose, Susquehannah county, assures us that he raised last year, 1,100 bushels ruta baga upon 132 perches land, equal to 1,333 1-3 bushels on the acre. Mr. M. boiled the roots, and fattened his hogs upon them, with the addition of coarse grain provender, and his pork, he says, is excellent. The root were grown in drills two feet apart, with intervals of ten inches between the plants—beech and maple soil, highly manured. We are glad to learn that this culture is extending. Ten thousand bushels, our correspondent advises us, were raised last year in his county, and 2,000 by one individual.

Steeping seed wheat to prevent rust.—Among other interesting facts communicated by Walter Scott, of Bovina, Del. county, in regard to farming, he states that two years ago, he dissolved a quart of salt in a gallon of water, boiled the pickle, and when sufficiently cooled, mixed it with his seed wheat in a tub, and sowed it. The crop was good, and was affected by neither smut nor rust. Some ears were selected when harvesting the grain, and sown in the garden last year, without being steeped; while some bushels were sown in the field, after having been pickled as before. The grain sown in the garden, was destroyed by rust; while that in the field escaped unhurt. The inference we are left to make is, that the salt prevented the rust, though we by no means consider the fact established. The probability seems rather, that the wheat in the garden was destroyed by rust, not because it had not been steeped, but because the garden had been made too rich, with long dung. The experiment is, however, worth repeating.

Several communications on hand will be published or noticed in our next.

Acknowledgements.—Texian corn from S. Carolina and from Harrisburgh; a sample of twelve-rowed yellow corn from S. W. Jewett, Weybridge, Vt. said to be very early; seeds of Prairie flowers, from G. W. Lee, Marion county, Mich.; Egyptian wheat, from several gentlemen—(see our remarks upon this grain;) a sample of beautiful spring wheat from J. G. Soulard, Galena, brought from Lord Selkirk's settlements on North Red River, lat. 50. This promises to be a valuable acquisition to our husbandry—(see Mr. Soulard's letter, under correspondence;) tea wheat from S. M. Edgerton, Wallingford, Vt. a beautiful sample, for sale by Thorburn; giant wheat from W. Thorburn.

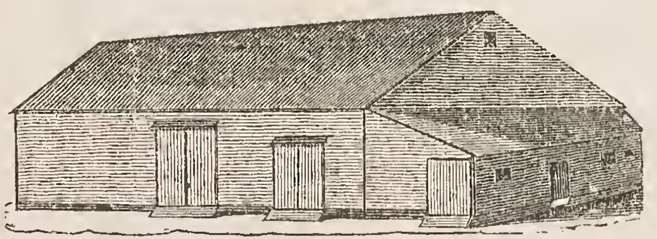
☞ We shall take the liberty of forwarding this number to several gentlemen, as a sample of our work. Should it meet their approbation, we shall be happy to continue to them the subsequent numbers of the volume.

CORRESPONDENCE.

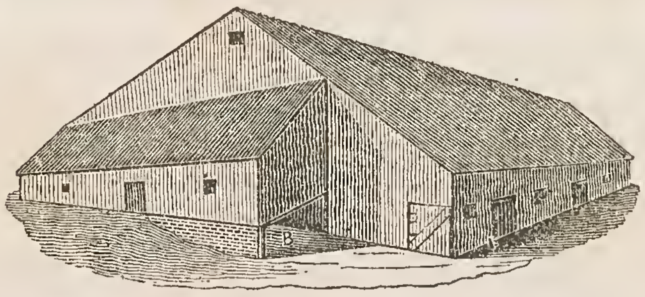
Plan for a Barn.

J. Buel,—Dear Sir,—I send you my plan for a barn, not because I think it perfect; but because I think it better adapted to the *means* and *wants* of common farmers than any I have yet seen published. I would prefer ground sloping to the south on east, about one foot in six or seven, for the convenience of digging out the basement, which in this plan is the full size of the upright part of the barn and the stable across the end, or thirty feet by fifty-eight, and walled on three sides. Having in prospect the rapid extension of root culture among us, I consider a cellar as necessary to the barn as to the farm house. A sufficient share of the basement should, therefore, be partitioned off from the rest, by double partitions, filled with chaff or tan-bark, to prevent frost. The remainder of the basement is to be used as a shelter for sheep or cattle, or a portion may be appropriated (as in the following plan) for a walk and the gearing of a horse power. I send two rough views and a ground plan. Figure 4 shows the upperhill side of the barn, the ridge of which, if the ground on which it is built slopes to the east, will run north and south. The upright part is forty-six feet by thirty, with a lean-to stable twelve feet by thirty. This stable has the first portion of it divided into stalls for horses, and the remainder for oxen. This side of the barn stands eighteen inches from the ground, and the cellar is lighted by double glazed windows beneath the sills. Figure 5 shows an oblique view of the west end and lower-hill side of the same barn, with a stable running the whole length of the upright part of it, that is, forty-six feet long. This stable is also twelve feet wide, and the floor of it is on the same level with the bottom of the basement; it has a manger the whole length of it, next the upright part of the barn, into which hay may be thrown from the barn floor, or roots may be carried from the cellar through a door, shown in the ground plan. This figure also shows the opening, B, twelve feet wide and seven feet high to the basement, sufficient to drive in a cart to clean out the manure. Figure 6 is the ground plan; 1, bay twelve feet by thirty; 2, barn floor, eighteen by thirty, barn doors twelve feet wide; 3, wagon house sixteen by twenty, with doors at *b*, nine feet wide; another at 4, into the horse stable; 5, tool room ten feet by sixteen. A scaffold extends over this and the wagon house, to be filled with hay fed through an aperture at the west end of the barn, into the manger *m*, or thrown to the cutting box on the barn floor. The dotted line shows the partition which stands two feet under the barn floor, making the cellar twenty feet by thirty. At this side of the barn floor is a narrow trap door *f*, down which roots may be emptied. The larger dotted circle shows the walk for horse power beneath the barn floor; *d*, is a cellar separated from the inner one ten feet by twenty, with a door at *g*; *h* is a well, furnished with a pump. Here also should stand a vat, large enough to hold a foddering for the stock. A vegetable cutter, driven by a band from the horse power, should likewise be placed here. Over that part of this cellar, which projects beneath the barn floor, should stand a straw cutter, and a small corn-cracker, (driven by the same power,) with tubes made of boards leading into the vat below. There is also a stairway leading down into this cellar at the extreme end of the barn floor *S*. It will be seen by this arrangement of these labor-saving machines, that corn in the ear, or other coarse grain, may be cracked, and roots cut, by being previously placed in their respective hoppers, by the same operation of the horse, and by the same hand while he is feeding the straw-cutter, and all deposited in the vat below. Here, after moistening with water and stirring together, it is carried through the door *i*, and fed along the manger of the long stable, shown in figure 4, or carried out the north end of the same stable, and fed along the row of sheds that form the inclosure of the north side of the yard.

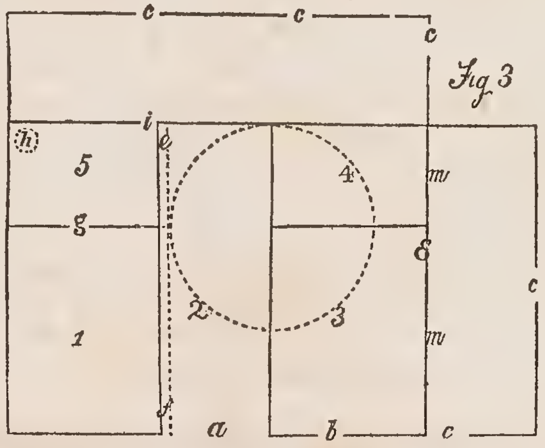
[Fig. No. 4.]



[Fig. No. 5.]

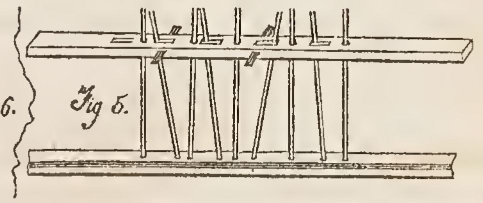


[Fig. No. 6.]

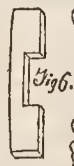


I prefer the *Yankee* mode of fastening cows, or other cattle, called stantials, a section of which is shown in figure 7, on account of cheapness, durability, security, facility of fastening and economy of room, two feet ten inches being sufficient for cows, and three feet for oxen. Figure 8 shows the fastening key.

[Fig. No. 7.]



[Fig. No. 8.]



A lean to shed may also be built against the north end of the barn, to be used as a shelter for carts, ploughs, &c. which will give the barn a good appearance.

This plan may easily be adapted to level ground, only the basement must be dispensed with, the floors all on the same level, the roots brought up from the cellar below, the horse power in an adjoining shed, unless it is on the endless chain principle, which may be set in the floored recess, denominated tool room, 5, shown in the ground plan. The upright part of the barn is framed as though there were no stables attached. The stables are all lean-tos of the most simple structure, though well covered and ventilated by windows.

Yours, L. B. ARMSTRONG.

Kingsbury, Jan. 1st, 1838.

Advantages of Agricultural Journals.

Sir,—I fear that the trifling sum of fifty cents, added to the price of the Cultivator, will curtail its usefulness, by inducing many to withhold their patronage; and consequently put a damper on their further improvement. Such a view of the subject has induced me to trouble you with this communication, hoping, that a statement of some of the advantages which I have derived from its perusal, may induce others to continue their subscription. Not having been bred a farmer, I was, of course, in a measure ignorant of the practice and theory when I commenced farming, eleven years ago. I then took some pains to inform myself of the most approved methods of managing, many of which I have since found to be (unaided as they were by the light of science,) materially wrong, and some, in fact, exactly the reverse from what they should be, both in theory and practice. For proof, I adduce the practice of applying manure. It was then thought the older the manure the better, and of course they did not apply it to their land, till it was eight months or one year old; and then its application to meadow land was thought to be the most profitable. If applied to tilled land, the practice of many was to spread it on the surface, alleging as a reason, that the juices must progress downward, and if buried with the plough, must be lost in a great measure to the roots of the grain. So in securing the corn crop, it was supposed the corn must be topped, to have the grain ripen well; and I am sorry the practice still prevails with so many. Evidences of its absurdity were not wanting last fall in this section of the country. So with seeding land; two quarts of clover, and two quarts of grass seed, were then considered sufficient for an acre; now four of each is little enough; and the difference is, instead of johnswort, daises, and other pernicious weeds, our land is covered with clover and herdsgrass, and any field may be a meadow.

The culture of roots I consider a great acquisition to the produce of a farm, (not so much in the bare nominal value of the roots, as in the improvement of stock and the consequent larger production of meat, butter, and wool,) as it has enabled me to make more butter from one cow, than I formerly made from two fed in the usual way. Two hundred and seventy-two and a half pounds of butter, I have made from one cow the last season, besides supplying a family of six persons with plenty of milk. All that is extra in the above yield, I attribute to feeding roots, which I do freely through the winter and spring months; consequently my cow is in high flesh at all seasons of the year.

Cutting feed for horses or cattle I consider very profitable, having kept a pair of horses mostly for two winters on oats in the bundle, cutting four bundles a day for the pair, which keeps them in fine condition without hay. They are kept in this way ninety-four days, from the produce of one acre, yielding fifty bushels, which at the present price of oats, would cost twenty dollars. In the ordinary way of keeping horses, the same length of time, and to keep them in as good condition, they will require two tons of hay, worth sixteen dollars, and six quarts of oats a piece per day, making thirty-five bushels, worth fourteen dollars; amounting in all to thirty dollars; leaving a saving in favor of cut feed, of ten dollars for about three months, or twenty dollars for six months, or for the usual time of keeping horses in the stable, which is about eight months, of thirty-three dollars—sufficient to pay for one of Green's Straw Cutters, or the hire of a man for four months in the winter season. The result of the above estimate will be about the same with straw and provender.

The above are but few of the items of profit which I have derived from improvements made in farming within the last four years; but I forbear to speak of the advantages of draining land, curing hay, rotation of crops, fattening hogs, destruction of Canada thistles and other noxious weeds; improvements in gardening, straw cutter, cultivator, horse rake, drill barrow, and economy in the kitchen, which must be mostly attributed to the dissemination of useful knowledge, through the medium of agricultural publications; and had I possessed the same sources of information seven years sooner, the actual profit arising from it, could not have been less than one thousand dollars. Who then would be deprived of the benefit of what I have enumerated for one dollar a year? Who would be deprived of the reflection of having done something to improve his condition, and that of his posterity, for that paltry sum? Who would rather plod along in the footsteps of their forefathers, without the gratifying reflection of having improved their condition? Enlightened minds dwell with pleasure on the advances they make in any object worthy of their attention, whether in reference to the improvement of their time, or to the condition of their farms, or stock, or the liquidation of debts, or the enlargement of estates; some such stimulus is necessary to satisfy the man of business, otherwise he would seem to have lived in vain; for if, in the retrospect, he can find nothing to gratify, or cheer the mind, it will put a damper on future exertions, and leave no encouragement for improvement hereafter; and all the time thus spent, is lost to the gratification of the finer feelings, and leaves but the unwelcome reflection, that another year of his life is spent to no good purpose. Improvement should be the main-spring of all our exertions, and all means within our reach to obtain information in reference to our business, should be employed; reflection, close observation, and the careful perusal of some publication devoted to agriculture, combining the observation and experiments of men of science, as well as of common practical farmers, are within the reach of all, and should be sought after.

Yours, &c.

To J. Buel, Esq. DANIEL S. CURTIS.

Canaan Centre, February 12th, 1838.

Plan for a set of Buildings for a Farm, &c.

Mr. Buel,—I respectfully submit for your consideration, and herewith send you drawings of a plan, for a set of buildings, suitable for a farm of an hundred and fifty to two hundred acres, where breeding neat stock, dairy or growing of wool, forms the principal part of the business.

In such a cold and variable climate as we live in, I consider it of very great importance that all animals, under our charge, should not only be *well fed*, but *comfortably* housed.

Where is the person that has travelled through the country in the winter, and has not noticed a lot of half starved animals, standing on the south side of a barn, with their backs drawn up, and their feet in the compass of an half bushel; and in some places not even a wall or fence to shelter them from the pelting storm, or a piercing north-wester, without even straw or any other litter to protect them from the severity of the season. And it is not unfrequent to see them standing around a stack of hay, on the top or side of an hill, without any other protection than that afforded by the stack. Where is the person, I repeat, that has observed the above, without emotions of regret, that there is *one so destitute of feeling* to the beasts which form so great a share of our comfort and wealth?

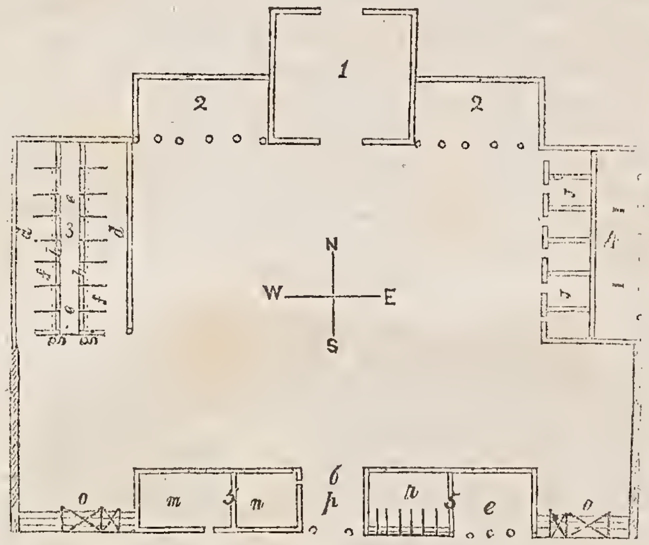
Now, it is not expected that every farmer can afford, however willing, costly stables and sheds for his stock; but it is in the power of most of them, to erect sheds or hovels made of poles and pine or hemlock boughs, with a little straw or coarse grass for a covering, which would, in a degree, protect them from the winds and storms of winter.

And where is the person, that has visited a well conducted establishment—where the cattle are not only housed, but well littered and kept perfectly clean —the hair laid perfectly smooth every day with the card—their full bodies, sleek sides, and placid countenances evincing *good care* and *good keep*?

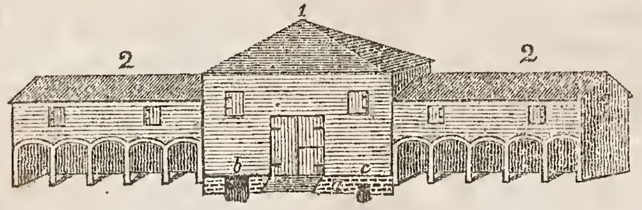
Where is the person who has witnessed the above, and not felt a degree of satisfaction to know that there are *some* who are not regardless of the comfort of the brutes who are by Providence confided to our care and protection?

But to return to my plan. The area for the yard [See figure 9] should be 120 feet square; in the centre of the north line of the yard, is to be a barn, (No. 10,) forty feet square, and twenty feet posts; to be raised from the surface of the yard, by a stone wall (a) foundation, laid in mortar, two feet above the ground, with a cellar seven feet deep, for vegetables. A door (b) and passage for a cart to pass through, for the purpose of putting in and taking out roots; and a window (c) on each side to serve as ventilators. The doors of the barn to be twelve feet wide and twelve feet high, and the floor fourteen feet wide.

[Ground Plan, Fig. No. 9.]



[North Section, Fig. No. 10.]



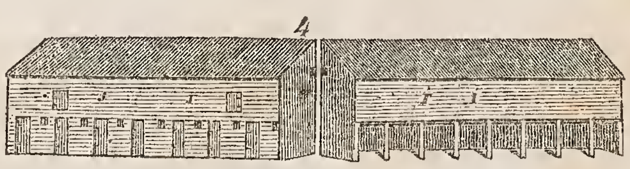
On each side of the barn are to be sheds (2, 2,) 40 by 20 ft. and fifteen feet posts. The lower part to be open sheds, six ft. high, and the upper story for storing hay or grain.

[West Section, Fig. No. 11.]

No. 11, is a building to be placed on the west line of the yard, for a cattle stable, sixty feet long, thirty-two ft. wide, and fifteen ft. posts. The stables, (d, d,) on the ground plan, to be seven ft. between the floors; a passage (e,) of four feet, running lengthways through the centre, which will give eight stalls (f, f,) on each side, of seven feet each, suitable for two animals in a stall, to be secured by chains or bows to stancheons (g, g,) by the side of the partitions. Mangers, (h, h.) to be one foot six inches deep and two feet wide. Doors or windows on each side for ventilation and throwing out the manure; but I would recommend to have the manure scattered in the yard, by means of a wheel barrow. The upper story, or loft, for storing hay, with a space, in the centre, say eight by ten feet, for a straw cutter, with a hole in the floor, 18 inches square, and a tube to conduct the cut hay to the passage, from whence it is to be fed.

No. 12 is the building designed to be placed on the east line of the yard, sixty by twenty-five feet, fifteen feet posts; the east side (i, i,) of this building, as seen in the view, is intended for sheep sheds, twelve feet in width and six feet high, running the whole length of the building, to be divided into as many apartments as may be deemed necessary for the different classes of sheep.

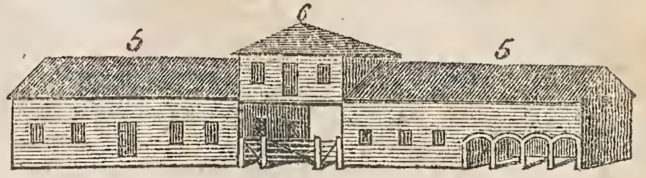
[East Section Fig. No. 12.]



In the west side of the same building, fronting the yard, see also west front, (j, j,) are to be six stables for cows to calve in. These will also be convenient for ewes and lambs when necessary to be housed.

No. 13, 13, forming the south side of the yard, are two buildings, fifty feet long, twenty feet wide, and fourteen feet posts, with a passage of twenty feet, over which is a building, (5, 5,) twenty feet square, twelve feet from the ground, twenty feet posts. This building is intended for storing coarse feed, &c. &c. having a tackle for the purpose of hoisting up the grain. In the east wing (k) is a stable for six horses, and room for harness, &c. The stable to be twenty-five feet long, and twenty wide. In the stable, near the door, may be placed a bin for horse feed, which may be conducted by means of a tube, from the granary above. The remainder of this wing (l,) is designed for sheds for housing wagons, carts, sleds, and other bulky implements.

[South Section, Fig. Nos. 13, 13.]

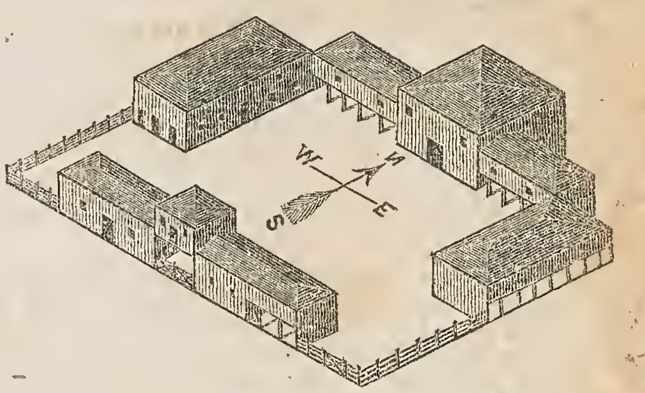


The lower part of the west wing (m,) is for storing farm implements, and (n,) a work shop—The lofts of both wings for storing hay or straw.

Now, as the east and west buildings are only sixty feet long, there will be sixty feet of fence to reach the line of the south buildings, indicated by dotted lines. Should the entrance to the cattle stables be in the south end, as laid down in the plan, No. 11, it will be necessary to start the fence from the extreme west side, which makes the yard thirty-two feet wider, and to correspond and for appearance, I would start the fence on the other side of the yard, from the extreme east side of No. 12, which will make the yard still twenty-five feet wider. This will give room, on each end of the south range for gates, as at (o, o.)

I would recommend a good hard road to be made from the passage (p,) to the barn No. 9, and on each side of this road I would have the yard excavated or hollowed, sloping to the centre, and over these excavations may be erected sheds to protect the manure from evaporation. [See perspective view.]

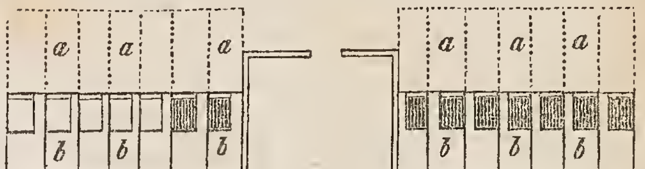
[Perspective View, Fig. No. 14.]



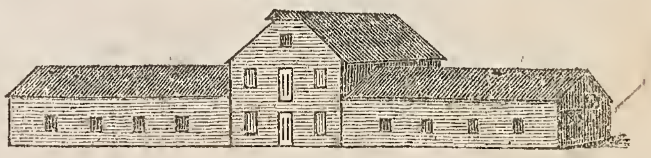
The yard may be divided for different grades of cattle, and running water should, if possible, be introduced into each yard.

I will also give you a plan of my piggery, (15, 16;)

[Ground plan of Piggery, Fig. No. 15.]



[Elevation of Piggery, Fig. No. 16.]



It forms the south side of my barn yard. The centre building is two stories high, twenty-five feet long, and twenty feet wide, fourteen feet posts, with a cellar underneath for roots. The first story is intended for boiling or steaming food for the hogs. The second story is my store room for coarse grain, &c. &c. On each side are wings extending fifty feet from the centre building, eighteen feet wide and eight feet posts. Each of these wings are divided into seven apartments, (b, b, b, b, b, b,) nine of which are for breeding sows, with a sleeping room to each; one for a boar and four for fattening or store hogs. There is a passage (c, c,) leading from the centre building, in front of the pens, four feet wide, in which project the feeding troughs, one foot wide, extending the whole length, with doors similar to the Shaker plan, as described in Vol. 2, No. 7, of the Cultivator. The troughs are divided, one-third for the sow, and the remainder for the pigs, and is so contrived, by means of the studs standing so near together that the mother cannot rob the pigs of their food. A hog is a *hog*, put him where you will.

In the rear of each of these pens are yards, (a, a, a, a,) seven feet wide and sixteen feet long, with sliding doors in the partitions, and a door communicating with the barn yard from each of the outside yards. These yards are for exercise, air, and for the manure. Into these yards I cause to be thrown weeds, sods, muck, potato tops, and all refuse straw I can get; and now and then a load of fresh manure from the horse stables; and should the hogs not work sufficiently, by throwing in a small quantity of corn or oats, they will set to work most lustily and turn it over faithfully.

From my pig yards I took, last year, over eighty loads of first rate manure, which is worth, at least, one dollar per load. This will nearly pay for a man to take care of them.

Should the above plans be on too large a scale, they may be so modified and arranged as to suit any sized farm. C. N. BEMENT.

Profits of the Dairy.

Rensselaerville, Jan. 31, 1838.

Jesse Buel,—Sir,—Below is a statement of the amount of butter and cheese made from my dairy of six cows in eight months of last season, which I think will do credit to the farming and dairy interest in this town.

1448 lbs. cheese, which sold at my door at 7¼ cts.	$104 88
452 lbs. cheese at 8 cts.	36 16
415 " butter at 18 cts.	77 85
	$218 89

Making an average of $36.48 1-6 per each cow. Sir, will you please give the above an insertion in your valuable Cultivator? and you will much oblige yours, &c. REV. EPHRAIM CROCKER.

Culture of Indian Corn, &c.

Troy, Jan'y. 26*th*, 1838.

Judge Buel,—Dear Sir,—Having purchased a farm about two years ago in this vicinity, and concluding to direct its cultivation myself the past season, and being without practical knowledge in agricultural pursuits, I sought through the columns of the Cultivator the information I needed, and without which I could not expect to be successful in this new, and, to me, interesting enterprise. Having concluded to plant about nine acres with corn, I examined with some minuteness the different modes recommended for its culture. After this examination, believing I discovered substantial reasons, combined with practical knowledge, in your manner of cultivating this crop, I was not long in deciding on adopting it. And now, not that the yield was an extraordinary one, but because it was much better than others in this vicinity where the old mode had been adhered to, and because by adding further testimony to yours, it may be the means of inducing others to test its utility—although you have so repeatedly recommended this mode of culture, it may not be amiss to state in some detail the course pursued in the culture of this crop.

The land planted may be denominated a dry gravelly soil. About four acres of which had the preceding year been in buckwheat, and the remaining five acres in pasture for several years; the latter I had ploughed late in the preceding fall, to prevent the ravages of the grub worm; during the winter and spring I deposited in small piles on the two pieces, about 280 wagon and sleigh loads of manure, more than 200 loads of which was from a neighboring slaughtering house, the remainder was unfermented barn-yard manure; it was evenly spread on the surface and ploughed under just before planting. The ground was furrowed about three feet apart each way, and planted in hills the same distance apart, putting in each hill six to eight kernels. Commenced planting on the eleventh, and finished on the nineteenth May. The varieties planted were your twelve-rowed Dutton, the small and the large eight-rowed yellow, and a flesh colored corn. The Dutton was planted on the 17th May. This is stated, as the result will show its early maturity. The corn was not sufficiently thinned, as from five to seven stalks were left in some hills, three or four would have been more profitable. A plough was not used after it was furrowed. The crop had two dressings with the cultivator and hoe; plaster was applied as usual, and pulverized bones were put in a few rows when planted, and to some extent used with the plaster on the hills. I prefer this article to plaster, as its effects were visible where used. The corn was slightly hilled, formed broad and flat, to retain the surface of the ground as even as possible. The corn came up well, and maintained through the season a healthy appearance and a vigorous growth. On the 6th of September much of the corn was ripe, and the remainder well glazed; on this day commenced cutting it up at the surface of the ground, and put twenty hills in a stook to cure; on the 19th September, it being well cured, commenced husking it in the field, from the stooks, separating the nubins from the larger ears. On the 6th October this process was completed, with the exception of a small quantity put in the barn. The result was as follows:

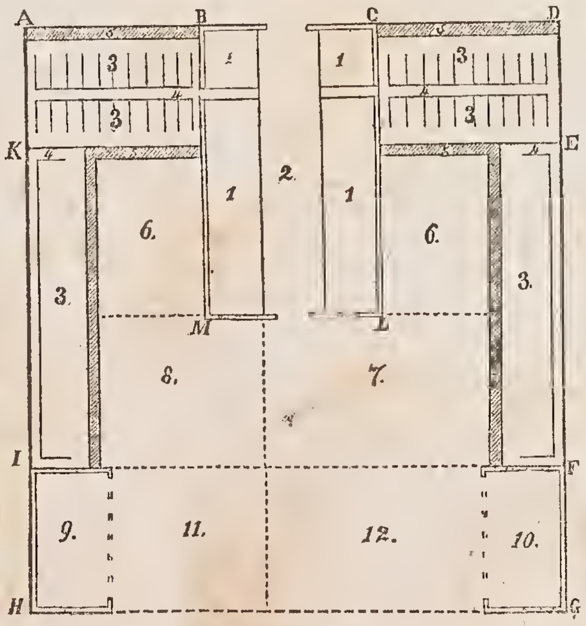
956 bushels ears of corn, which I put down at 4*s*.		$478 00
About 38 loads of pumpkins, 12*s*.		57 00
About 27 loads corn stocks well cured, 16*s*.		54 00
		$589 00
Expense of cultivating the crop, except drawing in pumpkins and stalks,	$162 42	
Interest on 9 acres of land, at $100 per acre,	63 00	
		225 42
Nett profit,		$363 58

As I do not reside on the farm and pay cash for labor, it has enabled me to keep a pretty correct account of the expenses of this crop. I may have overrated its value, though I have sold about 145 bushels shelled corn, at 8*s*. a bushel, and as the corn is sound and bright, considerable will sell for seed at an advance from this price, though some allowance should be made for shrinkage. I consider the stocks for fodder worth the estimate. They are used for principal fodder for eight head of cattle, and it is now mid winter, and not near half have been fed out. I have not charged the manure, as I deem its value to the land in succeeding crops ample to cover cost. Taking the footing of the above as a basis, it will exhibit a profit of about forty-seven per cent on the capital so far as the land is concerned.

Although I may trespass upon your columns, I beg to make another remark: that is, surprise I have felt at the apathy exhibited by the agricultural interest of this state, in not presenting and enforcing its just claims on the legislature, for its encouragement and its bounty. What branch of industry has not done this? and what can present so well grounded claims? What has done so much to elevate the state to its present power, wealth and resources? And yet its claims have been comparatively disregarded. Permit me to suggest the idea, that the State Agricultural Society at the approaching meeting, appoint a committee of ten or more efficient individuals in each country in the state, or the supervisors of the several towns in the state, whose duty it shall be to cause petitions to be circulated for signatures in each town, setting forth the claims of this branch of industry, and cause them to be presented to the next legislature for their action. This done, and no one can reasonably doubt its effect, as this interest holds the controlling influence; and it needs only to be aroused to concentrated action, and its influence will be felt in the councils of the state, and its just claims will no longer be disregarded. A SUBSCRIBER.

Judge Buel,—Dear Sir,—Enclosed I send you a rough ground plan for a barn, the situation of which would be on the east bank of the Niagara river, nearly a level plain, and consequently much exposed to the cold northern and western winds; in planning it, therefore, one great object has been to obtain *well sheltered yards*, the expression of the architecture being a matter of mere fancy. I have an old affair with rough sheds in miniature of the above, but as I hope it may soon give place to a new one, which I should wish as perfect as possible, I should be very much obliged by any criticisms, or suggestions of improvement from your good self, or correspondents, in regard to it. I will now proceed to explanatory details.

[Ground Plan, Fig. No. 17.]

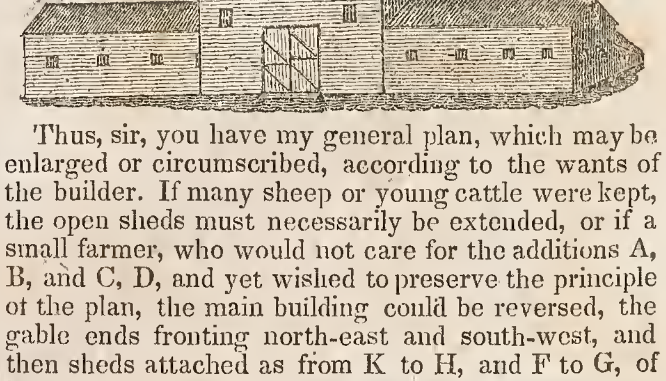


B, C, L, M, (fig. 17,) is the main part of the building, sixty feet by one hundred, with the gable ends fronting south-east and north-west; the sills laid upon a wall three feet high, open, however, on the south-east end into the yard, where hogs could be kept, or terrier dogs have free ingress, and thus destroy rats or any vermin that might be disposed to harbor under the bays. A mast also should be placed in the centre of each mow, leaving a space around it, in the manner of the Shaker's barn at Hancock, for the purpose of ventilation, and carrying off the steam from the new hay, and the open space under the bays would be necessary to insure a sufficient current of air for this purpose. Under the passage way the earth should be excavated four feet, and a strong cemented wall built up to the floor, thus making a cellar seven feet deep, one hundred feet long, and twenty feet wide, and capable of holding more than 8,000 bushels of roots, and perfectly rat proof. In the floor, over the cellar, trap doors should be placed sufficiently often, so that carts loaded with roots might drive in and be tipped up, thus saving the whole labor of unloading, that is usual in carrying into cellars. A moveable tackle and fall should be hung, with large baskets, so that one man could hoist out any quantity of roots through the trap doors when wanted. For the bays a crane should be rigged, that would take up the hay loaded on the carts, in a moveable rack-body from the wheels, swinging it over the mow, and then turning it topsy-turvy, and thus unload in a single minute. Granaries could be partitioned off from any part of the bays with hemlock plank, through which a rat never knaws, and any other internal arrangements made that fancy or convenience required. Many would undoubtedly object to so wide a passage as twenty feet in the main building, but I find a roomy thoroughfare and threshing floor of very great convenience for a thousand purposes of the barn and stock, and besides, if not all were thus wanted, any part could be used just as well as if it were so much bay, in the storage of grain, in sheaf, corn in stook, &c. &c.

A, B, and C, D, would be additions running out sixty feet each side of the main building, B, C, L, M, with gable ends fronting north-east and south-west, and may be built sufficiently high to accommodate all the hay over head that the cattle stabled in them would consume during winter, or their fodder could be thrown from the bays, and taken through the five feet passage ways to their mangers. Plank or ground floors, as is judged best, could be used, the bottom of the stercorary sunk three feet below, with a cement floor, and laid up in wall, the roof running over it, and doorway partitions between it and the stable, to be opened only when the stables were cleaning. The manure thus, both solid and liquid, would be completely protected from wasting air and rains, and its whole nutriment preserved till the moment of its being carted out to fertilize the land. Two feet of turf placed on the bottom of the stercoraries in the fall of the year, and laying all winter with the urine from the stables, and moisture of the cleanings leaking down and saturating it, would become in the spring, for most purposes, equally valuable to fresh dropped stable manure.

K, I, H, and E, F, G, are sheds running south-east from the additions A, B, and C, D, and parallel to the main building. These also could be of a sufficient height to take in fodder enough over head for support of the stock below through the winter. The stables, &c. are on the same plan of A, B, and C, D, and need no further remark. From I to H, and F to G, are left as open sheds, either for sheep and young cattle, or tool and wagon house. A well should be sunk, and a pump house erected over it, where the four corners of the large yards meet, with watering troughs in each, and pipes leading to them, and so arranged that the water would not freeze in them during the coldest weather. The yard fences may be so constructed as to be enlarged or contracted at pleasure, or more subdivisions made if necessary. The divisions seem to me of great utility and convenience. Sheep may be thus kept separated, large and small cattle divided, breeding mares, colts, and stud horses let out from their box stalls, for the regular exercise, that is so beneficial to them in winter, and for want of which disease is often contracted.

[North View, Fig. No. 18.]



Thus, sir, you have my general plan, which may be enlarged or circumscribed, according to the wants of the builder. If many sheep or young cattle were kept, the open sheds must necessarily be extended, or if a small farmer, who would not care for the additions A, B, and C, D, and yet wished to preserve the principle of the plan, the main building could be reversed, the gable ends fronting north-east and south-west, and then sheds attached as from K to H, and F to G, of just such dimensions as suited his wants.

I consider all stock buildings as *radically* deficient in comfort and convenience, that do not shelter from the cold winds, that so completely desolate the northern part of the American continent during winter, and yet how seldom do we find that this matter is *even thought of*. I know not a barn thus protected in this whole region. Had stock growers the least consideration for the well being of their poor dumb animals, or regard for their own interests, they would in every instance immediately erect wind and rain shelters for their cattle; and however rude at first they might be, the gain in growth and economy in feed they would find to be greatly increased, much more so than those can have the least idea, who have not yet made the experiment. Very respectfully yours,

LA GRANGE.

Explanation of the Cuts.

Fig. 17, presents a ground plan; Fig. 18, is a north-west view of the barn and stables; 1, 1, are bays, 20 feet broad; 2, main passage, threshing floor, &c. 20 feet wide; 3, 3, 3, 3, stables, 14 feet wide; 4, 4, 4, 4, passage ways, 5 feet; 5, 5, 5, 5, stercoraries, 7, feet; 6, 6, yards, 34 by 53; 7, yard, 30 by 74; 8, yard, 50 by 54; 9, 10, open sheds for cattle, sheep, wagons, &c.; 11, yard, 50 by 75; 12, yard, 50 by 100.

Objections to Live Fences.

Essex co. Virginia, Jan. 17th, 1838.

DEAR SIR,—Your truly valuable paper is taken by my oldest son, and I always read it with great interest, although it occasionally contains articles on which I feel strongly inclined to comment, but have doubted whether you would not constantly have on hand numerous other communications better worth publishing than any thing I could send you. The spirit, however, moveth me so, at present, that I venture to offer you some remarks on the subject of live hedges, in opposition to the views expressed by yourself and others, in your January number.

I assume it as a proposition susceptible almost of perfect demonstration, that live hedges cannot be advantageously adopted, in our country, as a general system of inclosure. First, because they are actually more expensive, in most situations, than dead fences. Secondly, because there are no plants or trees heretofore tried among us, except the holly, sufficiently exempt from fatal diseases, and easily procurable, to render them a safe reliance for hedging. And lastly, because the present law of descents—throughout the United States, which will never probably be changed for the English law of entails and primogeniture,—inevitably produces frequent subdivisions of landed estates, and consequent changes in their fences. Let us examine these objections seriative.

That live fences are more expensive than dead ones, seems to me manifest, for the following reasons: In preparing for your fence, you must dig a large ditch. If cedar be used, you must next collect the plants, according to Col. Taylor's plan, and cart them to the spot; but there are few portions of the United States wherein the cedar grows naturally, and to sprout berries I know to be a very uncertain process. After setting them in double rows, you must continue to cultivate them, once or twice a year, until they attain sufficient size and strength to protect the crops from what our Yankee friends call, "*breachy cattle*;" an adjective, by the way, which should be in all our dictionaries, as it forcibly expresses what no other single word in our language does. The period necessary for this purpose, I assert from my own experience, to be, on an average, ten or twelve years, where the hedge is of cedar; nay, still longer, unless there be a ditch and high bank to aid it. Manure too, must be several times applied; a protective dead fence must also be kept up, for several of the first years of its growth, to guard against the aforesaid "breachy" marauders; and at least one annual pruning must be given forever; unless indeed, the hedge be left to grow as nature prompts. In this case, if it divides two fields, it soon spreads, in such a manner, as to exclude from culture, at least one acre of the best land, in about every four hundred yards; whereas a fence of dead wood, or stone, or brick, excludes only the very narrow breadth on which it stands. Again, the hedge of cedar, even in its most perfect state, is, *of itself*, no protection against hogs that run at large, as they do in Virginia, and several other states, for the bottom limbs always die after a few years, leaving large open spaces. This is particularly the case with Col. Taylor's cedar-hedges, which I have seen three or four times a year, ever since they were planted; although at a little distance a careless spectator would not probably notice it. The ditch-bank on which the hedge stands, is generally so steep that hogs cannot climb it; or there are numerous places through which they could pass with perfect ease. This tendency to die in the lower limbs of the cedar, I have noticed in all the hedges of it that I have ever seen. But it is more observable in Col. Taylor's than elsewhere, owing, as I believe, to an error committed in the early management of it. I feel great reluctance to differ from such authority, and one too, who was a personal friend to whom I was strongly attached for many years before his death. But the error, if it be one, is important to all who may attempt to make cedar, or any other live hedges, of trees that grow with a single body, and I will therefore state it. Col. Taylor topped his cedars at the height of one foot, when they were only a year old, and trimmed the sides *perpendicularly*. The English authors on hedging, without an exception, as far as I recollect, and Mr. Kirk of Delaware, who probably has more experience on this subject than any other man in the United States, all recommend the topping to be postponed until it can be done about four feet from the ground; and the sides to be so trimmed, as always to keep the hedge wider at bottom than at top. The reasons assigned, (and they appear to me unanswerable,) are, that the longer the main stem can be suffered to grow, the sooner will each plant attain the requisite strength; and that to give the sides a conical shape is essential to their vitality, as each limb requires for this purpose its due proportion of light, air, and moisture, which it cannot receive if the sides of the hedge be perpendicular.

Now let us endeavor to show the comparative expense of fences made of dead wood, or stone. None of them have to pass through a long non-age, requiring a guardianship, for they are at maturity the moment they are put up. None of them require a preliminary ditch, although it may be advantageously used where materials are scarce or dear. None of them exclude from culture more than the very narrow breadth of land on which they stand; and they draw nothing from the adjacent soil to injure the crops, which may almost touch them while growing; nay, they actually benefit their growth, in some degree, by keeping the earth near them more moist than that which is more distant; and the rotting, (when made of wood,) is really a manure, however small it may be. None of them are *immoveable*, which live hedges *are*; but may be carried from place to place at no other expense than taking down and putting up. Again, the materials, in very extensive districts,—even of the old states, and nearly every where in the new ones,—cost nothing but the cutting, carting, and putting up; for they are often so much in the way of the proprietors, that they will actually give them to any one who will take them off. In all the Atlantic states, with the exception, perhaps, of the Carolinas, stone is a real nuisance over considerable portions of them, and must either be used in fencing or put up in large piles, to fit the land for profitable culture. But when once the stone fence is properly made, no farther labor on it will be necessary to the end of time. I have known, from my boyhood, one made of freestone, which is less durable than any other, used for fencing, and it has been standing more than fifty years, (how much longer I know not,) and not a minute's labor, I believe, has ever been bestowed on it, during the whole of that period. In regard to fences made of timber, I can also assert from my own long experience, that they will last, if made in the best manner, from six or seven to twenty years, without any other labor than that first bestowed on them. The time depends, of course, upon the kind of timber used in their construction. If the inclosure be all *above* ground, and such as we southerner's call a "*worm-fence*," which you and your northern readers may not possibly understand, unless I tell you that it more resembles what our mothers and grand mothers used to term "*herring-bone stitch*;" *such fence*, without violence from "breachy cattle," or "breachy" men, (which are far worse,) will certainly last from six to ten years, without the slightest repairs, unless a tornado or whirlwind has passed over it. To insure this however, it must be made of some one or more of the varieties of timber usually preferred, and cut at the best season. These, in Virginia, I believe, are ranked in the following order: yellow locust, red cedar, black walnut, chesnut, sassafras, black mulberry, white oak, heart pine, and red oak. I may mistake in regard to their relative durability, but not as to the time that a worm-fence made of any of them will last without repair, if undisturbed by accident, or design. If the inclosure be what is commonly called "post and rail," I again assert, from my own experience, that one made entirely of red cedar on my farm lasted eighteen years, without one moment's labor being bestowed upon it; and that many of the posts and rails are still sound, still in use, after standing thirty years, the fence having been taken down but once for repairs. The posts, when first put up, were rough, nothing more being done to them than to cut them of the proper length, and to bore them with a two inch auger, at proper intervals for the rails. To those also, which were made of the bodies of small cedar, of various sizes, nothing more was done than to trim off the limbs, to cut them of the proper length, and to make round tenons at each end, that they might fit the holes in the posts. A small portion of the rails of the largest size were split into two pieces. Yellow locust posts, I know, will last longer, in general, than cedar; and I have been assured, from good authority, that catalpa is as durable as locust. Here then we have three varieties of timber, two of which are common in many parts of our country, and the third might soon be made so,—of great durability, when sunk in the earth, even without charring; while we have several others that will last for many years, if charred before inhumation; and still more, which remain sound for ten, fifteen or twenty years, when used above ground. We may assert it then, as an incontrovertible fact, that fences of dead wood, if made of the most durable kinds of timber, common in the United States, and carefully put up, will last, on an average, from six or seven, to ten and twenty years, *without expense;* whereas *some* annual expense *must* be incured to keep up a live fence as long as it lives. Let those whom it concerns compare the cost of each, for one generation or more, and determine accordingly.

I had almost forgotten to mention stump-fences among those which are preferable, in certain situations, to live hedges. The invention of that excellent implement, the *stump-extractor*, must soon render these formidable inclosures common in every part of our country, where much land has been recently divested of its timber, and of this we have some millions of acres. Your farming gentry who go more for the new-fangled,—although already hackneyed,—term, "*picturesque*," than for the *profitable*, will utterly eschew them, as too revolting both to sight and taste; but brother Jonathan, whose preference of the *useful* to the *showy*, where they cannot be united, I most cordially approve, will cling to the stump-fences as long as there are materials to make them, and will leave the live hedges for pets to their dandy brethren; for (with regret be it spoken,) we have dandies in farming as in every other walk of life. Not that I wish, by any means, to rank all hedge-makers among our brother dandies, for I am sure that many of them are actuated by the true spirit which should actuate all the genuine friends of husbandry; but if any should appear among us, as sometimes happens, who are not governed by this spirit, but proceed as mere fancy prompts them, no "esprit du corps," I think, should prevent us from attempting to guard novices against their influence.

My next objection to live fences is, the number of fatal diseases to which *all* plants or trees, heretofore tried among us for the purpose of making them, are liable, except the holly. This tree is sui-generis, in regard to its exemption from disease, and its throwing out limbs, even touching the ground, which live and flourish quite as well as all above them. Another peculiarity is, that the browsing of cattle and sheep on the extremities of the limbs, improves it in such a manner, that it soon becomes quite as dense and close, as the best trimmed garden lot. Our worn-out old fields, in the tide water portion of Virginia, left uninclosed and abandoned to nature's restorative influence, exhibit thousands of proofs of this fact, for the holly abounds in such grounds; and many of our poor cattle and sheep, left also in a great measure to the same all-bounteous nurse, have been instinctively led to the holly as a pretty good anti-starvation article. Of these we have also the pine and the cedar to aid the holly, or heaven only knows how large numbers of our stock would keep life and body together during a considerable portion of the year. The objections to the holly are,—the extreme difficulty of making its berries vegetate, and its uncommonly slow growth; for many of our brethren seem to hold with the Irishman, who swore that, "*as posterity had never done any thing for him, he would never do any thing for posterity*."

Although fences of this excellent hedge-plant are represented as common, both in England and Scotland, by all their agricultural books, I have never known nor heard of but one attempt to make a holly-hedge in our country. This was in my own county. It was nearly a mile in length. Great care was bestowed upon it, at first, by the projector; but his Virginia-patience failed long before the hedge could have reached maturity. Utter neglect was the natural consequence, and his successor, (not his heir,) wantonly cut it down. A few obstinate stumps, however, still testify to the vitality of the holly, which nothing but fire or extirpation can kill, and to the reckless attempts of man to destroy or reject it, notwithstanding its admirable capacity to prove the best friend of all hedge-fanciers.*

The other plants or trees that I have known to be used for hedges, are the English hawthorn, two varieties of the American thorn, the Pyracantha or evergreen thorn, and the honey locust. Two experiments only, with the latter, have come to my knowledge. The first was made by myself. I planted the seed, after soaking them in hot water until they swelled considerably, in which state they, as well as the seed of the yellow locust, and several other similar seed which I have soaked in the same way, will come up as readily and certainly as peas or beans. The plants, however, after growing two or three years, and being cultivated during the time, began to die in spots; while those which survived, threw out so few side-limbs, and manifested such a tendency to grow erect, that I extirpated them. The other experiment was mentioned to me, many years ago, by Mr. Rufus King, our former minister in England, who told me that it failed with him. He made the same objection as I have done to this tree. Of thorn hedges I have seen several in Maryland and Delaware, and a few in my own state. All of those in the first mentioned states had gaps in them, where the bushes had died, apparently from some disease or other. They were chiefly of the maple leaved thorn, as well as I recollect. The most considerable trial that I have ever known, in Virginia, was commenced, many years ago, under the directions of an English farmer, near Fredericksburg, on the main stage road, and with at least two varieties of thorn, the English hawthorn being one of them. This hedge did not succeed; but at the death of the first projector, the farm became the property of the present proprietor, who made an effort to revive and extend it, at least a mile in length, chiefly, I believe, with the maple leaf thorn. From having passed it several times a year ever since, I can testify that no man could well have taken more pains to insure success, yet nearly all the thorns are now dead, and the remainder fast declining. This trial having been made within two or three miles of the head of tide water, I think it fair to infer, that none of the thorns could be relied upon for hedges, in any of the tide water portion of Virginia. Farther south, I presume, they could still less be depended on. Of the pyracantha, I have seen but one small hedge. That was in Maryland, but although beautiful to the eye, it was evidently no protection against mischievous stock, nor did it appear capable of being made so. Our red cedar is liable to two incurable diseases, one of which seems on the increase, and is constantly killing thousands of the trees, as they grow naturally in our woods. It is a worm in the roots, that accomplishes its work of death, before the limbs and leaves give any warning of it. The other cause of their destruction is also a worm or insect, which attacks the trees above ground, and soon colonizes them with innumerable cocoons, which are attached to their tenderest branches, and soon kill them.

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* For the information of those who plant hollies to ornament pleasure grounds, I will here state, that we have several varieties in Virginia, producing, in great profusion, berries of various shades of scarlet, from the brightest and richest, to that of a paler hue. We have two other kinds, whose berries are of a pale orange color, the one being somewhat deeper than the other. These however, I believe to be scarce, as I have never found them, except on my own farm, and one other. The holly with variegated leaves is not a native.

The Osage Orange, of which we have lately seen some very favorable accounts, has not yet, I believe, been tried in the Altantic states; and the non-descript, or evergreen Carolina rose, I know, from personal observation, will not flourish in the latitude of Virginia. There is one remaining objection which is common to all the plants and trees I have enumerated:—that is, the comparatively small portion of our country in which they grow naturally. None can be found but in particular regions, and these are of no great extent, compared with the whole territory of the United States.

My last objection to live fences, as a general system of inclosure, is altogether insuperable, unless, indeed, the old laws of entail and primogeniture were re-established. The existing law of descents, in all the states, I believe, without exception, compel a division of property, in every case of intestacy; and so much is the practice favored by public sentiment, that even where a will is made, the testator himself, in ninety-nine cases, probably, out of a hundred, directs a division. If the property be land, and it be cut up into several parts, this necessarily produces almost an entire change in the inclosures. Some must be pulled down and others put up where none stood before; and should they happen to be live hedges, to *remove*, is to *kill;* whereas either rail or stone fences may be changed, without any other expense than transporting and re-erecting them.

Upon the whole, then, I conclude that live fences, in our country, are no where preferable to those made of rails, or post and rails, unless where timber is very scarce and dear, or near large towns, where inclosures of dead wood are liable to be burned. Even there, I deem it demonstrable, that stone walls would be far cheaper, if the materials could be procured near at hand; and if not, that walls of brick would be vastly preferable, especially if made according to the cheap plan recommended in the third volume of the American Farmer, page 262, by Mr. William Noland, the present superintendent of the public buildings in Washington.* This article is so worthy of public attention, that I would have copied the whole, in this letter, if I had not feared that my communication was already too long. I must take the liberty, however, strongly to recommend it for republication in the Cultivator.

I remain, dear sir, your ob't ser't,
JAMES M. GARNETT.

REMARKS.

We either did not sufficiently explain our object in the publications which we have made upon live fences, or have not been understood by our highly respectable correspondent. We did not intend to recommend the culture of live fences, as a *substitute* for stone walls in stony districts, nor for post and rail, or post and board fences, where these materials abound, nor even for substantial white pine stump fences—for like our correspondent, we think these are to be preferred where the materials are abundant or cheap. But there are large districts of our country, particularly in the west, where there are neither stones nor pine-stumps, and where fencing timber is already scarce, and likely to be more so, from which we have received frequent inquiries in this matter: And although we are disposed to pay the highest deference to the opinions of Mr. Garnett, he will pardon us for persisting in the hope, that we have plants, indigenous to our country, which will make good hedges, and that it will be found practicable and economical, in the long run, to cultivate live fences in the districts to which we have alluded. We adduce our own as a case in point. Common stone costs us two dollars a load. Wooden materials for fence are almost as expensive, and their duration, except the posts are cedar, which cost nearly fifty cents each, does not exceed ten or twelve years. These circumstances induced us to attempt to raise hedges; and to try the English and native thorns, and also the honey locust. Although we cannot confidently assert that we *have been* successful, we can say that we believe we *shall be* successful with both the native thorn and the honey locust. As yet we have experienced no injury from disease or insect, though the ground mice have done us some damage, in our hedge as well as in our fruit and other trees. The comparative expense of dead and live fences never engaged our attention, though we recollected that Caleb Kirk had endeavored to show, and to our mind had done it satisfactorily, that the latter were to be preferred on the score of economy. There are besides considerations in favor of live fences, which apply with some force in the prairie-west, and in the north, which do not apply in Virginia: they are wanted as *shelter*, to protect the crops from the severity of the winter blast.

With this explanation of our motives, we have no reason to regret that we have been misapprehended by our very able correspondent; because it has been the means of procuring us a valuable essay on the subject, which we feel assured will be read with interest and profit by our patrons, whose interest it is our duty to serve.—*Cond. Cult.*

Farm Machinery—Peat Earth.

Wheat-Sheaf Farm, Staten Island,
December 18, 1837.

J. Buel, Esq.—Dear Sir,—I received your esteemed letter of the 20th ult. requesting a communication from me as to my mode of improving and fertilizing my farm, and a *description and drawing of my machinery.* In withholding the latter, *for the present*, I am actuated by an apprehension, that in so far as experience may hereafter suggest *changes*, I may regret having given publicity to it, while yet imperfect. It has much of novelty, and observation upon its practical movements yet continues to suggest guards and alterations, more or less essential to its operations in the most perfect state in which I may be able eventually to put it. Since I had the pleasure of shewing it to you, I have concluded, (as I believe I then suggested I might,) to adapt it to *public*, as well as my private, uses, by adding an eighteen horse *wind* power, with four run of stones, to be applied, at pleasure, independent of, or in connection with, the four horse farming and foddering power I then exhibited to you, and to make it what I call a *Foddering and Grist Mill*, for myself and the vicinity. I become daily more and more convinced it may be made both useful and economical. If it does not prove so in the sequel, I should myself call the further pursuit of it little better than folly. I never yet was disposed to "*flash a shew*," lately so prevalent, and trust not to have begun with this. Of one thing I am sure, that farmers reflecting on it in the quietude of their habits and occupations, would never feel disposed to approve it, if it could not be made both useful and economical, as well as profitable to them to do so.

In Europe, a labor-saving machine, if not a curse, at least is calculated to draw down the imprecations of the suffering poor upon the head of its inventor—while here, where we have more of labor than laborers in the vineyard, such an implement is hailed as a blessing. It, as it were, adds to the laboring *population* of a country yet growing towards its maturity, and the incentive which, as a substitute for labor at a high price, it gives, makes us what, from *local circumstances and exigencies*, we are, the most inventive people on earth.

On referring to Loudon's Agriculture, (in the Supplement, page 1277,) you will find a notice of a threshing machine, said to be one of "the most complete agricultural implements in England," bearing some resemblance in its objects to *a part* of mine, but effected through a medium infinitely more expensive and complicated, and of which I had no knowledge till after mine was constructed. Erected, as that was, specially for and under the patronage and high protection of the Duke of Gloucester, Loudon mentions it "as a singular and melancholy sign of the times, that the parties who had the chief merits of the invention, were *afraid of giving their names to the public*. The agriculturists (says he) of a future, and we trust no distant day, will hardly believe it possible that the destruction of threshing machines should have been *popular* in England in 1830."

I thank heaven my lot was cast where, if I realize my views in this, there will be none to censure them; and where, above all other places, he emphatically does the human family the best service, who makes two blades of grass flourish where but one had previously languished. "If (as you say) there is a pure pleasure to be derived from human actions, it *must* be found in a disinterested endeavor to benefit our generation and our country." If it shall be my lot, in the *busied retirement* to which I have *fled*, to effect such an object, I shall, indeed, not have lived without an end, and will die comfortably.

But in reply to your letter. I can only for the present, on the subject of my machinery, say with you, that "*barring accidents*" and "*in good time*," I shall not fail to comply with your wishes. Its scope and objects, in part at least, are generally explained, if your notice of it in your August number (page 100) is referred to, and taken in connection with this letter.

As to the other part of your request, "my mode of improving and fertilizing my farm," I find *that* too general for *one* communication. I shall, "since you will have it so," on a future occasion, comply cheerfully and more at large; for the present, however, there is one you have adverted to in your last number, (page 157,) which has much interested me, under a perfect conviction I always entertained, that swamp earth might be used with more advantage than usual with us. With "Peat Earth and Peat Ashes" I was wholly unacquainted when I came to my farm; but in the process of clearing and bringing under cultivation its "worse than useless" parts, I sought information through channels similar to those to which your article refers. I have reason to thank you for the account it gives of the Dutch and Flemish practice. Their books I had sought in vain in New-York, but I am pleased to find them consistent with such as I have had access to. Permit me, in return for the advantage I have in this derived from your columns, to refer you and your readers to what I have met with on the same subject. The swamps which furnish peat earth or turf, nine-tenths of the laboring Irish emigrants are familiar with under the local appellation of a "*peat moss*." They generally seem to be so with the burning of it, and practically with the different modes of disengaging from it the acids which check its putrefaction, and consequent adaptation to vegetable nutriment. They have served their apprenticeship to it as agricultural laborers in the noted bogs of Ireland.

The use of peat earth led to much disappointment in Great Britain, until Lord Meadowbank scientifically explained its properties, uses and modes of application, and I believe him to have been the author of the present practice both there and elsewhere in relation to it.

Loudon says, (pages 745 to 747,) "mossy and boggy surfaces occupy a very considerable portion of the British Isles. In Ireland alone there are of flat red bog, capable of being converted to the general purposes of agriculture, 1,576,000 acres, and of peat soil covering mountains, capable of being improved for pasture, or beneficially applied to the purposes of plantations, 1,255,000, making together nearly 3,000,000 of acres. Black mosses, though formerly considered irreclaimable, are now found capable of great amelioration. By cultivation they may be completely changed in their quality and appearance, and from a peaty, become a soft vegetable earth, of great fertility."

I leave you to insert as much further of this reference as you may deem best for the guidance of your readers. It will however serve to shew, in a *great many* districts of both England, Ireland and Scotland, a general practice similar to that you have yourself quoted as to Holland and Belgium, and which I have no doubt prevails in the north of Europe. I had myself seen none but the *Chat* moss, over which the Liverpool and Manchester rail-road lies; but then the idea occurred to me, that it might, by drainage, be similarly applied, and as I find, by the last edition of Loudon, it now is. On draining my swamps, I discovered in the ditch, about three feet below the surface, a compact stratum, say twelve inches thick, exclusively of *leaves* and of minute vegetable fibre, so small as to decay under an *ordinary* exposure to the atmosphere, in a few days or weeks, and which, in this swamp, (as I infer from the superincumbent creation,) must have resisted decay 1,000 years or more. The mossy soil above consists entirely of the imperfect decay of subsequent vegetable growth, and which has probably not so effectually resisted decay, on account of its occasional exposure, superficially, to the influence of the sun and air during the drier seasons of occasional years of great drought.

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* This article shall be copied into the Cultivator as soon as our limits will permit.

Loudon says, (page 345, No. 2238,) "Marl and even shell sand have been known to act chemically on peat bogs, and to produce astonishing benefits. True and genuine peat bogs contain a considerable quantity of an *acid*, which has some affinity to *gallic* acid, and often yields phosphoric acid to analysis. It appears to be these acids which confer on peat its highly antiseptic qualities, and prevent the complete decay of woody fibre in such situations. When either true marl or shell sand is laid as a manure in such soils, a rapid decomposition of the vegetable matter takes place, owing to the calcareous matter uniting with the acid, which before impregnated the woody fibre, and such land soon becomes very productive, probably also because the carbonic acid of the marl and shell sand is applied to the growth of living vegetables, as it is gradually disengaged by the union of these acids with the lime."

Deane's New-England Farmer, under the head of peat, page 323, refers similarly to it, and the mode of using it.

The Complete Practical Farmer, an American book, very generally possessed, page 30, under the head of peaty substances, also describes the process.

Sir Humphrey Davy says: "Inert peaty matter requires fermentation to render it nutritive to plants. It remains for years exposed to water and air, without undergoing change, and, in this state, yields little or no nutriment to plants. Woody fibre will not ferment unless some substances are mixed with it, which act as the mucillage sugar and extractive or albuminous matters with which it is usually associated in herbs and succulent vegetables. Lord Meadowbank (he says) has judiciously recommended a mixture of common farm yard dung for the purpose of bringing peats into fermentation. Any putrescible or fermentative substance will answer the end, and the more a substance heats, and the more readily it ferments, the better it will be fitted for the purpose. And he states that one part of dung is sufficient to bring three or four parts of peat into a state, in which it is fitted to be applied to land; but of course the quantity must vary according to the nature of the dung and of the peat. In cases in which some living vegetables are mixed with the peat, the fermentation will be more readily effected."

I have occasionally, in the absence of guides, tried these substances and failed, and in some instances have succeeded. Two or three experiments of my own are now in progress, which are, as I apprehend, checked more or less by the counteracting tendency and operation of frost. I shall, for the present, suspend a communication already longer than I intended to have made it, again to resume it, if you wish, when I shall have better tested them. But in so far as your last number has described these substances, they are consistent with my observations, and I think undoubtedly applicable. This, however, should probably be borne in mind: I use *more* of the ashes to the acre, because my swamps contain little or no calcareous marl beneath them, and an analysis I apprehend would therefore not find so much of the sulphate and carbonate of lime as that which professor Brande analyzed. The two which you saw are incumbent on a *clay* marl, little if any embued with calcareous matter, or other than of vegetable impregnation, valuable to ameliorate the texture of a soil too prevalent of sand, or to improve the capacity of upland for holding manure in solution from which alluvial influences have taken an undue proportion of clay. The marl is followed under it, in a distinct stratum, by a stiff pipe or porcelain clay, which, with the marl, made it heretofore so perfectly impervious to water, that although no other than alluvial supplies immersed it, it seldom, if ever, was known, before it was drained, to be dry. The level of the present drain is about nine feet below the former fullest water surface.

Believe me, with great respect and esteem to be, very truly yours, W. A. SEELY.

Entomology, &c.

Bath, *Feb.* 3, 1838.

Judge Buel,—Sir,—I have read your valuable paper with much pleasure for two years, and now send you the subscription price for another year. You have mentioned the Humic Acid in several of your papers as being a substance lately investigated by some of the German chemists. I would inquire if you have seen any chemical analysis of the Humic Acid, either in any work on chemistry, or in any of the journals, foreign or domestic, and if so, if you will publish the analysis, with the physical and chemical properties of the said acid, in the Cultivator.* I made the request, last winter, to have some additional information in regard to the entomology of our country, communicated from some of your many correspondents. A class of animals that exercise so important an influence over the labors of the farmer ought to be better known. The first object ought to be perhaps to distinguish in the innumerable insect tribes between our friends and enemies. It is a well known fact to readers of natural history, that a vast and interminable war of destruction is carried on between the different insect tribes, and therefore it may be for the interest of man to encourage the conqueror in their exterminating conflicts, is an object of much solicitude and of high interest. As an instance, a few years since a remarkable insect, somewhat resembling the black wasp, but longer shaped, somewhat more like the hornet, but of a shining black, and very active, was pointed out to me as the natural enemy of the grub worm. Its evolutions when on the ground were similar to that of the hound upon the track of the hare. Its head was down, as if in the act of smelling, and every few minutes it would dig with its fore feet in the manner of the dog. At length it dug up a worm, stung it to death, and left it. On a succeeding day I saw the same insect engaged in burying the victims of its warfare. A hole was excavated in the soil sufficient to deposite the worm by the use of its fore feet. The dead worm was then seized by the forcep jaws of the insect, who drew it backwards into the hole into which it entered in rear of the worm, and from which it immediately emerged, and scraping the earth together raised a tumulus over the grave. These facts may be familiar to the professed entomologist, together with the name and the habits of the insect, although they were new to me. Another circumstance in natural history I will mention, as I have not seen it noticed by any writer.—Passing a ploughed field, in a meadow free from stumps and stones, one day in the summer of 1819, I was surprised at the notes of what I considered a fine singing bird, which I called into repetition some few times, until I discovered the melodist, which, to my astonishment, was no other than the little brown snake with a yellow ring around its neck. Had it been a bird, I should certainly have complimented it as a very agreeable songster. I have mentioned the remarks on the aforesaid insect, to illustrate the kind of information we want in regard to the insect tribes.

Wishing you every success in your laudable endeavors to enlighten the farmers of our beloved country, I am, sir, sincerely your friend,

MOSES F. MORRISON.

Farming—New Kinds of Wheat.

Galena, Ills. 22d January, 1838.

Jesse Buel,—Dear Sir,—From my youth I have been fond of agriculture. This fact, and a desire to obtain information, are my only excuses for now troubling you; I then thought I would be a farmer, but circumstances led me to other pursuits. I wished to make a fortune before I would turn my mind to agriculture. Why was I not wise enough to say at once, I will become independent by frugality, industry, and farming? It appeared to me to be too slow a way to wealth, although I was aware of the advantages of a farmer's life, viewed physically and morally. Well, sir, after years of trouble in business, my attention was, thank God, again directed to farming, and since three years, my time has been mostly taken to that business on my farm, situate three miles from Galena. Of course, I could not be long a farmer without taking your Cultivator. I have been more than ten, yes, than an hundred times repaid, by the useful information I have received, for the small pittance I have given in return, of 50 cents per year. I see with much pleasure that you intend to increase the size and matter of your useful paper. I shall continue to be a subscriber; I will also subscribe for my brother at the office of the Galena Advertiser. When any of my neighbors call on me for information about farming, I say, do you take the Cultivator? If they answer no, I tell them, go and subscribe for it, and you will hardly need lose time to question your brother farmers about the management of your farms.

My friend, Mr. A. E. Hough, of Gibralter, Wisconsin, gave me a few grains of your Buel corn. I will take great care of it; the pains you took to send those seeds so far, induce me to send you here inclosed a few grains of bald spring wheat, brought, at first from Lord Selkirk's settlements, on North Red River. I sowed the wheat, from which this seed was gathered, on the 15th of May last; you can judge of the quality by the specimen sent; it came to maturity perfectly, without smut or rust, producing at the rate of 30 bushels to the acre. I have, also, a many headed wheat, brought from Santa Fee, in New Mexico. It bears from 9 to 15 heads per straw, counting the centre and side heads. I think it differs much from the Egyptian wheat, the berries are very large, white, and plump; it is said to be a spring wheat. I sowed in a drill, (about half a gill of it) last spring, on the tenth of May. It grew luxuriantly, producing heads of such large size, as I never saw before, but at the approach of its maturity it shrivelled up, the berries being very deficient. I will plant it again, at various periods, so as to ascertain, if I can, the best moment. In the Santa Fee country it produces at the rate of 60 bushels per acre. Can you give me any information about the culture of this wheat?

I am, very respectfully, yours, &c.

JAMES G. SOULARD.

Transplanting—Potatoes—Italian Wheat—Ploughing old Meadows.

Clinton, *Oneida co. Jan. 5th*, 1838.

Mr. Buel,—Sir,—As the earth is composed of atoms, and the ocean of drops, so the columns of the Cultivator may, perhaps, receive an accession of interest from sources comparatively small. A few brief remarks are all I propose to offer.

1st. With respect to transplanting. In the early part of December, 1836, I procured a lot of apple trees, and set them the next day, (roots partially froze during the night;) the ground being naked and clear of frost. The next season witnessed a fine growth in every instance; numbers of them blossomed, and one bore about a dozen apples to maturity. The suggestion I would make is, that late fall, or winter setting when practicable, is preferable to performing that operation in the spring, as the earth becomes adjusted to the roots by the long action of winter, being thereby less exposed to perish by drought or other causes.

2d. As much difference of opinion exists, whether large, small or medium size potatoes are best for seed, I made a trial of the two extremes in the following manner, viz. by planting two rows with one potato of the largest size in each hill; then two with three of the smallest in each hill, placed in a triangular form, four inches apart, soil similar and very rich. Result—the potatoes from the first two rows were generally larger than those from the other two, (though all were large, and the yield about one-sixth greater.) As truth is said to lie between extremes, as a general rule, perhaps this case is not an exception.

3d. Italian wheat. My experience here is limited, having raised but a single patch of forty-eight rods, from which I obtained eight and three-fourths bushels, being at the rate of twenty-nine bushels per acre. The crop was diminished by smut, the straw bright and grain heavy, weighing more than sixty-one pounds to the bushel. I beg leave here to suggest the importance of making all statements of crops for publication, from *actual measurement*, both of land and product. The superiority of this variety of spring wheat is thought by many to consist chiefly in its adaptation to worn out or light soils. My field had been in tillage forty years, with, perhaps, one exception. As far as my observation extended the past season, the growth was abundant, very little injured by rust, and I am not at present willing to abandon its culture. If on further trial some other species shall be found preferable, of course they will supersede it, as improvement is or ought to be the object of every farmer.

4th. In conclusion, I would reiterate your oft-repeated recommendation, to plough up old worn-out meadows, and keep them in tillage two or three seasons. My own experience, though not great, enables me to say that on a piece of meadow thus renovated, I have for several years cut triple the amount of its former product.

I am, sir, with respect, yours, &c,

G. BUTLER.

Relative Value of Ruta Baga for Fattening Oxen.

Scaghticoke, *Feb.* 3, 1838.

Sir,—Believing the turnip culture to be of almost inestimable value to the farmers of this country, and knowing the strong prejudices entertained by the most of them, against any thing like innovations, or deviations, from the good old ways of their fathers, as they term them, I deem it the duty of the few, who have been credulous enough to cultivate a few acres, to say, what they can, from experience, to induce others to give them a fair trial, and a chance to grow upon a few acres of their poor sandy soil, that will hardly grow any thing else, and they will find, when the *summer* is *passed*, and the *harvest ended*, that they have not been imposed upon, except by the large quantity of roots. And, it was my object in commencing this article, to show what I believe to be their value, for feeding, in comparison with other grains and roots, generally used. I will first state that my crop was about 950 bushels per acre, on a light, sandy soil, without manure, ploughed but once, and hoed twice, the whole expense, including interest of land, was less than 3 cts. per bushel, a price which I have frequently paid for digging potatoes, and the same land would not have produced 200 bushels. I fed 2 yoke of cattle on them for 2 months, viz: November and December, feed 5 bushel per day, a yoke. Average gain 115 lbs. a yoke per month. The same cattle were fed through the month of January, on potatoes and meal, corn and oats, ground together in equal quantities, feed 2 bush. potatoes, 1 bush. meal. Gain 60 lbs. Estimate the value of the ruta baga, by the present price of corn, oats and potatoes, and the respective gains, and it makes the ruta baga worth but a fraction less than 48 cts. per bushel; that is, if corn is worth 8*s*., oats 4*s*., potatoes 2*s*., for making beef, we must put the ruta baga at 48 cts. I will only add that the experiment was fairly tried, the cattle were weighed correctly, and eat their allowance every day.

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* *Humin, humis, humic acid.*—These seem to be but different names for the same substance, and but *new* names for the black carbonaceous matter of dunghills—the fertilizing material of soils. The principal elements are carbon and hydrogen, with more or less of other matters, as oxygen, nitrogen, oxides, and earths. We will speak more at large upon this subject in our next.

Yours, respectfully,
JOHN C. MATHER.

Cure for the Scours in Calves, &c.

Scantick, E. Windsor, Ct. Jan. 17, 1838.

Judge Buel,—Dear Sir,—About ten years ago I happened to observe a young man busy about a sick calf, endeavoring to force it to taken some medicine, and on inquiry I found the disease to be what the farmers here call the white scour, or a drain horn of a light ash color. He was a large well formed bull calf, of the Durham breed, but was apparently near death, being excessively weak, having refused all food for several days. Believing the disease to be caused by acidity, and to depend upon a suppression of the secretions from the liver, I directed five grains of calomel to be given once in four hours, until the evacuations assumed a darker color. This was done. The white purging was checked by the first dose, and in some twelve or fifteen hours after was followed by evacuations much resembling tar in consistence and color. This change was followed by complete relief; the appetite and strength returned, and the calf proved to be a very valuable animal.

Since that time I have almost every year given calomel in this way to calves thus affected by the white scour. I have not known a single instance in which it has failed of effecting a speedy and complete cure. I have commonly advised scalded milk to be given, to prevent a relapse.

Some time last May, being at the residence of my father-in-law, I noticed one of his swine, a fine huge barrow, apparently very much exhausted, and was told that it had had the lockjaw for nearly a week previous, and that during that time, it had not swallowed a particle of food, or a drop of liquid, and that it was impossible by any means to force his jaws open, even in the slightest degree. Suspecting another disease, I directed an examination of the glands back of the angle of the jaw; these proved to be excessively swollen and very hard on each side. A deep incision was immediately made with a sharp knife into the substance of each gland, through a wound in the skin, about three inches long. Half a tea-spoonful of a mixture of calomel and lard was crammed to the bottom of the wound, and the skin being closed by a single stitch, the operation was completed. In less then two hours the hog ate freely, and in a fortnight was apparently perfectly well.

If these facts can be made useful to you in any way, you are at liberty to make what disposition you please of them.

I am, sir, very respectfully, yours, &c.
H. WATSON.

Mode of Planting Cedar Hedges.

Judge Buel,—In looking over number 11 of the present volume of the Cultivator, I notice the method of planting a cedar hedge, as recommended by John Taylor, of Caroline county, Va. and as I should infer, also advised by the Cultivator.

I have at least as handsome a cedar hedge as I have ever seen, and raised with, perhaps, one-twentieth part of the trouble that is required to dig up and tansport each plant, with some fifteen or twenty pounds of earth attached to the roots, as recommended by him.

My plan was this: on the last of the third month, (March,) 1823, a trench was first partially opened to the width of a spade; the remaining earth to the depth of nine inches, was worked to a fine mellow state, and not removed. With the aid of a small boy, in about one day, I obtained the plants from the fields, and nearly finished the planting; a single stroke with a grubbing hoe, near the plant, would loosen the soil, and then removed carefully, *but without any earth attached to the roots.* The plants were from six to eighteen inches high, and the roots of each dipped in water, as planted. They were placed in a single row, from four to six inches apart, requiring from 300 to 350 plants; and out of this number not one dozen failed to grow. The hedge is about forty yards in length, (separating my yard and vineyard,) and so close as entirely to obstruct the view from the opposite side; is about eight feet high, and from four to five feet through at bottom; the average size for eight or nine years past. The annual pruning will soon reduce it to six feet high, and about two and a half feet thick.

A common farm hand will prune it in a few hours, and it then presents a beautiful appearance; the top is clipt with pruning shears, and the sides with a common mowing scythe, very evenly and expeditiously, mowing *perpendicularly.*

No hedge that I have met with, is more ornamental; and few are made with less labor; if care is taken to keep them well pruned, there is no danger of their not being thick enough at bottom.

If the above hasty remarks are considered worth a place in the Cultivator, please make use of them.

I am respect'y, E. S.
Harewood Montg'y co. Md. 1*st mo.* 8*th*, 1838.

Remark.—We thank our anonymous correspondent for the above valuable communication. The red cedar grows upon most of the Atlantic border, and we are *now* satisfied, that with moderate care, red cedar hedges may be made to grow and do well. We did not intend to *recommend* Mr. Taylor's mode of planting; in fact we did not give the matter a thought—considering Mr. Taylor's authority as sufficient. But we *do* recommend the above mode with two slight variations; first, that the roots of the plants be dipped in a thin grout, that is loam and water made of the consistence of porridge, and that the transplanting be delayed *till the spring growth has commenced*—it satisfactorily appearing, from experience as well as philosophy, *that all evergreens are most successfully transplanted while in the progress of growth.* It may be well, after the planting is done, to cover the ground about the roots with straw or litter, to prevent evaporation.—*Cond. Cult.*

Book Farming Considered.

Whalen's Store, 20*th Jan.* 1838.

Dear Sir,—I have been a constant and much gratified reader of the Cultivator, since its first commencement, and have taken much pleasure in introducing it to the notice of my neighbor farmers. In a few cases I have been successful, would that I could say so in all. I consider the money paid for it an investment that will be repaid to the intelligent farmer, with tenfold interest, and that too in most cases before the subscription year expires. The common objection I find, is its being "Book Farming;" to do away this absurd notion, I conceive to be of great importance; remove this film from the eyes of the agricultural community, and you have at once a large and rapidly increasing circulation. The lawyer, physician, divine, and mechanic read; and for what? to get the opinions and experience of those that have travelled the road before them; to get arguments and ideas that a life time of experience might not give. True, practical knowledge is good in all cases, as far as it goes; but how many rocks and quicksands in our journey through life should we not shun, did we but take warning from the many monitors continually issuing from the press, guiding us like beacons of light to the lone mariner in the way to the wished for haven. Agricultural periodicals bring us into an acquaintance with those far distant from us, and of whom we could know nothing, except from their communications. One sits down and gives a long list of failures before a profitable result has been attained; now in half an hour's reading we gain, perhaps, what our informant has spent years of toil and anxiety to obtain. Another gives a description of a building, farm implement, plan of draining, or making, perhaps, a fence or gate, bringing the subject to our mind's eye, in so plain a manner, that we may be said almost to have ocular demonstration of the same. Now, instead of travelling for this information, it is brought to our fire-side, where, during the long winter evenings, we can con it over at our leisure, and judge of the propriety of adopting or rejecting it. I am far from recommending the adoption of every new theory in agriculture; but when a long series of experiments have terminated in continued favorable results, then why not adopt them, particularly if reason and judgment speak to us in their favor. Let us then away with the ill-founded prejudice against "book farming," and let each farmer take an agricultural paper for one year, and my word for it, that ninety-nine in a hundred express themselves more than amply remunerated for the expense. A thought struck me, that the circulation of the Cultivator might, in many cases, be extended by an offer to refund the subscription at the year's end, should the paper fail of giving entire satisfaction; the subscriber returning the papers in order to the office, or its agents; believe me, the drawback would be small. Again, let each subscriber introduce the Cultivator to his neighbor that is without it, and see if he cannot add at least one to the subscription list; would they do so, its circulation could easily be doubled.

I can lay no great claim to either book or practical farming; but were I to be deprived entirely of reading on the subject, I should consider my progress much retarded, and the prospect in the future a cheerless one in the extreme.

With unfeigned wishes for the success of the Cultivator, and all its kindred prints, permit me to subscribe, your ob't serv't.

J. Buel, Esq. SETH WHALEN.

Siberian Wheat.

Stamford, Del. co. Jan'y 19*th*, 1838.

Mr. Buel,—Dear Sir,—I have read with pleasure and profit, the various communications in the Cultivator on the subject of improvements in agriculture, and amongst these, my mind has been led to the introduction and selection of the best kinds of seed, as one which ranks high in value to the farmer.

My object in this communication, is to give to the public, through the medium of your very valuable paper, my experience in the growth of the Siberian spring wheat. About the 6th or 7th of May, I sowed three bushels and four quarts of Siberian seed on three and a half acres of ground, planted the previous season with corn; the soil middling for the ridge land in this county, though never manured. The tillage, owing to unavoidable circumstances, poor, it being ploughed but once, and that poorly and lightly; harrowed one way. About one and one-fourth acres of this was thickly infested with brier roots, which sprouted and grew so luxuriantly as to destroy at least one-fourth of the crop on that part of the field I harvested 1,485 sheaves; have threshed 638, which produce 43½ bushels of first rate wheat. The sheaves threshed being an average of the whole crop, I have no doubt but I shall have 100 bushels.

The above is the result of my first crop under very disadvantageous circumstances. Were I to venture an opinion of a future crop with good tillage and favorable season, it would be much larger; but I find "guess work" meets with a rebuke.

I will, however, venture one comparison, since I have reduced it to matter of fact. In the same field with the Siberian I sowed my common spring wheat, on land equally as good and tillage the same, with the advantage in favor of the common, that it was sowed at the rate of one and one-fourth bushels of seed to the acre, and in consequence of the grain being smaller, I judged that there was twice as many plants on a given quantity of ground of the common, as there was of the Siberian. Both sowed the same time. The common came in about one week before the Siberian. Both kinds full and plump kernel. The straw of the common somewhat rusty, and some smut; the other straw bright and lustrous, and no smut. The common produces eighteen bushels per acre; the Siberian, as you will see, making a fair allowance for damage done by briers, about thirty-three. I saw also, on examination, considerable of the works of the Hessian fly in the common; only two plants in the other.

Thus I have endeavored to give the public a fair and candid statement of my experience in growing the Siberian spring wheat. Whether it will be considered very like a "bed-bug," or another "harbinger of summer," I cannot tell.

Yours respectfully, GEO. STURGESS.

Ruta Baga—Italian Wheat—Crops generally.

Oxford, Jan'y 14*th*, 1838.

Dear Sir,—I made a good crop of ruta baga last year. Not as large crop as others have mentioned, but it was a fair crop, 360 bushels from half an acre, from seed I bought of you, and they were good. I find them excellent food for all kinds of stock. Fat cattle, cows, horses, sheep and hogs, improve well on them. I think them excellent for sheep. They appear to be well calculated for villages, where land is high, and the occupants wish to obtain the most possible feed from a little land. I consider the root culture as of great importance, and increasing rapidly.

The Italian wheat did well, better than any other kind. I sowed two bushels, and some of it lodged, and did not fill so well, as the ground was too rich. However, I got forty-five bushels of excellent clean wheat, weighing upwards of sixty-one pounds to the bushel. It sells freely for three dollars per bushel. I have ground a few bushels, and it makes better flour than I can buy. My son-in-law carried six bushels last spring to Pine Creek, Tioga county, Pennsylvania, and calculates on 150 bushels; and he informs me he could take five dollars per bushel it he would sell it. He means to sow fifty bushels this spring. It has done so well hitherto.

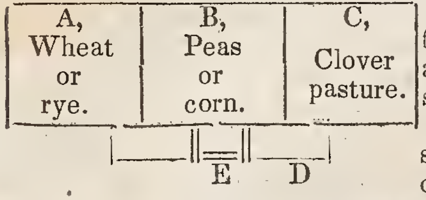
Potatoes, oats, barley, grass, &c. have done well last year. Apples were mostly spoiled before gathered the two last seasons. The winter has been soft so far. Some people have ploughed in January.

Cattle sell well. I sold a pair of four year old steers for 140 dollars, in September, after using them all the spring, and till that time. They were the short horned Durham in part. I think that half bloods of that breed answer our purposes for cows, oxen and for beef as well as any. Those cattle I sold had never eaten a bushel of grain. Last winter the yoke ate about 100 bushels of ruta baga.

Respectfully your humble servant,
J. Buel, Esq. URI TRACY.

Rotary Pig Pasture.

Jesse Buel, Esq.—Dear Sir,—The following is a description of a clover pasture for swine, which, in my opinion, where a situation is convenient for the same, with a warm soil, a portion of the farmers interest cannot be placed in a more profitable manner, than by having each successive year a fresh clover ley for his hogs.



A, represents a field of grain of one acre or more, well stocked with clover. B, a field of the same size of corn or peas. C, a clover pasture for hogs. D, a lane leading from the hog-pen.

The following year the lot A, will be the range for the hogs, and so on by a rotation of crops, the whole is constantly improving with the addition of the manure from the piggery. New improvements in rotation I frequently hear of, such as stoves, steam-boilers, &c. their success has induced me to send you the above plan of a Rotary Hog Pasture.

Yours respectfully. S. W. JEWETT.
Weybridge, Vt. 20th Jan'y. 1838.

EXTRACTS.

Experiments in Feeding Sheep.

[*From the French of Daubenton.*]

I confined, in a small space, two sheep, about twenty inches high, (the height of most woolled animals in France.) By way of experiment I caused the sheep to be fed, during eight days, solely upon grass newly cut, and weighed before placed in their rack. Care was taken to pick up, and place in it back again, all that the sheep let fall, and to weigh that which they would not eat in consequence of its being too tough, or because it possessed some bad quality. From this trial, frequently repeated, it appeared that a sheep of the middle stature eats about eight pounds of grass in a day. The same experiment, conducted with the same preciseness, in regard to the fodders of hay or straw, have proved, that a sheep of middling height likewise eats daily two pounds of hay, or two and a half pounds of straw.

In order to ascertain how many pounds of grass go to one pound of hay, I caused the grass to be weighed as soon as cut; it was then spread on cloths exposed to the sun, so that none might be lost, though at the same time well dried. Being thus converted into hay, I found its weight reduced to one fourth; eight pounds of grass had only given two lbs. of hay.*

Agriculturists know how many cart loads or trusses a field can produce; consequently they can judge how many sheep it can maintain in hay or in grass. They have a rule thence for proportioning the number of their sheep to the quantity of pasture and fodder they can supply them with.

Having determined the quantity of solid food essential to the good regimen of the woolled kind, I made other experiments upon these animals, in order to know at what time they should drink.

It is well known that they seldom drink when they feed upon fresh grass, but stand in want of water when fed on dry meal. Different opinions are pursued as to the proper time for watering them. In some countries they are taken to water once or twice every day; in others, not for one, two, three, four or even five days. By the following experiments I have endeavored to ascertain which of these regimens, so different from each other, is entitled to preference.

I shut up in a stable, in the depth of winter, a small flock, of which all the sheep were marked with a number. They were kept, night and day, without being suffered to quit it, and fed with a mixture of straw and of hay, without any other aliment. Each day a shepherd carried in his arms, successfully, some sheep out of the stable, to let them drink in my presence, out of a vessel guaged at different heights, and then took them back into the stable, when they had either drank or refused to drink.

By this method, I knew how much water the sheep had taken, when presented with it once, twice or thrice each day, or only once in two, three, four or five days. Most of the sheep in this little flock passed a month in the stable without drinking: their appetite was always the same, and they experienced no other inconvenience than that of thirst, of which they gave evident proof by running to lick the moist lips of those carried back to the stable on return from drinking.

The result of these experiments, which I cannot here detail, led me to conclude, that sheep, with no other nourishment than that of dry hay, and within reach of water, could pass days without drinking; but they would take a greater quantity of water the following day than if they had drank the evening before; this quantity increases to a certain degree if they have been deprived of water for many days together. They are then tormented with thirst, for they are then eager to get a drop of water; if they could find it in abundance they would drink too plentifully for their temperament, subject as they are to effusions of serosity, which produce mortal hydatides in the brain, and the rot, a disease no less fatal.

The best plan is to drive the flock every day to the pond, and to make it pass slowly, without stopping there: by this method it will be found that the sheep who really want to drink will be the only ones who will drink.

In countries where water is scarce, it frequently happens that the pond is far distant, and the flock cannot be driven to it without being fatigued; in this case they may pass many days without drinking; but when fed only on dry meal, it must not be delayed too long.

This aliment differs much from fresh grass, in consequence of the loss of moisture by drying; yet sheep take daily the same quantity of solid food, whether in grass or in hay. In the experiments before mentioned, I found their appetite perfectly equal, for they ate eight pounds of grass, or two corresponding pounds of hay, which I found to be the product of eight pounds of grass. The evaporation which is carried on during the making of the hay, takes off three fourths of the grass in fluid particles; thus the sheep which eats two pounds of hay is deprived of six pounds of liquid aliment, which it would have had by eating eight pounds of grass. It supplies a part of this deficiency by drinking about three pounds of water when fed upon hay; but this water is not in sufficient quantity, and posssesses not the same quality, as the liquid of the grass evaporated in drying.

There can be no doubt but this difference in regimen is productive of bad effects. I shall mention some fruits of it, which are indeed too evident and too frequent.

In countries where the snow remains upon the ground for one or two months, the cattle are reduced to dry fodder as long as it lasts; then the weaker sheep, and chiefly the lambs, the sheep of the second year, the pregnant ewes, and those in milk, languish and drop off. Shepherds denote this miserable state by saying, they melt their fat: they certainly grow very lean, and fall off in great numbers.

I have often reflected upon the cause of this evil, and the means of preventing it. After having prosecuted every inquiry I could think of, it appeared to me to arise solely from a change of diet too suddenly effected. In one day the sheep are reduced from eight pounds of grass to two pounds of dry fodder and three pounds of water. They are thus deprived, therefore, all at once, of three-eights of their wonted nourishment, and these three-eights composed the half of the fluid part of it.

According to my experience of the quantity of water taken by sheep, it appears that their drink can only supply one half of the liquid which grass contains more than hay. It would be dangerous to excite them to drink a greater quantity of water, because they are very subject to infiltrations. We must, therefore, endeavor to supply them with at least a small quantity of fresh food every day, in order to correct the bad effects resulting from dry meat.

The most sensible of these bad effects appears in the third stomach, composed in the interior of a great number of membraneous folds, detached from one another, although it is only from eight to ten inches in circumference when filled with air. During rumination the food passes from the throat into this third stomach, and spreads among all the folds. I have there found it very frequently parched, and almost withered, in many sheep which I have dissected.

This aliment, after having been ruminated, receives, in the third stomach of the sheep, and of other animals that chew the cud, a preparation for digestion, which latter takes place only in the fourth stomach. The aliment is dry in the third stomach, not only when the animal is fed on dry meal, which has not furnished sufficient liquid, but also when attacked by some disease causing too great heat, and consequently too great evaporation of the liquids necessary to digestion. In these cases, bad digestion, and the evils attending it, may be prevented by giving some green food at least once a day.

At all times when the ground is not covered with snow, sheep find upon it sufficient fresh food to render it unnecessary to give them any in the rack with their dry meal, in a bad season. I have often stopped in the midst of a flock, in fields half covered with snow, when no grass whatever was to be seen; the sheep, however, having their eyes near the ground, perceived the points of some leaves, and scratched with their feet to find more of the plant; they then seized it with their teeth, and sometimes pulled up the roots along with the leaves. But when the snow entirely covers the ground to a certain thickness, there is no other recourse than in the plants which are high enough to enable the sheep easily to remove the snow which covers them.

[The writer then proceeds to recommend a species of hardy cabbage, which might be raised without sowing or transplanting, to be cultivated for the winter use of sheep. It is to be remarked, that when Daubenton wrote, neither the turnip nor beet culture had been introduced into French agriculture. The latter now furnishes them an abundant and an excellent succulent food for the winter keep of sheep and other farm stock.]

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* The loss in curing hay depends upon the species of grass, and the time at which it is cut. According to Sinclair's table, clover loses three fourths, timothy, when in flower, less than two thirds; and when cut in seed, but a little more than one half.—*Cond. Cult.*

Moneys received during the last month. Sums under five dollars not noticed.

		No Vols.
Alfred, Alleg.		23
Abingdon,	Md.	12
Bellerica,	Mass.	15
Bardstown,	Ky.	11
Brownsville,	Pa.	13
Bristol,	Ct.	15
Bethany Church,	N.C.	7
Bath, Steu.		11
Bath,	N.H.	5
Brooklyn,	Mich.	11
Bethany,	Pa.	6
Bladensburgh,	Va.	5
Buckingham, C.H.	Va.	16
Brentsville,	Va.	5
Chuckatuck,	Va.	5
Canaan,	Pa.	5
Conneautville,	Pa.	11
Cortland Village,		16
Coxsackie, Greene,		20
Clarkson,	Oh.	8
Columbus,	Oh.	13
Centreville,	Md.	10
Chestertown,	Md.	11
Cheraw,	S.Caro.	22
Cleaveland, Oswe.		11
Chelsea,	Vt.	5
Cooperstown, Ots.		9
Catharines, Chem.		11
Dilworthstown,	Pa.	12
Elgin,	Illi.	15
Erwin, Steu.		5
Edwardsburgh,	Mich.	7
East Fairfield,	O.	11
Eugene,	Ia.	12
E. Haddam,	Ct.	14
Frankfort,	Ky.	20
Farmington,	Ct.	14
Front Royal,	Va.	5
Goshen, Ora.		6
Half Day,	Illi.	8
Haverstraw, Rock.		8
Hughesville,	Pa.	11
Hillsdale, Col.		11
Hadlyme,	Ct.	12
Hartford,	Ct.	9
Ives' Store,	Va.	11
Jennings' Ordinary,	Va.	11
Kirtland's Mills,	O.	16
Little-Falls, Herk.		10
Leonardtown,	Md.	10
Lenox,	Mass.	13
Lima, Liv.		10
Little Levels,	Va.	23
La Grange, Gene.		6
Lousia, C.H.	Va.	11
Lawrenceville,	Pa.	5
Logan, Tomp.		11
Lyons, Wayne,		14
Leeds, Greene,		6
Locke Berlin, Wayne,		12
Marshall,	Mich.	6
Milton, Uls.		14
Middletown,	N.J.	11
Mechanicsville, Sar.		12
Murfreesburgh,	Tenn.	5
Middletown, Del.		5
Mansfield,	Va.	7
Mendon,	Illi.	6
Mendham,	N J.	13
Naperville,	Illi.	21
New-York city,		25
New-York Mills, One.		11
Newbern,	Va.	11
New-Holland,	Pa.	11
New-London,	Ct.	11
New-Canaan,	Ct.	13
New-Market,	Va.	19
New-Haven,	Ky.	5
Nanjemoy,	Md.	11
North Lake,	Mich.	11
Owego, Tio		6
Orange, C.H.	Va.	11
Orford,	N.H.	11
Office Tavern,	Va.	5
Philadelphia,		52
Pittsburg,	Pa.	11
Phillipsburgh, Ora.		5
Penfield,	O.	10
Palestine,	Illi.	15
Poughkeepsie, Dutch.		6
Portsmouth,	N.H.	22
Pikesville,	Md.	5
Plainfield,	N.J	5
Rahway,	N.J.	6
Rhinebeck, Dutch.		25
Suffolk,	Va.	22
Surry, C.H.	Va.	5
Strasburgh,	Va.	24
Southbridge,	Mass.	12
Savage,	Md.	11
Shaftsbury,	Vt.	11
Stone Wall Mills,	Va.	5
Shirly Village,	Mass.	19
St. Albans,	Vt.	27
Stockport,	Col.	8
Salisbury,	Ct.	6
Timberville,	Va.	5
Trenton, One.		10
Uniontown,	Md.	17
Union Bridge,	Md.	8
Watertown,	Mass.	80
Washington city,	D.C.	10
West Bloomfield, Ont.		8
Wellsboro',	Pa.	8
Warsaw,	Va.	11
Warren,	Vt.	11
West Springfield,	Mass.	11

PRICE CURRENT.

ARTICLES.		New-York. Feb. 23.	Boston. Feb. 21.	Philadelphia Feb. 20.	Baltimore. Feb. 20.
Beans, white, ...	per bush.	....	1 12.. 1 25	1 00.. 1 12	1 25..
Beef, ...	cwt..	8 00..12 00	6 75.. 7 25	7 50.. 9 00	7 00.. 8 50
Bacon, western, ...	lb....	....	....	9 00..10	10 00..13
Butter, fresh, ...	lb....	....	13.. 14	12.. 13	20.. 25
Cheese, ...	lb....	7½. 9	8.. 9	9.. 10	
Cotton, best, ...	lb....	8.. 11	....	10.. 12	10.. 12
Flour, best, ...	bbl..	8 00.. 8 25	8 25.. 8 62	7 50.. 8 00	10 00..11 00
Grain—Wheat, ...	bush.	1 40.. 1 50	....	1 55.. 1 65	1 70.. 1 80
Rye, ...	bush.	.. 1 00	.. 1 10	95.. 1 00	85.. 90
Oats, ...	bush.	46.. 43	52.. 54	36.. 37	37.. 37
Corn, ...	bush.	75	80.. 88	66.. 72	70.. 76
Hams, pork, ...	lb....	10.. 11	13.. 15	11.. 12	13 00..
Pork, in hog, ...	cwt..	8 00..12 00	....	7 50..	5 25.. 5 50
Seeds—Red Clover, ...	bush	....	7 00.. 7 80	5 00.. 5 75	....
Timothy, ...	bush.	....	2 75.. 3 00	2 ..3 25	3 00.. 3 50
Wool—Saxony, fleece, ...	lb....	45.. 50	50.. 55	65.. 73	40.. 50
Merino, ...	lb....	37.. 38	45.. 47	46.. 50	35.. 40
1-4 and com.......	lb....	28.. 32	33.. 38	33.. 37	25.. 30
Sheep, ...	head,	....	2 50.. 5 00	....	....
Cows and Calves, ...		....	....	....	30 00..40 00

THE CULTIVATOR--EXTRA.

ALBANY, MARCH, 1838.

N. Y. State Agricultural Society.

The society convened pursuant to adjournment at the City-Hall, in the city of Albany, on the first day of February, 1838. The President took the chair; Henry S. Randall, of Cortland, was appointed Secretary *pro tem.* After some preliminary arrangements, and for the purpose of enabling the State Agricultural Convention to be organized, the society adjourned to meet at the City-Hall on Friday, February 2d, at 10 o'clock, A. M.

City-Hall, Friday, February 2d, 1838.

Mr. Buel, from the Board of Inspectors, appointed at the last annual meeting of the society to examine and test the merits of new farm implements, reported that the board met in July last, and examined various farm implements, which were exhibited for their inspection. [For report see Cultivator Vol. iv. No. 6.]

The Treasurer of the society presented his annual report, which was read, accepted, and ordered to be filed.

Mr. Buel read a letter from Anthony Dey, of New-York, embracing copies of letters from J. W. Glass, of London, in relation to a new and improved process of manufacturing sugar from the beet. A copy of this communication was requested for publication, and is as follows:

New-York, 23d January, 1838.

Judge Buel,—Dear Sir,—I send you copies of four letters I have received from Mr. J. W. Glass, of "Clapton, London," on the subject of making *beet sugar.* I have supposed the best service I could *render the country,* was to transmit the information to you, and perhaps some one or more of the 20,000 subscribers you have, may find it to their advantage to correspond with Mr. Glass on the subject. Please make use of so much of the information conveyed as you may deem best to answer the desired purpose.

With great respect and esteem, I remain, y'r m. ob.

A. DEY, 63 Cedar-st.

—

Clapton, London, 1st Nov. 1837.

Anthony Dey, Esq. New-York:

Dear Sir,—Aware that you are a great promoter of scientific improvements, I beg leave to inform you, that a gentleman of my acquaintance has taken out a patent for a very valuable discovery in the manufacture of sugar from beet root, (and equally applicable to maple,) which, after paying to government the protectory duty of twenty-four shillings per cwt. he can afford to sell at half the price of West India sugars. By his process he can extract the saccharine from the beet all the year through, whilst under the process now employed in France, &c. it can only be extracted about three months in the year. He has been offered £70,000 sterling for his patent for England, but will not take less than £100,000. It has occurred to me, that if the soil of the United States be adapted to the culture of the beet root, a joint stock company might be formed in New-York, which would find favor with the public, and become a profitable speculation.

Your early and candid opinion on the subject will much oblige, dear, sir, respectfully, your most ob't ser't,

J. W. GLASS.

—

Clapton, London, 7th Nov. 1837.

Anthony Dey, Esq. New-York:

Dear Sir,—I refer to my respects of 1st inst. on the subject of the latest new invention for the extraction of sugar from beet root, and now beg leave to hand a few more particulars for your information, calculated, including the enormous duty of 24*s.* per cwt. levied by this government, from which I presume the process in America would be exempt.

The best French works are said to extract from one cwt. beet root six pounds of sugar and three pounds of molasses; by the new patent nine pounds of sugar is extracted, but little or no molasses. The French mode, therefore, gives six pounds of sugar at 6*d.* and three of molasses at 2*d.*: total 3*s.* 6*d.*; the new patent, nine pounds of sugar at 6*d.*: 4*s.* 6*d.* The average price at present, of West India sugar, is 37*s.* per cwt. Supposing the expense of extraction similar, the product would be 1*s.* per cwt. or 20*s.* per ton of beet, more than on the French plan. The raw material, no doubt cheaper with you, would cost 15*s.* per ton, therefore, any improvement causing an extra product of 20*s* per ton, would be 133 per cent on the raw article, besides the profit on the old French plan. The statement is the following:

Cost of 1 ton of sugar beet,	15*s.*
Manufacturing 12*s.* or say,	15*s.*
Cost,	30*s.*
Produce.—180 pounds of sugar, at 6*d.*	90*s.*
Less duty, at 24*s.* per cwt.	38*s.* 6*d.*
	51*s.* 6*d.*
Value of refuse, the pulp being used by paper makers,	2*s.* 6*d.*
	54*s.*
Cost,	30*s.*
Profit,	24*s.*

From these calculations I leave you to judge how far it might prove lucrative speculation, and I request your candid opinion of the best mode to carry it into operation in the United States.

Waiting the favor of your reply, I remain, dear sir, your most ob'nt servant, J. W. GLASS.

—

Clapton, London, 13th November, 1837.

Anthony Dey, Esq. New-York:

Dear Sir,—Referring to my respects of 7th ints. permit me to add a few words more for your consideration, in exemplification of the extract of sugar from beet root by the new process. The cost would not, without duty, exceed 2*d.* (4 *cents*) per pound.

Land in this country, ready for planting, rented at £6 per acre, stands, with cultivation, in not quite £10 per acre; the produce averages fifteen or twenty ton per acre. We can contract with growers in different parts of the country at 15*s.* per ton.

The question is, at what price can it be produced (*delivered*) in America? We have coals in Bristol, Liverpool, &c. at ten shillings per ton. Here we beat you. As to the value of the patent, my Bristol friends say that £100,000 may be too little for it! So much depends on the profit to be made by it, the security from invasion, and the mode of payment, I should think it would be a splendid thing for America; and waiting the pleasure of your advice, I remain, respectfully, dear sir, your most obd't servant, J. W. GLASS.

The invention would be equally applicable to the maple, or even the sugar cane.

—

London, 8th Dec. 1837.

Anthony Dey, Esq. New-York:

Dear Sir,—I am on the point of concluding the formation of a joint stock company, for the extract of sugar from beet root, alluded to in my former letters, with a capital of three hundred thousand pounds, one-third of which goes to the patentee, a part in money, the rest in shares. I have already explained to you that this sugar can be produced here, paying 15*s.* per ton for the beet root, at four cents per pound; and as the raw material may probably be grown cheaper in America, there may be an advantage; and hence the patent of discovery may be found quite as valuable there, as it is here. There appears to be a great many in, as the last quotations from New-York give New-Orleans sugar, wholesale, at 8½ to 9 cents, and lump 14 to 16 cents.

I look with some anxiety for your opinion on the subject; and remain, dear sir, your most obd't servant.

J. W. GLASS.

Mr. Duane, of Schenectady, from the committee to collect statistical facts in relation to the silk business, stated, that the chairman of the committee, Judge Spencer, was absent from the United States, and asked further time to report, which, on motion of Mr. Baldwin, of Onondaga, was granted.

On motion of Mr. Buel, it was

Resolved, That a committee be appointed to confer with the members of the legislature, and particularly with the agricultural committees of the two houses, on the expediency of making an appropriation of public moneys in aid of the improvement of our husbandry.

The chair named, as the above committee, Messrs. J. B. Duane, of Schenectady, A. McIntyre and J. Buel, of Albany, J. J. Viele, of Rensselaer, and A. Van Bergen, of Greene.

On motion of Mr. Allen, of Erie, the president and secretary of the society, were added to the committee.

On motion, Messrs. Duane, Buel, and Van Bergen, were appointed a committee to report to the society names of officers for the ensuing year.

Mr. Duane, from the above committee, reported the names of the following officers, and the report was unanimously adopted, viz:

JOHN P. BEEKMAN, of Columbia,	*President.*
Anthony Van Bergen, of Greene, W. A. S. North, of Schenectady, Archibald McIntyre, of Albany, Alexander Walsh, of Rensselaer, Harvey Baldwin, of Onondaga,	*Vice-Presid'ts.*
J. Buel, *Corresponding Secretary.*	
John Walsh, *Rec. Secretary.*	
Caleb N. Bement, *Treasurer.*	
John Townsend, of Albany, Jesse Buel, of do. Alexander Walsh, of Rensselaer, H. D. Grove, of do. L. F. Allen, of Erie,	*Exe. Committee.*

Mr. North introduced the following preamble and resolutions, which were adopted:

Inasmuch as the object of this society is the improvement of agriculture in all its branches,—and as the speediest way of diffusing agricultural knowledge, is by eliciting from its members, whatever of experience they may have gained in those departments of farming, to which they have particularly turned their attention; therefore,

Resolved, That committees of two be appointed to furnish the society, at its next annual meeting, reports on the following subjects:

1. On farm yard management, as it relates to the wintering of cattle and the augmentation of manures. [Committee, Messrs. North and Duane, of Schenectady.]

2. As regards the feeding and management of sheep in winter. [Committee, Messrs. Rotch, of Otsego, and Grove, of Rensselaer.]

3. On the most approved method of stall feeding oxen and other neat cattle. [Committee, John Sanford and Dan. Brandley, of Onondaga.]

4. On the best vegetable or root crops for feeding cattle, and the best manner of cultivating the same. [Committee, Messrs. Buel and Bullock, of Albany.]

5. On the most profitable mode of fattening hogs and rearing swine. [Committee, Messrs. Bement, of Albany, and McDonald, of Washington.]

6. On converting weeds, green crops, and vegetables into manure, and forming composts, and the application of different kinds of manure to different soils. [Committee, Messrs. Ball and Walsh, of Rensselaer.]

7. On the effects of lime and its application to different soils. [Committee, Messrs. W. Gaylord, of Onondaga, and J. J. Viele, of Rensselaer.]

8. On meadow and pasture lands, and the best modes of renovating them, and of seeding down lands to grass. [Committee, Messrs. L. F. Allen, of Erie, and Matthews, of Cortland.]

9. On the proper time to cut timothy and clover, and the most approved method of curing the same. [Committee, A. Van Bergen, of Greene, and S. Towsley, of Onondaga.]

10. To digest a plan for the improvement of our common roads. [Committee, Messrs. Cheever, Buel and McIntyre, of Albany.]

The society then adjourned to meet at the Assembly Chamber, at 4 P. M.

Assembly Chamber, 4 *P. M. Feb.* 2.

The President delivered the following

Address.

Gentlemen:

Having been selected by your partiality, more than my fitness, to fill the office of president of this society for the last year, it is made my duty at the expiration of the term to address you. In doing so, I could wish to make it more than a simple matter of form. Were my abilities equal to my inclination, I would throw around the great subject we have met to discuss and improve, the most captivating eloquence, and the most convincing argument. But, gentlemen, I make no pretensions to the first; and, being a farmer by choice, if I can impart any interest to my subject, it is in the lessons I have drawn from my own practical observations in husbandry.

On an occasion like this, two years since, we were favored with an address from a most worthy and liberal minded member of this society, but who is now no more, on the necessity of educating our young men for farmers, and thus to make them more fully appreciate the responsibilities they owe to the advancement of their profession, to their country, and to society. On a similar occasion last year, the subject selected for our consideration was, a history of agriculture from the earliest time until that period. Both were topics important and interesing, and peculiarly calculated to awaken our attention, deepen our impressions, and make us better and wiser men. I could wish to impart an equal interest to the subject I have chosen; and that is, what ought to be the next step in the farther improvement of agriculture.

All who hear me will doubtless agree with me, that as husbandry was the first instituted, so it is still the most important pursuit of man, and therefore, whatever tends to its improvement, is another advance towards the attainment of a common blessing. All will likewise concede, that ours has heretofore been more a laboring of the hands, than the head; and that, whilst we have literally fulfilled the command to "earn our bread in the sweat of our brows," we have not opened the sources of knowledge, and called science, which has shed so much light upon other subjects, to the aid of labor, but have been willing to plod on content, in too many instances, with the annually reduced pittance we have gleaned from the soil. But, can it be that science, which affords us so much intellectual gratification, and has opened so many fountains of wealth; which has made us more conversant with the innumerable works of the Deity, and enlarged both our enjoyment and capacity ten thousand fold—can it be that she is forbid by the farmer to enter his domain, lest she should teach him lessons that may mortify his pride, or alarm his prejudice? Or will he assume the ground that agriculture cannot be improved; that we have arrived at a point beyond which the products of the soil cannot be increased, and we must be content with our husbandry as it is; that farther innovation cannot advance it; and that however much the mind has done for other pursuits, ours admits of no deeper research nor clearer investigation? Gentlemen, could I be persuaded to adopt this opinion, I would erase my name from the roll of the members of this society; for to me the great charm of agriculture is the hope of its advancement. I cannot think that a God of infinite wisdom, who gave the immortal mind to man, with powers to look into the world around and above him, and by his intellect to make all in the universe subservient to his interest or his wants—has decreed, that in the cultivation of the soil, which contributes so largely to his support and happiness, man is forever to follow only the dictates of instinct, and not the lights of reflection and reason. No. Our mental faculties are the noblest part of our creation; they give us command over the beasts of the field and the fowls of the air; they enable us to comprehend and know God as the Author of our existence, and the giver of our bounties; and it is the improvement of them only that can make us acceptable in the sight of Him, who is himself both omnipotent and omniscient. The brute may perish, and the works of our hands crumble by time, and be lost in the lapse of ages; but the immortal mind, enlightened by the study of the past, and looking with hope to the future, stretches forth her sleepless energies to understand creation as it is, and ultimately take home with her the sublime pleasure that the acquisition of knowledge has imparted. Cannot then the mind be made to operate upon the stubborn soil, to make her more abundantly yield her increase? Most assuredly it can; if we but call to our aid all the light which science has shed, and is shedding, and diligently and systematically apply it, our callling will not lag behind other avocations in the steady march in improvement.

When we take a view of the works of Deity, we are lost in astonishment at the comprehensiveness of the mind that conceived, the power that created, and as far as we can follow them, the beautiful and exact laws that regulate and control the whole machinery of animate and inanimate nature. We see *order*, the first law, the great law that governs equally the movements of the world, or the formation of the most insignificant insect. If we go farther, we see it is given to finite man, when he makes one branch of the works of the Almighty a subject of study and reflection; if he first looks back and sees how far others have gone, compares their ideas with his own; takes constant advantage of the thousand arguments that nature is beautifully and daily unfolding to his view—if he arranges his materials and gives a systematic operation to all his movements and thoughts, persevering in his plan, and never doubting of ultimate success,—we see him at last bring order out of confusion, and what was before slighted because it was not understood, now becomes of importance as we are made acquainted with its uses. It is to labors like these, that we are indebted for our knowledge of astronomy, chemistry, geology, botany, languages, &c. &c. and all the advances in the sciences and arts that contribute so much to the happiness and intelligence of civilized man. But to an uncultivated intellect, that does not avail itself of the labors of the past; where the mind has not been expanded by reading and reflection; whose notions are of one kind to-day, of another kind to-morrow; where conjecture supplies the place of arranged facts, and prejudice is a bar to a just elucidation of the laws of reason and nature; where all is crude, confused and mixed up—the good with the bad, the useful with the useless, sense with nonsense, and reason with folly—and united, too, as they are, with a boastful desire to give opinions to the world, as the emanation of reason, and the clear results of a long experience; what else must follow, but that darkness will continue to cover the land, and gross darkness the people. These last observations apply with a peculiar force to the past and present state of our farming operations. Although we have cultivated the earth for thousands of years, we have yet no arranged system of action, and the beautiful law of order, which God has stamped upon this as one of his works, we do not yet understand; for we have not yet learned to reason from cause to effect. To be sure we sow in spring and reap in autumn, and gather into barns to supply our wants, and those of our flocks. But did not our father Jacob do so? did not the patient Job do so? and likewise Boaz, the kind-heated husband of Ruth, at least five thousand years ago? And what has been done for the advancement of agriculture, between these generations and ours? It is a fact, gentlemen, that something like improvement in farming has taken place only within the last fifty years. It commenced in England and Scotland, and these countries have for some time experienced the benefits of what they call their improved husbandry. Within that time they have doubled their products, but in one important point they have a manifest advantage over us; that is, they can employ three hands as cheaply as we can one, and have their board in the bargain. Still, although much has been done there to increase the products of the earth, yet, in my humble conception, radically and permanently to improve, they must adopt another and better plan, and instead of raising farmers by instinct, they must be reared by education. Instead of a man of any age turning farmer, and at once ignorantly triumphing in his success, and boasting of his knowledge, he must be taught by a dear-bought experience, that he has undertaken a business he does not understand, because he cannot compete with one who in early youth has had his mind expanded by both scientific and practical culture.

We have all seen the absolute necessity that the lawyer, the physician, the manufacturer, and the artizan, should go through a regular course of study, reflection and practice, to fit them for the proper discharge of their respective duties. Think you that in the noble science of farming—for science I will call it—less of education, study and reflection are necessary? No, gentlemen. Depend upon it, if we are to place husbandry upon a stable basis—if we wish to see this broad and fertile land covered with the habitations of plenty, and containing a happy and prosperous people, we must give an early direction to the human mind, to enable it to comprehend and fully grasp the subject. We must come back to elementary principles, and ascertain the different ingredients of which the earth is composed; we must understand their structure, combination, and uses, and what acts upon each with most effect for the benefit of man. These are studies sufficient to engage the undivided attention from early life to its close; and even if we should fail in our first attempts, still we would ultimately place husbandry upon so firm a basis, that nothing would be wanting to secure the full fruition of our labor, but the smiles of a beneficent Providence. To accomplish these desirable objects, a young man must first have a good school education; he must then be taught chemistry, geology, and botany; have a knowledge of mathematics, and perhaps mineralogy, with so much of entomology as is necessary to guard against the mischievous effects of insects. These are some of the hand-maids to the knowledge of agriculture, which, to insure success, must be carefully cultivated.

To lay the foundation in early life for an agricultural edcuation, what would be so useful as an agricultural school, where not only these, but many other collateral branches would be taught, and from which, if a young man graduated, it would prepare him not only for usefulness in life, but accomplish him as a man of science and a gentleman. It would open his mind to view agriculture in a different light from the generality of farmers. He would understand how cause operated to produce effect, and how he could give most efficiency to his labors. From mathematics, the science which contemplates whatever is capable of being numbered or measured, it would lead him to a correct knowledge of practical mechanics, the application of the principles of power and land mensuration. From chemistry, the science which enables us to discover the peculiar properties of all natural bodies, either in their simple or compound state, he would learn to analyse the different kinds of soil, ascertain wherein they differ—what combinations are the most useful, and, if possible, in what the principles of fertility consist, and what must be added or taken away to make barren or degenerate land more productive. The doctrine of manures cannot be understood without a knowledge of chemistry; and it is a subject so extensive in its application to farming purposes, that it must be the A, B, C, of the farmer's education. Geology, and, if necessary, mineralogy, would teach him to discriminate between the different kinds of substances the earth is composed of, and give him a correct knowledge, not only of what the surface of the soil consists, but what is buried beneath it. Botany, the science of plants, or that part of natural history that relates to vegetables, would teach him to ascertain their different uses—discriminate the exhausting plants from those that are less so—the locations most favorable to their growth—the seasons for their production and reproduction—their laws of generation—the alternation that ought to be observed for the best development of their powers, so that whatever plant was cultivated, it would be the best and most valuable of its kind. These are some few of the studies, upon which we have entered somewhat into detail, that should be taught in such an institution. The mind, however, would not only be regulated and instructed, but habits established quite as useful to the full development of the bodily powers. Would nothing, think you, be gained by instilling principles of virtue, of regularity and order—by forming habits of industry, teaching a correct moral deportment, and discountenancing idleness and vice? Permit me here to particularize and point out in a single instance the benefits that would follow the adoption of one simple rule—that is, keeping farm accounts—entering the debtor and creditor account of the farm, and making out an exact statement of its profit and loss. Or you may go farther, that of each lot and each animal. If you ask what special benefit would flow from the practice, I answer, you can at once calculate the relative value of your farm, either in whole or part—the expenses of its cultivation,—the annual cost of your household—the profit on each lot or animal, and as a general result determine whether you are gaining money or losing it. If making, to continue; if losing, to quit before bankruptcy follows. Besides you may graduate your family expenses by it, and at one glance you may ascertain your exact standing in a pecuniary point of view in the community. Why does a merchant keep his accounts but to regulate his business by striking his balances? Ought not the farmer to be equally particular? The time will come when he too will make his regular daily entries as necessary to the successful prosecution of his business.

We have dwelt on this one item, simply as an elucidation of the general argument in favor of education; but suppose, to quote the language I have used on a former occasion, a State Agricultural School, under a proper course of instruction, to contain two hundred students, and a course of studies to last three years. It would send each year, after the termination of the third, nearly seventy young men, so educated into the different sections of our state. Their knowledge of theoretical and practical farming would be generally diffused; and continue this number for many successive years, it would give thousands of the best farmers, scattering them through every portion of the state. And here let me ask, who is so much of a skeptic as not to believe, that agricultural knowledge would be increased by so great an accession; and, in consequence, agricultural products be prodigiously multiplied? But, this is not all; our school would not only send her missionaries of intelligence and industry through this state, but all her operations—so far as competent professors could discharge their duty of instructing or experimenting—of collecting, comparing and examining all that was most familiar or rare—ornamental, useful, or profitable, in each of their peculiar departments—in a short time we would have a farm and collection, which would vie in extent and appearance, and much exceed in usefulness, the far-famed gardens of London or Paris. Probably at no time in the history of our state, could an agricultural school be founded under as favorable auspices for ultimate success, as at present. By the establishment of agricultural journals, a taste for that kind of reading has been created; our citizens are alive to farther improvements, for they have heretofore felt the want of them. The efforts made and making to give a more thorough school education to our population—the ability of our citizens to contribute whatever may be required to carry the object into effect—the easy transmission of produce through every portion of our state by our rivers, roads, canals and rail-ways—the facility of communication with New-York, one of the best markets in the world, all are so many aids to the successful completion of the plan.

Should this school go into operation, and carry out the great principles of its founders, the time will, must come, when every citizen will be proud of it as a state institution; when those who have been its friends, will gladly come foward and claim the honors to which they will be entitled, and the present state authorities will take a pride to date its commencement as coeval with their administration of power; for, besides being a test farm systematically managed, its manufacture and collection of the various farm implements, its specimens of geology, mineralogy, and botany; the exhibition of its animals; the order and regularity of all its operations in husbandry; the circulation among our farmers of useful intelligence collected there, either from practice or experiment; the aids it will give to our agricultural journals, and above all, the young men it will yearly send out to every portion of our country to vivify by their intelligence, and fructify by their industry, whatever place they settle in; will be so many claims to popular favor, for they will be constant and living evidences of its great usefulness.

On motion of Mr. Fry, of Montgomery,

Resolved, That the thanks of the society be presented to the president, Dr. Beekman, for his very able and highly interesting address, and that a copy be requested for publication.

Mr. A. Walsh, of Rensselaer, from the committee to report on the subject of horticulture, and the household arts, presented the following report, which was read and adopted.

Horticultural Report.

The committee appointed to "inquire into the necessity and importance of an increased attention to Horticulture and the Household Arts, as intimately connected with the improvement of Agriculture," beg leave to report—

That on investigating the subject in pursuance of the duty assigned them, they have become deeply impressed with a sense of its importance; and they regret that the necessary degree of brevity will only permit them to touch the mere outlines of some of the most prominent arguments which present themselves in its favor.

By the term horticulture, they understand that portion of agriculture which embraces the labors of the garden—the cultivation of vegetables, fruits, &c.

It is strange, as well as lamentable, that though this appears especially designed, by the Creator, as the first and most important employment of man, yet while every useful art is improving and perfecting by the light of science, this most valuable art should be left to grope in darkness—its value remaining unknown and unappreciated. All, therefore, that your committee can do is, to endeavor to awaken the public mind from the apathy under which it sleeps on the subject; to remove the strange prejudice which exists against it; and to open a way for the reception of those spontaneous rays of light which present themselves from luminous sources.

And here, at the outset, your committee feel under peculiar embarrassments; for what arguments can be offered, to awaken to understanding the mind of him who can discover no profit, or receive no pleasure, from a well cultivated garden.

It is in vain that Infinite Wisdom has exerted its utmost skill in forming, perfuming and painting flowers to decorate his path, and sweeten the toils of life, if the same power has denied him a mind susceptible of the enjoyment. The depravity of public taste, with respect to gardening, has given currency to a common saying, that "good farmers seldom have good gardens," but never was a sentence more in opposition to the truth. It is so completely so, that if we look on even a remote corner of a farm, and see it well fenced and cultivated, we may almost rest assured that on visiting the dwelling of its owner, we shall find a neat, tasteful and well stocked farm garden. Indeed, so intimately connected are the moral and social virtues, with a taste for admiring and improving the beauties of nature, that we can rarely find one without the other. There is, perhaps, no other earthly subject so well calculated to awaken and expand every faculty of the mind, and fill the soul with pleasing admiration, as a garden of culinary plants, fruits and flowers, where art and science have done their duty in assisting nature.

Horticulture, both as an art and as a science, has undergone great improvements, in several countries in Europe; and it must be painfully mortifying to an American of patriotic feelings, who is acquainted with the subject, to see respectable foreigners, in passing through our country, notice the almost total neglect of this beautifying, and moralizing branch of social economy.

The mode in which agriculture, if it can be so called, has hitherto been conducted, had its origin, no doubt, in the circumstances of the early settlers of our country. Those pioneers were not in situations to indulge refined taste; being only enabled by their utmost exertions to procure what would barely sustain life; and pecuniary necessity compelled them to cultivate such simple articles as they could dispose of, in mass, for immediate relief, and the state of society afforded no market for fruits or garden vegetables. This state of things established a distaste for any thing to gratify the eye or the palate, beyond bare necessity; and this distaste has continued with little improvement to the present time.

But a few, among those engaged in agriculture, have discovered that, by rational improvements in the system, not only the same ground, with the same labor, might be made to double, and even quadruple its former productions; but that horticulture, tastefully and judiciously managed, is calculated to improve the mind, to excite and expand the intellectual faculties; and especially to increase wealth, at least as much as any other branch of agriculture.

The ancient prejudices against horticulture, are now beginning to be overcome, by the convincing evidence of successful results, and some of the more industrious and thinking farmers begin to see that a well selected assortment of choice fruit yields a greater profit, than perhaps any other crop from the same ground; that the choice new garden vegetables cost no more in cultivation than the most coarse and common, while they add comfort and healthy variety to the table, and lessen the heavier expense of animal food. They begin, in a few instances, to find that the value of a farm depends not so much upon the number of acres as upon its judicious mode of culture, and its productiveness. They see that a handsome and convenient, but not a large and extravagant dwelling, surrounded by fruit and ornamental trees, but more particularly a well stocked farm house garden, not only increase their comforts and respectability, and even their wealth while in possession, but if they wish to sell, attracts the notice of purchasers and enhances the price.

Our forests abound with maple, elm, ash, and other elegantly formed ornamental shade trees, which we would recommend our agriculturists to plant along the road side, bordering their homesteads. They will thrive in almost any situation, and add beauty and value to their possessions and improve the general aspect of the country. "We never pass a tree which has been planted and nurtured by man, but we feel gratitude and respect towards the hand that done it." The cultivation of the Mulberry and the growth of timber, particularly live oak, locust and cedar, deserve the highest consideration; such trees being required, and commanding a high price for ship building, and in our growing manufactories.

In short, from the palace to the humblest cottage the business of horticulture, when carried to the perfection of which it is susceptible, appears to your committee, to be calculated, above all other branches of industry, to improve the mind and manners; to increase and multiply the comforts, and promote the wealth and respectability of the community.

We would therefore recommend to all, to use all justifiable exertions to excite a more general taste for horticulture, and to promote a more thorough and generally diffused knowledge of its principles and practice.—To this end, we would recommend, that those who have any knowledge of the subject would communicate it to those who have none, and that more general attention should be paid to the various periodicals which are published and publishing on horticulture, and subjects connected with it—and they would also suggest, that should the honorable legislature think proper to lend their aid to the subject, as they have done in some of the other states, much might be effected by their employing and paying some suitable person to write or compile a text book, as a manual for the use of farmers and mechanics, on horticulture and the household arts, and particularly on the subject of the growing of silk.

With respect to the "necessity and importance of the household arts," your committee are fully convinced, that, in the thriftiness, and good regulations and consequent happiness of society, as much depends on good housewifery as on good husbandry. It is a common saying, that "the man who would thrive must ask his wife." These arts are not only more numerous and complicate, but susceptible of even greater improvements both from the aid of science and the dictates of common sense, than those which belong to the outdoor economy; and they principally belong to the female department. The culinary arts alone embrace a more extensive and complicated system of knowledge than probably appertains to any one trade in the compass of the mechanic arts. On that system depends, not only our comfort and satisfaction in eating and drinking, and our health in the choice and preparation of food, but our prosperity in the economy of its management. The important business of the dairy depends almost entirely upon the skill of the housewife. But a few years ago they were the sole manufacturers of most of our clothing, and still a portion of it depends for its formation on their ingenuity and industry; even in the cottages of the poor, we may often admire the talents of the industrious housewife where

> "The mither, wi' her needle an' her shears,
> Gars ould claes look amaist as weel's the new."

But these important domestic arts, on which our comforts and prosperity so much depends, are too much neglected and despised. It is the duty, and ought to be the pride of every mother in America, to teach her daughters, first the most substantial and all important arts of good housewifery; and next to call forth and excite to action all their surplus ingenuity, diverting it into such channels as will elevate our national character, and by lessening dependence on foreign nations, promote the independence of our own.

It is natural, and perhaps proper, for females to delight in finery; and to this end, nature has invested them with sprightly intellects to invent, and delicate fingers to construct it. But instead of availing themselves of these precious gifts of nature, our females generally appear to have almost wholly lost sight of, or never to have possessed a spark of that national pride which would prompt them to turn those talents to their own advantage. It would be deemed an insult to say that they have not as much inventive talent and refined taste as the females of France, and yet they appear to have cultivated a spirit of emulation to outdo each other in servile dependance on French fashions and French finery; (which fashions and finery do not arrive here, until cast off in France, so that the summer dresses of that country become the unsuitable winter dresses of this,) until by extravagant importations of those articles, added to the immense amount paid for silk beyond our means, we have continued to plunge our country into a state of pecuniary distress, from which it will not soon be extricated. How much more independence should we display if our females would employ their leisure hours, and exert their ingenuity, in constructing ornamental dresses suited to our climate, according with their own refined taste, and let the French follow their own fashions, or servilely copy ours if they please.

Those of our young females who are destined to receive what is considered a polite education, are by the present national public taste, studiously kept ignorant of any thing which can contribute in the slightest degree to the future benefit of their families or themselves. Thus, in most of the more opulent families of the community, those important arts on which domestic comforts so greatly depend are left to the sole possession and management of domestics.

It is, therefore, of the highest importance, that females who are coming on the stage of action, should receive such education as should fit them in a greater degree for the important stations they are destined to fill.—Without rejecting what are justly considered polite accomplishments, every female who is to become the head of a family, ought to have a thorough theoretic and practical knowledge of all the arts which appertain to cookery and systematic household arrangement. This knowledge would be greatly enhanced by an acquaintance with some of the natural sciences, particularly chemistry. Indeed, so important is a smattering of that branch of science, in every part of household economy, especially in the management of a dairy, that no female ought to be considered well educated without it.

But there is one branch of the household arts which your committee would strongly recommend.

By the aid of labor saving inventions, females are relieved from a great and tedious part of their former labors, and they have consequently now a considerable portion of leisure.

There are many little household arts, by which they could manufacture little articles, which would command fair prices in market.

Many of these arts have been introduced by necessity in other countries; and a little attention to the subject would render them sources of profit here.

There is one which we would earnestly recommend, as paramount to, and probably superceding the necessity of any other. This is the growing and reeling of silk. This is, perhaps, as pleasing an employment as the human faculties can be engaged in. It is inseparably connected with a branch of horticulture, and will need some male assistance in cultivating the Mulberry trees, and erecting necessary fixtures. But the growing the silk is the appropriate work of women and children. It is periodical, leaving long intervals of rest; and the reeling is a light, easy and social employment, peculiarly calculated for delicate female fingers.

The profits arising from this business will be equal, if not superior, to those of any other branch connected with agriculture; and will need no other time devoted to it in the female department than is now devoted to leisure. It is now the heaviest item of our importations, and will find a sure market among ourselves, or will command a high price in return for its exportation.

Your committee, therefore, would most fervently urge that a proper attention to horticulture, effecting by art and science all the improvements of which it is susceptible, and similar attention to the household arts, as of the highest national importance, particularly the growing of silk, affording the surest guarantee to the independence and prosperity of our union.

Your committee would also strongly urge the importance of County Fairs, as one of the most efficient means of improving both agriculture and horticulture, and the household arts, by awakening ambition and exciting a spirit of emulation in both sexes. These Fairs would, as they have already done in many places, call forth new displays of ingenuity—choice products of the farm and of the garden, in needle work and miscellaneous subjects; and we think the legislature would do much to exalt the national character by appropriating a small fund to each county, that may have its rural society for the support of such Fairs.

All of which is respectfully submitted.

ALEXANDER WALSH, *Chairman.*

Mr. W. A. S. North, of Schenectady, read the following Report on the subject of Neat Cattle, which was accepted.

Report on Neat Cattle.

In drawing up the following remarks in pursuance of a resolution of the Society, passed at their last meeting, your committee have had some difficulties to encounter, the greatest of which has been the want of that personal communication with each other, which the importance of the subject demanded, and which has compelled them to put off the drawing up of the Report to the last minute. Of the many subjects relating to rural economy which were submitted to the different committees at that meeting, there is none more immediately interesting to the great body of agriculturists, than the one intrusted to your committee, to wit, the present state and future improvement of Neat Cattle. It is a subject which appears to be less understood, and to have received less attention, than any other, "and is most completely identified with our agricultural prosperity and with the comforts, and the very continuance of life."—That this kind of stock constitutes a great proportion of the wealth of the country may be inferred from the fact, that our state alone, according to the census of 1835, contains 1,885,771 cattle. It will hardly be expected that your committee should go into a particular history of all the known breeds of cattle, and of all their peculiar properties. Such a course would do in writing a treatise on cattle, but in the present case would only tend to confuse the mind of the inexperienced breeder. Your committee therefore have thought it advisable to confine themselves in the performance of the duty assigned them, to giving a short general description of the most common kinds of cattle among us, as well, those imported as our native stock, noting their good and bad points, and by stating the disadvantages and losses attending a careless and unskilful course of breeding, rearing, and feeding, endeavor to get up a spirit of reformation and improvement among the agricultural population; thereby increasing their wealth, and adding to the subsistence and comfort of all classes of the community; and if, by means of our report, and those which shall be read here to-day, the farmers could be induced to employ more capital, and to exert more care and skill in all the various branches of agriculture, and particularly to the one under consideration, it would greatly add to the productiveness of their farms, and their wealth. Many books have been published, detailing the great improvements made and still making in England in neat stock, but they cannot be expected to be in the hands of our farmers, and it will be our aim in this report, in some degree, to make up this deficiency, by endeavoring to show wherein our native stock are deficient, and recommending to them a better and more profitable course of breeding. To begin then with the most numerous and least profitable breed, the native cow.—"They are a mixture of every breed, and the intelligent and observing breeder, sees in them traces of almost all the English varieties, such perhaps as they were before science and attention had improved them, such as might offer to the American breeder the original materials of their most improved and valued stock, but requiring more time and perhaps more talent, skill and attention, than the American farmer would be willing to bestow on the subject, and yet necessary to enable him to arrive at the same results. This mixed breed are not very celebrated for any thing; some of them are good milkers as far as quantity is concerned, but as to quality of the milk and aptitude to fatten, they generally fail. Their calves are of diminutive size, rarely giving more than 20 lbs. per qr. when killed, at four weeks old; and if reared, of slow growth, seldom coming in till the third year, and then requiring two or three years more to give them standing and character, such as it is, in the dairy. As to their characteristic marks, they are small, short bodied, thin and coarse haired, steep rumped, slab sided, having little aptitude to fatten, or to lay the fat on the right place. There is another class of the native cow, although distinctively marked, (as the horns are wanting,) yet this want will hardly entitle them to be considered a distinct breed, deserves to be mentioned in the enumeration of the native breed. Descended from the Galloway or Angus cattle, a long while ago, they still retain among all the crosses to which they have been subjected, some of the marks and good points for which their ancestors are still celebrated—that is to say, they are a docile, thrifty, hardy kind of animal, with much the same faults, as to form, of those above described, though perhaps more compact, shorter in the leg, a middling thick hide, and withal easier fattened. They are few in number compared with the horned cattle. There is one other species of the native cow, to which it is only necessary to direct your attention, as they are nearly as much celebrated in the sandy tract of country about Albany and Schenectady as the improved short horns themselves, the one for their beauty and good points, the other for their homeliness and bad points. They are peculiar to the sandy soils of our country, running wild in the woods in the summer, and picking up a miserable subsistence in the barn yard in the winter. They are a long legged, raw boned, narrow hipped, sharp backed, steep rumped, slab sided, coarse haired, worthless race, and exactly answer the description of those kine that came up out of the river of Egypt in the time of Pharoah—"They are poor, ill-flavored and lean fleshed, such as were never seen in all the land of Egypt for badness." It is not likely that any improvement will be made in this kind of animal, the nature of the soil, the habits of growing the coarser kinds of grain, the foddering of straw in the winter, and pasturing in the woods in summer, peculiar to the inhabitants, (they ought not to be called farmers,) of the Pine bush, will for years to come prevent any permanent amelioration of their condition. If at any time, the spirit of improvement should enter into the calculations of these people, they might by judicious crossing, and a plentiful supply of roots and vegetables to their stock for a great part of the year, attain to something more respectable in this branch of business. This then appears to be the character, and these the qualifications of our native stock." Notwithstanding their defects, "most valuable selections might be made from them, and these crossed by bulls of the improved breed, would furnish perhaps the most useful stock for the practical man, who was not prepared to pay the high prices inseparable from imported stock." And it will be advisable to select cows, either from stock feeding in the neighborhood, or from those sorts that are best calculated for the nature and situation of the soil. The grand secret of breeding, is to suit the breed to the soil and climate. It is because this has not been attended to, that those breeds which have been invaluable in certain districts, have proved altogether profitless and utterly unworthy of culture in others. Let that breed then which is most profitable and best suited to the farm be ascertained, and having succeeded in this, strive to improve it to the utmost, by selecting and breeding from those which to beauty of form, unite the more essential qualities of possessing kindly skins, of weighing most in the valuable parts, together with a disposition to lay fat on the best points, as well as to fatten in a short period of time. The term "kindly skin" means a soft mellow skin, yet firm to the touch, and is as different from the hard, dry skin of some cattle, as it is from the loose, flabby skin of others. The sense of touch, or the art of judging of the disposition to fatten, has been brought to such perfection, that any well informed breeder can, on examining lean beasts, tell with tolerable certainty in what parts they will or will not fatten. The improved short horns are in all respects the most profitable species of animal to cross with the native cow in situations where the soil is rich and luxuriant. They are good milkers, quick feeders, arriving at early maturity, and affording the greatest proportion of good meat to its offal, from the thickness and softness of hair with which this breed is covered, they endure without suffering the severity of our weather; but to the full development of all their properties, and to obtain their most valuable returns they should be well cared for and fed upon a full bite of grass. That this valuable breed of cattle have not been more generally sought for as a cross with our native stock is owing in some degree, to their intrinsic value in comparison with others. It is true the first cost of pure bred animals is high, but when it is considered how extensive is the influence of a bull, and how many improved animals may be yearly obtained by his services, the remuneration is most abundant. A very fine pure bred bull may be obtained for from two to three hundred dollars, and such an animal at three years old, may without injury to himself wait upon fifty cows. In those neighborhoods where such an animal is kept, the half bred yearlings bring from ten to twenty dollars, and in some cases thirty dollars. Our farmers only want to believe this fact to act upon it. But how make them believe it? Why let those gentlemen whose tastes, whose consideration for the farmer, whose love of doing good and whose means are sufficient, purchase such an animal, and allow his neighborhood a discriminative use of his services till conviction followed the evidence thus brought home to them. This has been the practice of your committee, who have allowed the industrious and inquiring farmer the use of their bulls for a few years past, without collecting the amount professedly charged for their services, and they now generally pay the service fee cheerfully, and the work of improvement is in our sections of the country rapidly going on. Another reason why the improved short horns are not more eagerly sought for by the great mass of farmers, is the idea that they require more food and will not keep so easy as the native cow. Now, if they pay better, and in proportion to the extra feed they require, and no one will deny that they do, this objection falls to the ground. The truth is, that as long as the slovenly style of farming of the present day prevails, as it does in too many districts of the state, this objection will continue to be urged. There is yet very little good farming or systematic rotation of cropping pursued, either by our large or small farmers. The land is taxed to its utmost as long as it will bear an average crop of any thing, and when completely exhausted, it is seeded down with five or six pounds of Timothy and Clover to the acre, and Oats or Buck Wheat, and if, as is generally the case, the grass is light, it is pastured until it recovers again in some measure by the manure dropped upon it, or till it is covered with a heavy growth of moss, which turned under in the right time will, after a fashion, enable it again to undergo the process of cropping. Until this system is abandoned, and more attention paid to keep pasture lands in better tilth, and the growing of root crops for winter fodder for neat stock, it is almost useless to attempt to improve the breed of cattle, or any thing else. Even the aristocratic race of the short horns in such cases would be compelled to knock under, and in process of time, by hard fare and inattention, would get back to the point from which skill and science, and care and attention first rescued them, and gave them their present elevated station among the brute creation. Let it be remembered, that a good bite of grass in summer, and generous feeding in winter, is necessary to the full development and profitable culture of the short horns. Where this cannot be had, and the land is light and subject to drought, the beautiful little Devon will best find its value, and though not so good a dairy cow, yet she is the source of the finest working oxen, perhaps in the world. The Devons have also a claim to quick feeding, and a maturity much earlier than any unimproved breed. They are said to be the Aboriginal breed of Great Britain, and are there highly valued, and make most delicate beef when fatted. On lands of the above character, the cross between the Devon bull and the native cow would no doubt succeed admirably. These two varieties, the Improved Short Horns and the Devons belong to different soils, and are suited to different purposes, and both are extremely valuable in the situations to which they are adapted. The Galloways are also a breed well fitted, by reason of their hardihood, kindly feeding, and much endurance to the severity of our winters, and the misery of our barn yards. They are a very handsome breed of cattle, straight and broad in the back, round in the barrel, and full in the rib, in which points they will compare with any breed. They lay their fat upon the most valuable parts, and though the feed be short, and the winters long, they will do well and thrive. The Ayreshire breed are also said to feed kindly and profitably, in districts where others could not be made to thrive at all, uniting to a greater degree than any other breed, the supposed incompatible properties of yielding a great deal of milk and beef.—They are new comers, but bring with them a good report, and if they maintain the same excellent character for the dairy in our warmer climate, which they have gained at home, they may become the favorite stock of the country, though it is more than probable that when transplanted from their moist climate and poor soil to our warmer climate and richer soil, they will lose their superiority as milkers, and begin to accumulate flesh. The Hereford and Holstein breeds are partially known, in this country, and what little is known is not much to their credit. The former is no milker, the latter gives abundance of milk, but it is very poor; they are slow to feed, slow to move, and yet slower in attaining maturity. The Alderney, though ill-shaped, is emphatically a better cow than either of the two last mentioned, always poor herself to enrich the milk pail, and though a great feeder yields very little milk; that milk, however, is of an extraordinary excellent quality, and gives more butter than can be obtained from any other cow. The above enumeration contains the description of all the breeds of cattle that we are familiar with, either personally or by reputation, that have been imported into the country for the purpose of crossing with our native stock. Of them all, your committee are of opinion, that the Improved Short Horns, for the rich and fertile valleys, and the North Devons, for the lighter but sweeter feed of the uplands, are the most profitable of all to cross with our native stock. They have been the longest in the country, and experience has proved their worth. The Galloways are probably next in importance, and the day may yet come when the hills of Franklin and Essex, and the whole Northern Frontier, for which they are admirably calculated, may be covered with them. It only remains to conclude this report, and in the words of a Lincolnshire farmer, we would say to those who are, or would be, engaged in the business of rearing stock of any description—"It should be an invariable rule to breed from small boned, straight backed, healthy, clean, kindly skinned, round bodied, and barrel shaped animals, with clean necks and throats, and little or no dew lap, carefully rejecting all those which may have heavy legs and roach backs, together with much appearance of offal."

W. A. S. NORTH,
Chairman of the Committee on Neat Stock.

Mr. H. S. Randall, of Cortland, from the committee on sheep, submitted the following report, which was accepted.

Report on Sheep.

The principal breeds of sheep in the United States are the "native," (so called;) the Spanish and Saxon Merinos, introduced from the countries whose names they bear; and the New-Leicester or Bakewell, the South Down, and some minor importations of Cotswold, Lincolnshire, &c. from England. Chancellor Livingston also speaks of two races as "indigenous" to this country, which we have not enumerated, as it is not known to the committee that they are now bred in any portion of the United States, viz. the Otter and Smith's Island sheep, breeds said to have been discovered on two islands on our Atlantic coast. An almost infinite variety of crosses have taken place between the Spanish, English, and "native" families. To so great an extent indeed has this been carried, that there are, comparatively speaking, few flocks in the United States, that preserve entire the distinctive characteristics of any one breed, or that can lay claim to unmixed purity of blood.

NATIVE SHEEP.

Although this name is popularly applied to the common coarse woolled sheep of the country, which existed here previously to the importation of the improved breeds, there is, properly speaking, no race of sheep "native" to North America. Mr. Livingston, in speaking of a race as "indigenous," only quoted the language of another,[*] and his informant was either mistaken as to the fact, or misapprehended the term. The only animal of the genus *Ovis*, originally inhabiting this country, is the Argali,[†] known to our enterprising travellers and traders who have penetrated to the Rocky Mountains, where the animal is found, as the Big Horn. Though the pelage of the argali approximates but little to the wool of the domestic sheep, they are, as is well known, considered by naturalists, to have belonged originally to the same species; and the changes which have taken place in the form, covering, and habits of the latter, are attributed to his domestication, and the care and skill of man during a long succession of years.

The common sheep of the United States were of foreign, and mostly of English origin. The writer of the volume on sheep in the "Farmer's Series," (Mr. Youatt,) speaks of them as "although somewhat differing in various districts, consisting chiefly of a coarse kind of Leicester, originally of British breed."[‡] Others have seen, or fancied they saw, in some of them a strong resemblance to the South Downs. Mr. Livingston was of this number.[§] But it is far more probable that they can claim a common descent from no one stock. Our ancestors emigrated from different sections of the British dominions, and some portion of them from other parts of Europe. They brought their implements of husbandry, and their domestic animals to fertilize the wilderness. Each, it would be natural to suppose, made choice of the favorite breed of his own immediate district, to transport to the New World, and the admixture of these various races formed the mongrel family now under consideration. Amid the perils of war and the incursions of beasts of prey, they were preserved with sedulous care. As early 1676, Mr. Edward Randolph, in a "Narrative to the Lords of the Privy Seal," speaks of New-England as "abounding with sheep."[‖]

The common sheep yielded a wool only suited to the coarest fabrics, averaging, in the hands of good farmers, from three to three and a half pounds of wool to the fleece. They were slow in arriving to maturity, compared with the improved English breeds, and yielded, when fully grown, from ten to twelve pounds of a middling quality of mutton to the quarter. They were usually long legged, light in the fore quarter, and narrow on the breast and back, although some rare instances might be found of flocks with the short legs, and some approximation to the general form of the improved breeds. The common sheep were excellent breeders, often rearing, almost entirely destitute of care, and without shelter, one hundred per cent of lambs, and in small flocks a still larger proportion. These, too, were usually dropped in March, or the earlier part of April. Restless in their disposition, their impatience of restraint almost equalled that of the untamed argali, from which they were descended, and in many sections of our country it was common to see from twenty to fifty of them roving with little regard to inclosures, over the possessions of their owner and his neighbors, leaving a large portion of their wool adhering to bushes and thorns, and the remainder placed nearly beyond the possibility of carding by the burs of the *Tory bur*, so common on new lands.

The old common stock of sheep, as a distinct family, have nearly disappeared, having been universally crossed, to a greater or less extent, with the foreign breeds of later introduction. The first and second cross with the Merino, resulted in a decided improvement, and produced a variety exceedingly valuable for the farmer, who rears wool only for domestic purposes. The fleeces are of uneven fineness, being hairy on the thighs, dewlap, &c.; but the general quality is much improved; the quantity is considerably augmented; the carcase is more compact and nearer the ground; and they have lost their unquiet and roving propensities. The cross with the Saxon, for reasons which we shall hereafter allude to, has not been generally so successful. With the Leicester and Downs, the improvement, so far as form, size and a propensity to take on fat are concerned, is manifest.

SPANISH MERINO.

The history of this celebrated race of sheep, so far as it is known, has so often been brought before the public, that it is deemed unnecessary here to recapitulate it. The first importation of them into the United States, took place in 1801. Four rams were shipped by Mr. Delessart, a banker of Paris, three of which perished on the passage.[¶] The fourth arrived in safety at Rosendale, a farm owned by that gentleman near Kingston, in this state. In 1802, two pair were sent from France by Mr. Livingston, the American minister, to his estate on the Hudson; and later the same year, Mr. Humphreys, our Spanish minister, shipped one hundred, on his departure from that country, for the United States. But they attracted little notice until our difficulties with England led to a cessation of commercial intercourse with that power in 1808 and 1809. The attention of the country being now directed towards manufacturing and wool growing, the Merino rose into importance. So great indeed was the interest excited, that from a thousand to fourteen hundred dollars a head, was paid for them. Other and numerous importations soon followed, and unfortunately some of the cargoes arrived in the worst condition, bringing with them those scourges of the ovine race, the scab and foot-rot. These evils and the increased supply, soon brought them down to less than a twentieth part of their former price; they could now be bought for twenty dollars a head. When, however, it was established by actual experiment, that their wool did not deteriorate as had been feared by many, in this country, and that they became readily acclimated, they again rose into favor. But the prostration of our manufactories, which soon after ensued, rendered the Merino comparatively of little value, and brought ruin to numbers who had purchased them at their previous high prices. The rise which has since taken place in the value of fine wool, as well as the causes which led to it, are too recent and well understood to require particular notice. With the rise of wool, the valuation of the sheep which bear it, has of course kept pace.

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[*] Livingston's Essay on Sheep, pages 58, 59.

[†] Godman's American Natural History.

[‡] Vol. on Sheep, page 134.

[§] Essay on Sheep, page 53.

[‖] Colonial papers of Massachusetts.

[¶] "Archives of Useful Knowledge.—Cultivator, Vol. i, p. 183.

The Merino has been variously described. This arises from the fact, that it is but the general appellation of a species, comprising several varieties, presenting essential points and difference in size, form, quality of quantity of wool. The Escurial flocks stand first in point of fineness. Attached to the convent *El Escurial*, within a short distance of the capital, and being the private property of the kings of Spain, no pains or care have been spared upon these beautiful flocks. They are of a good size, and fine form, "combining excellence," as is remarked by an intelligent writer,* "scarcely admitting of improvement." It is supposed that most of the Escurial sheep which found their way into this country, are but indifferent specimens of this celebrated variety of the Merino. Their fleeces are somewhat lighter than those of the Paulars, Negrettis, &c. and altogether they bear a close resemblance to the *genuine* Saxons, of which they are the parent stock.

According to Mr. Lasteyrie,† the Negretti "are the largest and strongest of all the Spanish travelling sheep." The Gaudaloupe "have the most perfect form, and are likewise celebrated for the quantity and quality of their wool." The Paulars "bear much wool of a fine quality; but they have a more evident enlargement behind the ears, and a greater degree of throatiness."

As the last named was one of the principal varieties introduced into the United States, a more particular description of it may not be unacceptable. The sheep of the Paular Convent are large, with heavy, but compared with the Escurial or Saxon, coarse fleeces. The wool of the pure bloods contains a considerably quantity of jarr or hair, and it abounds in yolk to such a degree, that it catches and retains at its extremities much floating dust, the pollen of hay, &c. This gives it a peculiarly stiff and hard feeling externally. It, however, forms an excellent protection against storms and cold. The form of the Paular is generally good, but an unusually large dewlap, so plated and doubled, as to go by the popular appellation of "the ruffle," extends from the lower jaw to the brisket, presenting a great obstacle to the shearer, and an unseemly and ungraceful appendage in the eye of the refined breeder. On the sides of the neck, and not unfrequently the face, the skin also lies in loose wrinkles. The head is coarse, and in the male, usually surmounted by large horns. The skill of the American breeder has obviated some of those defects, and there are some few (very few) flocks claiming purity of blood, which have little or no jarr, and an almost entire absence of the throatiness, peculiar to this variety. It is to be apprehended, however, that in most such instances, they owe it to a cross with the Saxons.

There are some other varieties of the Merino, which we shall not pause to describe. Taken collectively, the Spanish rams, according to Chancellor Livingston, yield about eight and a half pounds of wool, and the ewes five, which loses half in washing—making four pounds and a quarter the average weight of fleece of the rams, and two and a half the average of the ewes.‡ Some varieties considerably exceed this estimate, and probably it would fall short if applied to the prime sheep of any variety. In the celebrated flock of French Merinos at Rambouillet, the average weight, exclusive of tag and belly wool, is six pounds to the fleece. It must be confessed, however, that both Mr. Livingston and Mr. Humphreys assert, that the Rambouillet sheep carry more wool than any of the Spanish flocks.§ Col. Humphreys, in a letter to the Agricultural Society of Massachusetts, even goes so far as to state, "that the improved stock of France yield *twice* as much wool as those of Spain." Some carefully selected small flocks in this country, which were "salved"‖ after the preceding shearing, have averaged, including the ordinary number of rams, four and a half pounds of wool to the head. The gummy thick wool of the Merino can be but imperfectly cleansed on the back of the animal, where it is the universal custom in the United States to wash it, and probably four pounds of *clean* wool would be as high as the maximum average in the choicest flocks. Few over go three and a half.

The Merino, though the native of a warm climate, becomes readily inured to the greatest extremes of cold, flourishing as far north as Sweden, without degenerating in fleece or form.¶ It is a patient, docile animal, bearing much confinement without injury to health, and we never have been enabled to discover in it that peculiar "voraciousness of appetite," ascribed to it by English writers.* Accurately conducted experiments have shown, that it consumes two pounds of hay per diem, in winter; the Leicester consumes from three and a half to four; and the common wooled American sheep would not probably fall short of three. The mutton of the Merino, in spite of the prejudice which exists on the subject, is short grained, and of good flavor when killed at a proper age, and weighs from eight to ten pounds to the quarter. It is remarkable for its longevity, retaining its teeth and continuing to breed, two or three years longer than the common sheep, or the improved English breeds; but it should be remarked in connexion with this fact, that it is corresponding slowly in arriving at maturity. It does not attain its full growth before three years old, and the ewes in the best managed flocks, are rarely permitted to breed before they reach that age. The Merino is not a good breeder, the bearing ewes giving little milk, and sometimes neglecting their lambs. Eighty per cent would probably be as high as the average number of lambs usually reared.

We have already adverted to the cross between the Merino and the native sheep. On the introduction of the Saxon family of the Merinos, they were universally engrafted on the parent stock—and the cross was continued until the Spanish blood was nearly bred out. When the admixture took place with pure blooded and prime Saxons, it resulted most favorably. A variety was produced superior to the Merino in form, carrying less wool, but this more than compensated by its increased fineness. The excessive throatiness of the Paulars disappeared, or was greatly diminished. But unfortunately these instances of judicious crossing were rare. Our country was flooded by eager speculators, with the grade sheep and refuse Merinos of Germany. Fineness of wool, during the period of this strange excitement, was made the only test of excellence—no matter how scanty its quantity—no matter how diminutive or miserable the carcase. Governed by such views, the holders of most of our Merino flocks purchased these pseudo Saxons, and the consequence was, as might have been foreseen, their flocks were ruined.

SAXON MERINO.

In the year 1765, Augustus Frederick, elector of Saxony, obtained permission from the Spanish court to import 200 Merinos, selected from the choicest flocks of Spain. They were chosen principally from the Escurial flock, and on their arrival in Saxony, were placed on a private estate belonging to the elector, under the care of Spanish shepherds. So much importance was attached to the experiment, as it was then considered, that a commission was appointed to superintend the affairs of the establishment; and it was made its duty to diffuse information in relation to the management of the new breed; to dispose of the surplus rams at prices which would place them within the reach of all holders of sheep; and finally, by explaining the superior value of the Merinos, to induce the Saxon farmers to cross them with their native breeds. Popular prejudice, however, was strong against them, and this was heightened by the ravages of the scab, which had been introduced with them from Spain, and which proved very destructive before it was finally eradicated. But when it became apparent that the Merino, so far from degenerating, had improved in Saxony, and that the Saxon wool exceeded the Spanish in fineness and value, the wise and patriotic efforts of the elector began to reap their merited success, and a revolution took place in popular sentiment. The call for rams became so great that the government resolved on a new importation, to enable them more effectually to meet it, and to improve still further the stock already obtained. For this purpose an individual, considered one of the best judges of sheep in Saxony, was dispatched to Spain in 1777, with orders to select three hundred. For some reason—probably because he experienced difficulty in obtaining a greater number presenting all the qualifications he sought, he returned with but one hundred and ten. They were from nearly all the different flocks of Spain, but principally the Escurial,—and were considered decidedly superior to the first importation. In addition to the establishment at Stolpen, already founded, others were now commenced at Rennersdorf, Lohmew, &c.; schools were established for the education of shepherds; publications were distributed by the commissioners to throw information on the subject before the people; and the crown tenants, it is said, were each required to purchase a certain number of the sheep. When we take into consideration the unwearied pains bestowed on this favorite object by the Saxon government—the fact, that the Saxon variety are descended only from the choicest sheep of Spain—and that a degree of care and attention are bestowed on their breeding in the former country entirely unknown in the latter—it is not a subject of suprise, that the emigrant Merino in Saxony excels the parent stock, in the quality of his fleece, and that roundness of form and fineness of bone, which indicate better feeding properties. The Spanish shepherd is little changed from what he was in the days of Cardinal Zimenes, or Pedro IV.—with much practical knowledge of his business, but never dreaming of improvement; and his knowledge strangely blended with prejudices as ancient as the pedigrees of his sheep—running back to a period when Spain was a Roman province. He is *not the owner of the sheep under his care*, but the ill-paid servant of a titled family; or a religious order, who in nine cases out of ten, are no more disposed, or more competent to carry out a system for the improvement of their flocks, than himself. And finally, the Spanish custom of pasturing their sheep during the entire season in large flocks, without inclosures* to render the necessary divisions practicable, entirely prevents that nice adaptation to each other of the male and female selected for breeding—that counterbalancing of the defects of one parent by the marked excellence of the other in the same points, which exhibits the skill of the modern breeder. In Saxony, and the other states of Germany, the case is far otherwise. The electoral flocks, the parent stem, are under the direction of commissioners appointed for their intelligence and knowledge of the subject; and the noted private flocks employ the first agricultural skill of the Saxon land-holders. The low price of labor, too, admits of a degree of attention and constant care over their flocks, unknown in other countries. The attention bestowed upon breeding, may be inferred from the fact, that in many of the largest flocks, every individual sheep is numbered and registered—its pedigree known, and its offspring recorded! The number and age of the sheep is expressed by an ingenious method of marking on the ear, invented by Mr. Thaer, which causes little mutilation, and which effectually distinguishes any number of sheep. "When lambs are weaned, (says Mr. Charles Howard, in a letter to the author of the volume on sheep in the "Farmer's Series,") each is placed upon a table that his wool and form may be minutely observed. The finest are selected for breeding, and receive a *first* mark. When they are one year old, and prior to shearing them, another close examination of those previously marked takes place: those in which no defect can be found receive a *second* mark, and the rest are condemned. A few months afterwards, a third and last scrutiny is made; the prime rams and ewes receive a *third* and final mark, but the slightest blemish is sufficient to cause the rejection of the animal."

Considerable attention has also been bestowed in Germany on the breeding of grade sheep—a cross between the Merino and the native sheep of the country. These native sheep were of two varieties, and they bore a strong resemblance to the old common stock of the United States,—those which were fed on the uplands being smaller and of finer fleece, and the lowland sheep carrying more flesh and coarser wool. The sheep holders, who were unable to purchase pure bloods, resorted to this cross. The wool of some of these flocks, after a few generations, has rivalled even the electoral in fineness; but it loses in quantity, as the native German carried much lighter fleeces than the Spanish sheep, The sheep themselves are much less perfect in form, the means of the common breeder not permitting, and indeed there being no prospect for an adequate return, should he bestow the same labor that the breeder of pure bloods does—sacrifice for the least defect, and, in short, incur the same expenses—when at best, his sheep will not sell for more than one-eighth or tenth of the price of pure bloods.

In 1834, the best Spanish wool sold in the English markets at 2*s.* 6*d.*, to 4*s.*; the Saxon at the same time commanded from 4*s.* 9*d.* to 5*s.* 3*d.* per pound.† In the United States, where less difference, and very unjustly, is usually made, the full blooded Saxon sells for about one-third more per pound than the Merino. The fleece in good flocks averages about two and a half pounds, and often, if grown sheep were only included, would rise as high as three. But this is far from the standard of many flocks in the United States, called, and doubtless believed by their owners, to be genuine Saxons. This brings us to a most painful part of our subject, and and which we would willingly pass over in silence, were not our obligations to the public paramount to any considerations for the feelings of individuals. In disclosing the frauds practised on the American public, we are compelled for the purpose of doing justice to the innocent and the guilty, and also for the information of those who have been the purchasers of the imported sheep, to go into a minuteness of detail, which would otherwise be uninteresting, and perhaps be deemed censurable.

The following statement was submitted to the committee by Mr. Grove:

"The first importation of Saxony sheep into the United States was made by Mr. ——— ———, a merchant of Boston, at the instance of Col. James Shepherd, of Northampton. They were but six or seven in number. In 1824, Messrs. G. and T. Searle, of Boston, imported seventy-seven Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspondent of the above firm, residing in Lepzig, and shipped at Bremen on board the American schooner Velocity. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say, that as many as one-third of the sheep purchased by Kretchman (who shared profit and loss in the undertaking,) were not pure blooded sheep. The cargo were sold at auction at Brookline, as 'pure blooded electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle intended to import none but the pure stock—the fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase, in connexion with Kretchman, from 160 to 200 electoral sheep. I was detained at sea seven weeks, which gave rise to the belief, that I was shipwrecked and lost. When I finally arrived, the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection—but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them. The number shipped was 167, fifteen of which perished on the passage. They were sold at Brighton, some of them going as high as from $400 to $450. A portion of this importation consisted of grade sheep, which sold as high as the pure bloods, for the American purchaser *could not* know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed '*Good for the American market;*' and these sheep in many instances were actually bought up for the American market at five, eight, or ten dollars a head, when the pure bloods could not be purchased at from less than $30 to $40. In 1826, Messrs. Scarle imported three cargoes, amounting in the aggregate to 513 sheep. They were of about the same character with their prior importations—in the main good, but mixed with some grade sheep. On the same year, a cargo of 221 arrived, on German account, Emil Bach, of Lepzig, supercargo. A *few* were good sheep, and of pure blood; but taken as a lot, they were miserable. The owners sunk about $3,000. Next came a cargo of 210, on German account; Wasmuss and Multer owners. The whole cost of these was about $1,125, in Germany. With the exception of a small number, procured to make a flourish on, in their advertisements of sale they were sheep having no pretentions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me, that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Searle to say, that as a whole, their importations were much better than any other made into Boston.

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* Cultivator, Vol. 2, p. 150.

† "Farmer's Series," volume on sheep, p. 156. We quote Mr. Youatt.

‡ Essay on Sheep, p. 39.

§ Livingston's Essay, p. 71, and note.

‖ Rubbed over with a salve, consisting of oil, wax, &c. which adds to the weight of fleece.

¶ Lasteyrie.

* "Farmer's Series," Sheep, p. 149.

* Neither are there inclosures in Saxony; but the division is effected by the bucks being placed in pairs, and the ewes classified and marked. The ewes are from time to time driven in the yard around the pens, and when the teaser has selected one, it is placed in the pen of the buck for which it is marked.

† "Farmer's Series."

"I will now turn your attention to the importations made into other ports. In 1825, thirteen Saxons arrived in Portsmouth. They were miserable creatures. In 1826, 191 sheep arrived in New-York, per brig William, on German account. A portion of these were well descended and valuable animals; the rest were grade sheep. In June the same year, the brig Louisa brought out 173, also on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account. Some were diseased before they left Bremen, and I am happy to state that twenty-two died before their arrival in New-York. All I intend to say of them is, that they were a most curious and motley mess of wretched animals. The next cargo imported, arrived in the brig Maria Elizabeth, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New-York. These sheep cost me $65 a head when landed in New-York. They sold at an average of $50 a head, thus sinking about $2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account per brig Warren. With a few exceptions they were pure blooded and good sheep. We next have an importation of 200, by the Bremen ship Louisa. They are commonly called the '*stop sale sheep.*' They were of the most miserable character, some of them being hardly half grade sheep. The ship Phoebe Ann brought 120 sheep, of which I know little, and 60 were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1826–7 in visiting and examining many celebrated flocks. I selected 115 from the celebrated Machern, embarked on board the ship Albion, and landed in New-York June 27, 1827. In 1828, I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftsbury, adjoining the town of Hosic, where I now reside. On their arrival they stood me in $70 a head, and the lambs half that sum."

It should be remarked that the above statements were made by Mr. Grove with the greatest reluctance, and only at the earnest solicitation, or rather *requisition* of the committee, who conceived it their duty to place the whole circumstances before the public.

It will be inferred from the facts above stated, that there are few Saxon flocks in the United States, that have not been reduced to the quality of *grade* sheep, by the promiscuous admixture of the pure and impure, which were imported together, and *all* sold to our breeders as pure stock. This accounts in a satisfactory manner for the different estimation in which this breed of sheep are held in Germany and this country,—and for the degeneracy of the pseudo Saxon of the United States.

In its general habits and characteristics—its docility and patience under confinement—as well as its deficiency as a breeder, and its slowness in arriving at maturity, the Saxon bears a close resemblance to the Merino. It consumes about the same amount of food, and is equally remarkable for its longevity. Its mutton, however, is considered of better color, and rather superior in quality.

THE NEW LEICESTER OR BAKEWELL SHEEP.

The unimproved Leicester was a "large, heavy, coarse woolled breed" of sheep, inhabiting the midland counties of England. It is described also as having been "a slow feeder, and its flesh coarse grained, and with little flavor." The breeders of that period regarded only size, and weight of fleece. The celebrated Mr. Bakewell, of Dishley, was the first who adopted a system more in accordance with the true principles of breeding. He selected from the flocks about him those sheep "whose shape possessed the peculiarities which he considered would produce the largest proportion of valuable meat, and the smallest quantity of bone and offal," and having observed that animals of medium size possess a greater aptitude to take on flesh, and consume less than those which are larger, and that prime fattening qualities are rarely found in sheep carrying a great weight of wool, he gave the preference to those of smaller size, and was satisfied with lighter fleeces. To reach the wonderful results obtained by Mr. Bakewell, it was supposed that he resorted to a cross with some other varieties, but it seems now to be well established that he owed his success only to a judicious principle of selection, and a steady adherence to certain principles of breeding.

The improved Leicester is of large size, but somewhat smaller than the original stock, and in this respect falls considerably below the coarser varieties of Cotswold, Lincoln, &c. Where there is a sufficiency of feed, the New Leicester is unrivalled for its fattening properties, but it will not bear hard stocking, nor must it be compelled to travel far in search of its food. It is in fact properly and exclusively a lowland sheep. In its appropriate situation, on the luxuriant herbage of our highly cultivated lands, it possesses unrivalled earliness of maturity, and its mutton when not too fat is of a good quality, but is usually coarse and comparatively deficient in flavor, owing to that unnatural state of fatness which it so readily assumes, and which the breeder, to gain weight, so generally feeds for. The wethers having reached their second year are turned off in the succeeding February or March, and weigh at that age from thirty to thirty-five pounds to the quarter. The wool of the New Leicester is long, averaging, after the first shearing, about six inches, and the fleece weighs six pounds. It is of coarse quality, and little used in the manufacture of cloths, on account of its length, and that deficiency of felting properties, common in a greater or less extent, to all the English breeds. As a combing wool, however, it stands first, and is used in the manufacture of the finest bombazines.

The high bred Leicesters of Mr. Bakewell's stock became shy breeders, and poor nurses, but crosses subsequently adopted, have obviated these defects. In England, where mutton is generally eaten by the laboring classes, the meat of this variety is in very great demand, and the consequent return which a sheep possessing such fine feeding properties is enabled to make, renders it a general favorite with the breeder. Instances are recorded of the most extraordinary prices having been paid for these animals, and Mr. Bakewell's celebrated buck "Two-Pounder" was let for the enormous price of four hundred guineas for a single season! The New Leicester has spread into all parts of the British dominions, and been imported into the other countries of Europe and the United States. They were first introduced into our own country by the late Christopher Dunn, Esq. of Albany, about twenty-five years since. Subsequent importations have been made by Mr. Powel, of Philadelphia, and various other gentlemen.

We conclude this notice of the Leicester, with the following description of what should constitute a perfect animal of this breed, from the "Farmer's Series":

"The head should be hornless, long, small, tapering towards the muzzle, and projecting horizontally forward. The eyes prominent, but with a quiet expression. The ears thin, rather long, and directed backwards. The neck full and broad at its base, where it proceeds from the chest, but gradually tapering towards the head, and being particularly fine at the junction of the head and neck; the neck seeming to project straight from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll. The breast broad and full; the shoulders also broad and round, and no uneven or angular formation where the shoulders join either the neck or the back, particularly no rising of the withers, or hollow behind the situation of these bones. The arm fleshy through its whole extent, and even down to the knee. The bones of the leg small, standing wide apart, no looseness of skin about them, and comparatively bare of wool. The chest and barrel at once deep and round; the ribs forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest even greater than the depth. The barrel ribbed well home, no irregularity of line on the back or the belly, but, on the sides, the carcase very gradually diminishing in width towards the rump. The quarters long and full, and, as with the fore legs, the muscles extending down to the hock; the thighs also wide and full. The legs of a moderate length, the pelt also moderately thin, but soft and elastic, and covered with a good quantity of white wool, not so long as in some breeds, but considerably finer."*

THE SOUTH DOWN.

This breed of sheep has existed for several centuries in England, on a range of chalky hills called the South Downs. They were as recently as 1776, small in size, and of a form not superior to the common woolled sheep of the United States. Since that period a course of judicious breeding, pursued by one man, (Mr. Ellman, of Gluyde,) has mainly contributed to raise this variety to its present high degree of perfection, and that too, without the admixture of the slightest degree of foreign blood. In our remarks on this breed of sheep, it will be understood that we speak of the pure *improved family*, as the original stock, presenting with trifling modifications, the same characteristics which they exhibited sixty years since, are yet to be found in England—and as the middle space is occupied by a variety of grades, rising or falling in value, as they approximate to, or recede from, the pure blood.

The South Down is an upland sheep, of medium size, and its wool, which in point of length belongs to the middle class, is estimated to rank with half grade merino. The average weight of fleece in the hill fed sheep is three pounds, and in the lowland, four pounds. But the Down is cultivated more particularly for its mutton, which for quality takes precedence of all other in the English markets. Its early maturity, and extreme aptitude to lay on flesh, render it peculiarly valuable for this purpose. The Down is turned off at two* years old, and its weight at that age is from 80 to 100 pounds. High fed wethers in England, have reached from thirty-two to even forty pounds a quarter! Notwithstanding its great weight, the Down has, in the language of Mr. Youatt, a patience of occasional short keep, and an endurance of hard stocking, equal to any other sheep. This gives it a decided advantage over the bulkier Leicester, Lincolns, &c. as a mutton sheep in hilly districts, and those producing short and scanty herbage. It is hardy and healthy, though in common with the other English varieties much subject to the catarrh or "snuffles," and no sheep better withstands our American winters. The Ewes are prolific breeders and good nurses. The Down is quiet and docile in its habits, and though an industrious feeder, exhibiting little disposition to rove.

A sheep possessing such qualities, must of course be exceedingly valuable in upland districts in the vicinity of markets. Accordingly, they have been introduced into every part of the British dominions, and imported into various other countries. The Emperor of Russia, paid Mr. Ellman, three hundred guineas for two rams, and in 1800 "a ram belonging to the Duke of Bedford, was let for one season at eighty guineas, two others at forty guineas each, and four more at twenty-eight guineas each."† These valuable sheep were introduced into the United States a few years since by Col. J. H. Powell, of Philadelphia, and a small number was imported by one of the members of this committee in 1834. The last were from the flock of Mr. Ellman, at a cost of $60 a head. Several other importations have since taken place.

The following is the description of the perfect South Down by Mr. Ellman, the founder of the improved breed:—

"The head small and hornless; the face speckled or gray and neither too long or too short. The lips thin, and the space between the nose and the eyes narrow. The under jaw, or chap, fine and thin; the ears tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence against the fly.

"The eye full and bright, but not prominent. The orbits of the eye, the eye cap, or bone, not too projecting, that it may not form a fatal obstacle in lambing.

"The neck of a medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep and projecting forwards between the fore legs, indicating a good constitution and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back, and not too wide above, they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it.

"The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than others, the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set on high, and nearly on a level with the spine. The hips wide; the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel.

"The belly as straight as the back.

"The legs neither too long nor too short. The fore legs straight from the breast to the foot; not bending inward at the knee, and standing far apart both before and behind; the hock having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full, the bones fine, yet having no appearance of meekness, and of a speckled or dark color.

"The belly well defended with wool, and the wool coming down before and behind to the knee, and to the hock; the wool short, close, curled and fine, and free from spiry projecting fibres."

Mr. Allen, from the committee on horses asked further time to report. Granted, and directed to report at the next annual meeting of the society.

Mr. Buel, from the committee on swine, read the following report, which was accepted.

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* Sheep Husbandry, p. 110.

* Among breeders the sheep is termed a two year old or a two shear sheep until three years old. In this case the sheep is between two and a half and three years old.

† "Farmer's Series."

Report on Swine.

The committee appointed at the last annual meeting of the society, to inquire into the progress made in the improvement of swine, submit the following report :

All the breeds of hogs known among us are supposed to have sprung from the Wild Boar *(Sus aper)* of the old continent. The varieties are numerous, and are annually increasing by new crosses. They differ in size, color, propensities to fatten, and in the quality of their pork—the smaller breeds affording the more fine and delicate meat, and the larger ones giving the most meat. The names of breeds indicate their origin, or some peculiar property.

There are good points in the hog, which are similiar to what they are in other domestic animals ; they indicate a disposition to fatten readily, and constitute beauty, because they are the criteria of utility. The chest of the hog should be deep and broad; the ribs largely arched; the neck short, and the head and limbs small; the bristles should be short, approaching to hair, and the skin soft and elastic.

The breeds in highest repute in Great Britain, are stated by Low to be the Chinese, Berkshire and Hampshire; the first admired for the whiteness and delicacy of its flesh; the second for its hardiness, quick fattening properties, and the excellence of its flesh for pork or bacon; the latter for the great weight which it is made to attain.

The Chinese hog is distinguished by having the upper part of the body almost bare; its belly hanging nearly to the ground; its legs very short, and its tail still more proportionably short. The color is commonly a dark grey, but often of other shades. This breed has been advantageously crossed with several other varieties.

The Berkshire hog, is generally of a tawney, white, or reddish color, spotted with black, according to Loudon, though with us the black color seems to preponderate; thick, close and well made in the body; legs short; small in the bone, and has a disposition to fatten quickly.

The Hampshire hogs are large, long in the body and neck, but not so compact as the Berkshire; generally white or spotted, and well disposed to fatten, coming up to a great weight. Lawrence adds that they are generally dark spotted, and sometimes black.

This reference is made to foreign breeds, because most of our improved varieties consist of one or the other of them, or of their crosses. Little attention has yet been paid, among us, to rearing new breeds; yet, from the spirit of improvement which is diffusing itself over our country, we may expect soon to see such improvements successfully gone into. The difference, in the return of meat for the quantity of food consumed, is very great between different varieties—there being some that can scarcely be made fat, even at an advanced age, with abundance of food.—There is no domestic animal which can be more readily improved in its form, from the facility with which it receives the character of its parents, and none more capable of a rapid increase.

There is a breed which abounds in our country, denominated the *Tonewanta,* from the writer having seen some pure unmixed individuals of the breed in that quarter, though they yet abound in other parts of the state. They are a long-legged, long-necked, long-snouted, long-tailed, long-bristled, razor-backed species, of a roaming mischievous disposition. A friend had kindly made a drawing of one of these animals, which we designed to have exhibited here in *terrorem,* and as a caution against their further propagation among us. But we have mislaid the pencil sketch.

So little attention has been paid to the improvement of the hog, until within a few years, among us, that it is difficult to particularize or describe our best breeds. The grass breed was long in deservedly high repute; but as little care was had to preserve its purity and excellence, it has mingled and been almost lost in our innumerable sub-varieties. The Chinese has had its day with some, the Mackay is still a favorite at the east; and there are other varieties in equal repute in other districts of our country. The Berkshire, however, seems now to be ascendant generally. These have been in most demand during the last two years, have commanded high prices, and have been sent, in considerable numbers, from this city, to almost every part of the union. The stock from which the Berkshire breed has been propogated, was selected in England, and imported some five years ago, by Mr. Siday Hawes, who at that time emigrated and settled in this neighborhood. The stock was subsequently transferred to C. N. Bement, who became Mr. Hawes successor upon what is denominated the *Three Hills Farm.*

The committee are happy to state, that an increased interest is now given to the fattening of pork as constituting a profitable staple of our husbandry; that the advantages of improved breeds, in beauty of form, facility of fattening, and profit of feeding, are becoming daily more apparent; that our general stock has been greatly improved —and that the improvement promises to progress. The new facilities of making pork upon the farm, by the aid of the apple orchard, and the increased culture of roots; and from the excellent practice, now becoming general, of grinding or cooking the provender and roots upon which our hogs are fed, added to the uniform fair demand for this meat in the market—all these considerations combine to give an importance to this branch of rural economy, which is worthy the special notice of the farmer.

Respectfully submitted.
J. BUEL, *Chairman.*

On Motion of Mr. Randall of Cortland,

Resolved, That Messrs Buel and Randall be a committee to prepare the proceedings of the society for publication and that said committee furnish copies to the editors of The Cultivator and Genesee Farmer for publication.

On motion of Mr. Buel,

Resolved, That this society adjourn to meet at the City-Hall on the first Tuesday in Feb. 1839.

JOHN P. BEEKMAN, *Prest.*
H. S. RANDALL, *Sec.*

N. Y. St. Agricultural Convention.

The Convention assembled agreeably to public notice, in the Mayor's Room, in the City-Hall of the city of Albany, on the 1st day of February, 1838. W. A. S. North of Schenectady, was called temporarily to the chair, and Henry S. Randall, of Cortland, was chosen secretary, p. t.

On motion of J. Buel, it was

Resolved, That Messrs. J. P. Beekman, of Columbia, L. F. Allen, of Erie, J. Buel, of Albany, H. Baldwin, of Onondaga, and J. B. Duane, of Schenectady, be a committee to report suitable names for officers of the convention.

On motion of J. P. Beekman, it was

Resolved, That Messrs. H. Baldwin, J. Buel, A. Van Bergen, of Greene, F. Rotch, of Otsego, and H. S. Randall, be a committee to report subjects that ought to be brought before the convention, and the order of proceedings thereon.

The convention then adjourned to meet at the Assembly Chamber at 3 o'clock P. M.

Assembly Chamber, Feb. 1. 3. P. M.

The convention met pursuant to adjournment.

Mr. Beekman, from the committee to nominate officers for the convention, reported the following, which was accepted by the convention,

JAMES R. LAWRENCE, of Onondaga, *President.*

AVERY SKINNER, of Otsego,
DANIEL WARDWELL, of Jefferson,
D. S. DICKERSON, of Broome,
A. VAN BERGEN, of Greene,
F. ROTCH, of Otsego,
G. W. PATTERSON, of Livingston,
E. HALL, of Oneida,
R. SWARTWOUT, of Tompkins,
C. DUBOIS, of Dutchess,
C. BERGEN, of Kings,
J. J. VIELE, of Rensselaer,
J. S. SPENCER, of Madison,
V. Presidents.

HENRY S. RANDALL, of Cortland,
R. L. ALLEN, of Erie,
JOHN FRY, of Montgomery,
SAMUEL HOAG, of Rensselaer,
Secretaries.

The following delegates appeared and took seats in the convention.

Albany—Jesse Buel, John Townsend, William Thorburn, John Willard, James D. Wasson, J. K. Paige, C. N. Bement, Samuel Cheever, Charles Smith.

Allegany—Seth H. Pratt.

Cattaraugus—Nelson Green, S. A. Goodwin.

Chautauque—Geo. A. French, Abner Lewis.

Chenango—Henry Balcom, D. Hubbbard, jr, Justus Pearce.

Clinton—Percival Morse.

Columbia—S. Van Buren, P. I. Storrs, John VanSlyck, Wm. Bain, J. P. Beekman, A. B. Ludlow, Joab Center, Wm. H. Wilson, Adam L. Shaver, I. Crocker.

Cortland—D. Matthews, I. Osgood, E. W. Edgecomb H. S. Randall, N. Gillet.

Dutchess—Freeborn Garretson, Cornelius Dubois.

Erie—Richard L. Allen, Cyrenus Wilbur, A. Warner, L. F. Allen.

Essex—Gideon Hammond.

Franklin—Luther Bradish.

Genesee—A. H. Green, John Head.

Greene—Seth Hawley, J. P. Hawley, A. T. Van Slyck, A. Van Bergen, Martin G. Van Bergen.

Herkimer—Abijah Mann, jr, Volney Owen, Aaron Petrie.

Jefferson—D. Wardwell, Chancey Baker.

Kings—Cornelius Bergen.

Livingston—N. Scott.

Madison—Mr. Lord, Mr. Bostwick, Mr. Spencer. Derick Sibley, W. C. Bloss.

Montgomery-John Fry, G. Gortner, jr, A. V. Putnam, E. W. Prindle, J. L. Bevins, A. A. Nestall, A. W. Sebor.

New-York—John Harris, H. W. Childs.

Oneida—W. C, Noyes, F. C. White, R. Fuller, J. H. Ostrom, E. Mart, E. Elmer, H. Hearsey.

Onondaga—S. L. Edwards, E. Lynds, H. Baldwin, G. Lawrence, A. Smith, P. Gould, Victory Birdseye, James R. Lawrence, Wm. Gibbs, Henry Lawrence.

Ontario—Jonathan Buell.

Orange—Hudson McFarlan.

Oswego—Saml. Freeman, Jno. M. Richardson, A. Rice, L. Babcock, T. S. Morgan, Jos. E. Bloomfield.

Otsego—L. Beardsley, Saml. Betts, jr, Jacob K. Snell, John Drake, Francis Rotch.

Orleans—Horatio Reid.

Putnam—Saxton Smith.

Queens—John A. King.

Rensselaer—H. D. Grove, L. C, Ball, Jas. Wallace, Alex. Walsh, Hezekiah Hull, Wm. A. McCullock, A. D. Spoor, Jacob Ten Eyck, Cornelius Lansing, jr, John J. Viele, Joseph Hastings, Wm. S. Clapp.

Saratoga—H. C. Foster.

St. Lawrence—M. G. Peck.

Schenectady—Jno. B. Duane, John Ferguson, W. A. North, J. H. Strang, Wm. B. Walton, J. A. Tower, S. G. Tower.

Sullivan-J. H. Bowers, Jno. Maynard, Nathan Wakeman.

Tioga—John Coryell.

Tompkins—E. Curtiss.

Washington—Martin Lee, L. Gibbs, E. D. Culver, E. Smith, J. W. Richards, Jas. Martin, Jno. Crary, L. B. Armstrong, Jno. McDonald, Thos. Whiteside, Jno. Rost, Nathan Wilson.

Wayne—A. L. Beaumont.

Yates—Miles Benham.

Mr. Buel, from the committee on the subject of the Grain worm, presented the following report.

The committee appointed at the last Agricultural Convention, "to collect facts in regard to the history and habits of the Grain worm, to its ravages upon our farm crops, and to the means, if any are known, of preventing its depredations," offer the following report.—

The habits of the Grain worm, believed to be the *Tipuli,* or *Cecidomia tritici* of entomologists, are yet but imperfectly known among us. We find in Kirby & Spence's Entomology, one of our best authorities upon insects, but an incidental notice of one insect that can be considered identical with this. The following is the passage:

"When the wheat blossoms, another marauder, to which Mr. Marsham first called the attention of the public, takes its turn to make an attack upon it, under the form of an orange colored gnat, which, introducing its long retractile ovipositor into the centre of the corolla, there deposites its eggs. These being hatched, the larvae, perhaps by eating the pollen, prevent the impregnation of the grain, and so in some seasons destroy the twentieth part of the crop." Vol. 1. p. 172-3.

Professor Low, in his Elements of Practical Agriculture, p. 236, has the following notice of the insect:

"The *Cecidomia Tritici,* is a fly with an orange colored body and white wings. About the month of June the female ascends the ears of wheat, and deposites her eggs in these, by means of a fine trunk, and in a few days she perishes. The progeny being hatched in the ear, feed upon the grain. They are very small, from two to fourteen being sometimes found in one grain, and are distinguished by being of a bright orange color. They do not extend beyond the grain in which they had been born; but several grains being thus consumed in each ear, the damage done is often considerable. The larvae, after a period, fall down to the earth, in which they burrow, and remain there till the following summer, when they ascend from the earth in the form of the beautiful fly which has been mentioned."

Practical farmers have been able to add to our knowledge in regard to the habits of this insect. When wheat sown at the ordinary season, is developing its head, a species of fly is seen in great numbers, principally about sunset, attaching themselves to the ears, where they deposite their eggs, which in about ten days after become maggots, or catapillars. These destroy the young pickle, by sucking up the milky juice which swells the grain, and thus depriving it in part, and in some cases perhaps of the whole of the moisture, cause it to shrink up, and become an abortion. In about three weeks after, when it has exhausted this substance the insect falls from the head, either upon the leaves or ground, and if upon the latter it shelters itself about half an inch below the surface, where it remains dormant, until the mean temperature of about 50 degrees in the spring, brings forth the perfect fly, about the time the wheat comes in the ear. Such seems to be the most accurate account of the habits of the insect which we have been able to obtain.

Mr. Henry Green, of Washington County, has cited two instances, one in his own practice, of the insects emerging from the chrysalis to the perfect fly in autumn, in immense numbers; but this was caused as he well supposes, by the heating of the grain in the barn, the chrysalis being carried to the barn with the straw and chaff, in consequence of the grain having been housed in a greenish damp state.

We find no notice of the ravages of this insect till the year 1820. During the subsequent ten years it caused immense damage in some districts of Scotland, sometimes destroying, as it has done here, a fourth, a third, or half the crop, and in many instances the grain was so badly injured as not to be worth harvesting. In 1829, in the district denominated the carse of Gowry, the damage which the grain worm did to the wheat crop, was estimated at nearly two hundred thousand dollars. It has been known in the northern parts of this state and Vermont for the last ten years. It seems to have been first noticed upon the borders of Vermont and Lower Canada, and thence to have extended north and south. Its progress has been from 40 to 60 miles a year, east, west and south. It has now extended through Maine on the east, to Dutchess on the south, and to the Valley of the Genesee, partially, on the west. It will probably continue to enlarge the sphere of its operations, until it embraces the entire wheat growing districts of the union.

The depredations of the grain worm have tended greatly to lessen the culture of wheat where it has shown itself, and to reduce the product of that which has been sown, The product, from these causes, has been reduced four fifths in some districts. A like diminution in the wheat districts of the west, which may be feared, when like causes operate there, will be truly calamitous, not only to the farmer, but to the state at large. We cannot shut our eyes to what has happened, nor should we disregard the admonition which it conveys, to provide against the evil in due time.

No certain preventive is known for the evil. It would seem, that the most probable means of averting it, is to sow winter wheat early, say the beginning of September, and spring wheat late, perhaps after the tenth of May, in this latitude. The grain of the first may become indurated and hard, before the worm is hatched, and will of course escape injury. The latter will come into head after the fly has disappeared, and that too will escape. We are not prepared to say, however, that these rules will prove infallible. It is stated in the Maine Farmer, by Mr. Norcross, that he sowed on the last Friday of April, and on the 5th May. The fly appeared in great abundance on the first sowing, but as most of the grain was then past the blossom the injury was only in the late heads, and the damage to the crop did not exceed a twelfth. That sowed on the 5th of May was reduced in produce one half by the worm. We sowed on the 5th May, and although we saw flies upon the grain for five or six evenings after it had come into head, the injury did not probably exceed one fourth of the crop. We examined several fields of wheat sown from the 10th to the 22d May, and was not able to discover in them the least indication of the worm. These facts would seem to indicate, that if wheat is sown very early in autumn, or to late in the spring, the crop may escape the grain worm, or be but partially injured by it. Yet we want further experience—more facts—before we can lay down any certain rules.

The observations of practical men have led to this further conclusion, that good culture tends to lessen the evils of the grain worm, inasmuch as it imparts health and vigor to the crop, and accelerates the early developement of the blossom in the winter varieties before the fly appears. We have had cases cited to us, where parts of fields, being low, wet, badly cultivated, or affected with rust, were almost wholy destroyed by the worm; while other parts of the same field, upon dry, well cultivated ground, and the straw unaffected by rust, were but partially, or not at all attacked—the kernel having become indurated, before the worm was in a condition to prey upon it.

It is proper we should here remark, that a complete preventative has been announced as having been discovered by S. W. Jewett, of Weybridge, Vt. We know Mr. Jewett to be highly respectable farmer; he has confided to us his secret; and we have no doubt it has proved efficacious with him But the difficulty is in applying the preventive on a large scale, and the still greater difficulty of applying it in some districts at all. Mr. Jewett asks but a moderate compensation for his secret.

Kirby and Spence remark, in their work which we have quoted, with no little force, that among the various instruments which the Almighty ordains for the punishment of offending nations, and the more to manifest and glorify his power—

"He employs means, at first sight apparently the most insignificant and inadequate to effect their ruin: the numerous tribes of *insects* are his armies, marshalled by him, and by his irresistable command impelled to the work of destruction; where he directs them, they lay waste the earth, and famine and pestilence often follow in their train. The generality of mankind, say they, overlook or disregard these powerful, because minute, dispensers of judgement; seldom considering in how many ways their welfare is affected by them; but the fact is certain, that should it please God to give them a general commission against us, and should he excite them to attack, at the same time, our bodies, our clothing, our houses, our cattle, and the produce of our fields and gardens, we should be reduced, in every possible respect, to a state of extreme wretchedness; the prey of the most filthy and disgusting diseases, divested of a covering, unsheltered except by caves and dungeons, from the inclemency of the seasons, exposed to all the extremities of want and famine, and in the end, as Sir Joseph Banks, speaking on this subject, has well observed, driven with all the larger animals from the face of the earth."

The afflicting dispensations of Providence, are not only designed to punish men for their transgressions, but to awaken in them a constant and active vigilance, essential to their health and happiness; and under this view, the injuries which we now suffer from the insect enemy which is the subject of this report, may lead to renewed exertions in the performance of the great duties of life.

The committee will close their report with recommending, that the legislature of our state be requested by this convention, to offer a liberal bounty for the discovery of a preventive of the ravages of the grain worm.

Mr. Buel also read the following most able and interesting paper,—

On the Necessity and Means of Improving our Husbandry.

We cannot be too often reminded of the contrast which exists between good and bad husbandry,—nor too often admonished to search into the causes of this difference, and to apply the needful remedies. The difference does not consist alone in a single crop, or a single season: The soil in one case is becoming more and more exhausted of fertility, and losing its intrinsic value, while in the other its relative worth is on the increase, and the difference in product is consequently annually increasing.

We will illustrate our proposition by a comparison between American and Scotch husbandry, now and sixty years ago. Sixty years ago, the agriculture of Scotland, was in a wretchedly low and unproductive condition; while the products of our yet unexhausted soil were abundant. But sixty years ago the spirit of improvement fell upon Scotland, her agricultural society was instituted, and commenced its useful labors, and was soon after greatly aided by the organization of a national board of agriculture; agricultural surveys were made and published of every county—the best practices of every district thus became known to the whole nation—men of fortune and science turned their attention to the encouragement and improvement of this parent art;—and the consequence has been, that a wonderful and salutary change has come over that land, fraught with abundance and with blessings. The value of land has in consequence been enhanced three and four fold, and its products have been increased in a proportionate ratio. "In fertile districts," says Sir John Sinclair, "and in propitious seasons, the farmer may confidently expect to reap, from 32 to 40 bushels of wheat; from 42 to 50 bushels of barley; from 52 to 64 bushels of oats, and from 28 to 32 bushels of beans, per statute acre. As to green crops, 30 tons of turnips, three tons of clover, and from 8 to 10 tons of potatoes, per statute acre, may confidently be relied on. In favorable seasons the crops are still more abundant."

Now, what has been our progress during the last sixty years? Has it not been retrograde in agriculture? We have, to be sure, obtained abundant crops from our rich virgin soils, and when these have become exhausted, under bad management, we have occupied and exhausted others in their turn. But what is the condition *now* of the lands that were cultivated by our fathers half a century ago? Do *they* produce the average crops which are given above as the products of Scotch husbandry?—under all our favorable circumstances of climate and of civil liberty. Are our crops *half* as large? Nay, are they more than a *third* as large? Do we get from our old districts, an average of more than 10 to 13 bushels of wheat, of 14 to 17 of barley, or of 17 to 21 bushels of oats per acre? At the close of the last, and in the beginning of the present century, the surplus products of northern agriculture were *exported*, to an immense amount. Now we *import* the agricultural products of Europe, to avert the evils of famine! The cause of this remarkable difference, in the surplus products of the soil, may be partially owing to unpropitious seasons, but is mainly to be sought for in the neglect of our agriculture—both by the people and the governments. In Europe, the governments, and influential individuals, have bestowed spirited attention upon the improvement of agriculture, as constituting the basis of national prosperity and independence. While with us, improvement in husbandry has been considered a minor concern,—it at least has not received the consideration of the statesman or the political economist. Party politics, and local or personal schemes of aggrandizement, have so much engrossed the attention of the men who *ought* to lead in these matters, and who *do* lead in every other public improvement, that the humble claims of agriculture have failed to attract their notice, or engage their attention, although it constitutes the base which supports the whole superstructure of civilized society.—If we would preserve the superstructure, with its embellishments, we must take care to make strong and permanent this foundation. Our farmers, too, seem generally indifferent, or spiritless, in regard to the general improvement of our agriculture, either because they mistake their duty and true interest, or that, under the influence of a strange fatuity, they fear they shall sink as others rise.

We should consider our soil as we do our free institutions—*a patrimonial trust--to be handed down*, UNIMPAIRED, *to posterity;* to be *used*, but not *abused*.—Both are more easily impaired than they are restored—both belong, in their pristine vigor and purity, as much to our children, as they do to us. In some of the once populous and fertile districts of the old continent, the fertility of the soil has been recklessly wasted by men, whose descendants have, consequently, become poor and wretched, and their country almost virtually a desert. In other portions, where the fertility of the soil has been sedulously preserved for ages, or centuries, the population has continued prosperous, wealthy and happy.

It is undeniably true, that our general system of farming is bad; that in most parts of our country the natural fertility of the soil has been gradually diminishing, and its products becoming less; that the evil is increasing; and, that without a radical reform, we shall, in the north, not only cease to have surplus products to pay for the foreign commodities which long habit has rendered necessary to our convenience, but lack a supply of bread stuffs for our own population. To what degrading dependence will this course of things in a few years reduce us—unless prompt and efficient means are adopted to check our down-hill course in the products of agricultural labor!—With the finest country in the world, a population almost entirely agricultural,—exempt from the enormous burthens, as tithes, rents and poor rates, which press like an incubus upon the agricultural labor of Europe,—and dependant on foreign supplies for the means of subsistence!! The idea is humiliating—is alarming—to all who look to the ultimate prosperity and happiness of our country. Our maritime commerce depends upon contingencies which we can neither foresee nor control. Venice and Genoa, and Portugal and Spain, have each in turn, had their "days of commercial prosperity"—they successively rose to opulence—to power—and successively sunk, the victims of corruption, into effeminacy, vice, and despotism. Manufactures too, as we have had abundant cause to know, are but a precarious dependence for national greatness. Commerce and manufactures are the shaft and capital of the social column, of which agriculture constitutes the base; and without this base, they can no more withstand the shocks and revolutions of time, than could the short lived glory of the nations we have named. Great Britain now wields the trident, and the world is made tributary to her workshops. But great as she is in commerce, and in manufactures, these are considered secondary and auxiliary to her agricultural greatness. Land is the basis of her national wealth,—it is the surplus marketable produce of her soil, says Sir John Sinclair, that is the source of all her political power, and of the personal enjoyment of her citizens; and there is no source of domestic industry, or of foreign commerce, he adds, that can in any respect be put in competition with the improved cultivation of her soil. The agriculture of Great Britain employs but two-thirds of her population; and yet the surplus products of her soil, suffice to feed and support the other third, and to assist in supplying our deficiencies. Our population is at least five-sixths agricultural; yet during the two last years we have had to import about ten millions worth of bread stuffs to supply our deficiency in this first element of life; and even in the most favorable seasons, the exports of the surplus products of our northern soil, have been merely nominal.

We will state one fact, derived from official documents, which will demonstrate beyond the power of refutation, our down hill course in this great branch of national industry. It is this: the average increase of bread stuffs, passing from our canals to tide waters, from the great grain district of the west—from the Flanders of America,—has amounted to three and three quarters per cent; while our population has increased in the ratio of six per cent per annum! If such has been the deficiency, in our grain growing, new and fertile districts, to meet the wants of our increasing population—how much greater must that deficiency have been in the exhausted soils of old settled districts? Many portions of our country, which once exported grain, have, by bad husbandry, become dependent upon the comparatively new settlements, or upon foreign supplies, for this indispensable necessary of life. This remark will apply to almost our entire Atlantic border.—Will any mathematician tell us, how long it will require, according to the disproportionate ratio of increase, between our population and our means of subsistence, to reduce us to a state of absolute dependance? or, to a state of national want and famine.

It is apparent, from the examples of improvement which are witnessed in many districts of our country, that we CAN improve the general condition of our agriculture, if we will adopt a wise and energetic policy. Nay, we have a demonstration of the practicability of doing it, in the now palpable benefits of the law to improve our agriculture, passed in 1819. That law involved an expenditure of 40 or 50,000 dollars, and expired in 1824. It was found fault with by many from political motives, and by more from a spirit of envy, in those who either had not the enterprise or the talent to compete successfully for the rewards which it gave to industry and skill. And besides, the law, in some instances, was badly, we may almost say corruptly, executed Yet under all the disadvantages of want of organization, of inexperience and abuse, has not that expenditure been like manure spread upon our soil? Did not that law excite a laudable emulation among the whole farming community, and bring into action more skill, more industry, and more improvement? Has it not been instrumental in greatly improving our farm stock, our farm implements, and modes of culture? Has it failed to increase the farm products of any one county, of a respectable population, to the amount of the total expenditure? Or, has it failed to return into the treasury, every year, the gross amount of that expenditure, in the form of canal tolls upon the increased productions of the soil? We do not put these questions because *we* have any doubts in the matter, but to bring the subject home to the calm and deliberate consideration of those reflecting men, whose duty and interest is to scan, to judge, and to act wisely, upon a question of momentous importance to our country. If these men think with us, that the law of 1819 has amply remunerated the state, for its expenditure, on the increased tolls on our canals, and that it has added millions to the value of our annual agricultural products, they will not hesitate to renew that policy which has been productive of so much public good. The improvements of the last eighteen years might have been respectable without the aid of that law; but it was *that* which gave a new impetus to improvement. The fairs and exhibitions which it produced, taught our farmers, that there was yet much to learn in their business;—that they could improve, in their farm stock, in their farm implements, in their seeds, and in their modes of culture—and many of them resolutely determined to profit, and did profit, by the lessons of instruction which they then imbibed. And when the spirit of improvement has begun, it is like civil revolution,—it seldom retrogrades. One improvement leads to others, as naturally as the active mind, having attained to one branch of knowledge, soars to other and higher branches. Our southern brethren say, we are in advance of them greatly in agricultural improvement. If this is so, we owe this distinction in rural improvement to the law that was passed, upon Gov. Clinton's recommendation, in 1819.

It requires no science, and very little art, to wear out and exhaust the most fertile soil. The process is simple: take from it all you can, by close cropping, for a few continuous years, and return to it nothing in the form of manure, and the work is done, or far advanced. In this business we have shewn ourselves to be no mean adepts. But it does require science, and art, and perseverance and capital, to restore fertility to a soil which has become exhausted. This we have not yet sufficiently learned; but it should be our next lesson; and the sooner we begin, the sooner shall we profit by it.

Agricultural improvement is slowly developed, at least to superficial observers. It requires years to renovate the fertility of an exhausted soil—to improve the stock of a farm; or to realize the benefits which result from draining, from alternating crops, and from root culture. We are much in the habit of calculating upon *immediate* gains, without looking to remote and ultimate benefits. We saw not the change, when the law of 1819 was in force, because its benefits were but partially developed. But we now hear the remark from hundreds, that the appropriation of 1819, was one of the most beneficial to the state that has ever been made by the legislature. The popular vote of the state would never have sanctioned the construction of the Erie and Champlain canals; and yet the wisdom of the measure is now sanctioned by an enlightened world. Although the construction of these canals, may have operated prejudicially to some individuals and districts, yet the benefits which have resulted to the whole state have amply compensated for any personal inconvenience or injury they may have caused. So with the law to encourage agriculture; many did not foresee its benefits, who now acknowledge that they are palpable and important. We must judge of public measures by their fruits; and before we are competent to do this, the seed must germinate, the plant grow and blossom, and the fruit mature. This is particularly the case in all measures to improve agriculture. It is the province of wisdom to look ahead—to sow the useful seed, and to wait the coming harvest for the recompense. We must sow in the spring—and cultivate well in the summer, if we would gather an abundant harvest, in autumn.

We may almost lay it down as a maxim, that THE MENTAL AND MORAL CONDITION OF AN AGRICULTURAL DISTRICT, IS IN THE RATIO OF ITS IMPROVEMENT IN HUSBANDRY. To borrow the spirit of a political saying—*as goes agriculture, so goes the state.* There is certainly much truth in the remark, that where the farming is slovenly and bad, ignorance, indolence, and vice, most generally abound; and that where agricultural improvement is most advanced, the population are most industrious, most intelligent and most moral. Knowledge begets a love of knowledge; and when a man has acquired enough of it to convince him of its utility in his business, he considers it a part of his farming capital, and he is anxious to increase his stock of it, as the readiest means of improving his condition in life, independant of the mental pleasures which it imparts. But not having acquired the requisite degree to enable him to appreciate its value, or to show him the defects of his system of management, he plods on, with listless indifference, in the ways of his fathers; and as great success, now-a-days, seldom rewards such labors, he too often becomes spiritless and dissatisfied, and relaxes into indolence, of which vice is too frequently the concomitant.

Under the existing state of things, how does it become us to act? What are we to do? Shall we fold our arms, leave agriculture to decline further, or to shift for itself, and depend upon more propitious seasons, and other Providential interpositions, to supply our wants? Shall we depend upon the cotton, rice and tobacco of the south, which constitute our almost entire exports, to pay for the foreign commodities which we consume in the north? Or shall we, animated by the enterprise and love of independence which were wont to animate our fathers—take in hand resolutely to provide abundantly for ourselves, by encouraging and enlightening agriculture, elevating its character, and stimulating it to new efforts, by suitable honors and rewards?

As regards the means of improvement, much has been done, and much is doing, by the agricultural periodicals of the day. The first of these was established at Baltimore, by John S. Skinner, in 1819; and we can now enumerate nearly twenty, that are diffusing light, awakening enterprise, and inciting to industry, in every section of our country —Probably one hundred thousand farmers, are now deriving instruction, and improving their practice, by the perusal of these journals; and it is not extravagant to say, that the benefits they are dispensing to the nation are equivalent to millions of dollars every year. But what is one hundred thousand compared to the gross agricultural population of the union?—and how much greater would be their benefits if these Journals had access to every farm house, or even to every school-house, in the state? Besides giving much that is useful in the science, or the first principles of husbandry, they are continually advertising their readers of every improvement which is being made in the practical operations of the farm—of new seeds, and plants, and the mode of cultivating them, and of every improvement in labor-saving machines. In twelve numbers of the Cultivator may be noticed more than a hundred and twenty communications, mostly from practical farmers, residing in the different states, detailing their practice in different departments of husbandry, thus making their improvements known, in a short time, to its twenty thousand patrons.

By thus concentrating, as it were in a focus, the practical knowledge of the country, and then scattering it, like the solar rays, into every corner of the land, to fructify the earth, and by thus rendering it subservient to the benefit of all, some individuals have been enabled to obtain a clear profit of fifty, one hundred, and even one hundred and fifty dollars, on an acre of corn, or an acre of Swedish turnips, who had never before obtained a profit of thirty dollars an acre from either. And the benefits of these splendid results are not confined to the individuals who effected them: they are heralded in the agricultural journals; become known all over the country; and every new and successful effort at improvement, soon has its fifty, its hundred, and its thousand imitators. Suppose, for instance, what we hope will yet prove true, that an individual should discover an effectual preventive of the ravages of the Hessian fly, or grain worm—instead of benefitting him and a few neighbors, or becoming gradually known, as in olden times, the knowledge of it would now be spread in a few days, by the agricultural periodicals, into every corner of the land, and the advantages of the discovery would thus amount to millions in a single year. So with every other improvement in husbandry. It is not the province, nor is it the study of news journals and literary editors to deal extensively in agricultural concerns. They seldom publish even the incidental notices which are designed to subserve the interests of husbandry, without a special request, and a fee in the bargain, as though *they* had no personal interest in the progress of agricultural improvement. We would infer from these premises, that every man will promote his interest, and benefit the public, by patronising and endeavoring to extend the circulation of our agricultural papers. They tend to no possible evil, while they are certainly calculated to do much public good.

Another means of facilitating agricultural improvement, is to introduce class books, into our common schools, for the senior boys, which shall teach those elementary principles of science which are indispensable to the successful practice of agriculture. A boy may be almost as easily taught to analyze soils, and to comprehend the leading principles of animal and vegetable physiology, as he can to commit to memory pages of matter, the knowledge of which seldom serves him any useful purpose in manhood. We must begin in youth, if we would bring about any material improvement in the habits of society. The good seed that is sown in the spring time of life is never lost,—it will ultimately sprout, and grow, and give its increase, as surely as the grain which we deposite in a fertile soil. The tree *will* grow as the twig is bent. Youth is the season to get instruction in the principles of the business which is to constitute the employment of life; and the more the knowledge which boys acquire in these principles, before they start in life for themselves, the more likely they are to prosper and become useful to society. The time that the senior boys in school devote to the business of the farm, will give to studies which are connected with their present and future business, an interest and an influence which will be as abiding as life.

But we would go farther in the business of agricultural instruction;—we would establish schools to teach simultaneously, both the theory and practice of agriculture. We would carry something of the theory into the primary schools, and much of the practice into the schools of science. Veterinary schools, to instruct in the anatomy and management of domestic animals, have long been established in Europe; their usefulness has been highly extolled, and their numbers are increasing. Switzerland, Prussia and France have also their schools, in which the science and practice of agriculture are taught to hundreds of young men, who are thereby enabled to manage their estates, with greater benefit to themselves and the public, or to obtain honorable and lucrative situations as managers for others. We give bounties on our fisheries, to make them a nursery of seamen; but we give none upon agriculture, which is the best nursery of freemen.—We spend millions annually to protect our commerce; but we give nothing to improve agriculture, which is the basis and support of that commerce. We protect our manufactures by a heavy tariff; yet agriculture, which furnishes the raw materials, and buys the fabricks, which the manufacturer consumes and vends, is left to protect itself. We have expended nearly three millions in this state, to aid in educating almost exclusively professional and other gentlemen; and yet we have given nothing exclusively to educate our agriculturists, who constitute the great mass of our population. And yet there is probably no employment in life capable of being more benefitted by a professional education—none in which a professional education would conduce more to the public prosperity—than that of managing our farms. A proper knowledge of soils, manures, vegetables and animals—of the agency of caloric, of moisture, of the atmosphere, and of light, in the economy of vegetable and animal growth—are all of great use to the farmer, and yet in what existing school can he acquire this knowledge, during the period of life in which he ought to obtain his practical knowledge?

All impressions of general reform, to be successful, must be first made upon the ductile minds of the younger population. The old are apt to be too obstinately wedded to their juvenile habits and prejudices. Men are apt to grow up in the creeds in which they are instructed—be they Christian, Mahomedan or Pagan—be they of good or bad husbandry. And if our youth are early instructed in the first elements of agriculture, and taught to consider it, what it truly is, an employment eminently calculated, above all others, to promote individual and national prosperity and happiness, they will aspire to honor and distinction in its labors—and will not so generally press to the cities—to the bar and the counter,—for the means of gratifying a laudable ambition. And society will reap an abundant reward from the change. We will illustrate this by an historical fact. Ernest, former Duke of Saxe Gotha, had his people instructed by compendiums of every kind of useful knowledge, including music and drawing, that were put into the hands of youth in all country schools; and which in a few years entirely changed the face of his principality; and "it is amazing," adds our author, who wrote some years afterwards, "to observe the different irradiations of genius, in this and the adjacent circles." The effect was alike beneficial in the improvement of the soil and the mind. And the example of Saxe Gotha, probably led to the excellent system of school instruction in agriculture which has since been introduced by Prussia, and most of the German states.

It has been stated, as an objection to the establishment of agricultural schools, that they would be only accessible to the rich. This objection, even if well founded, would not go to lessen their value to the state : For if we could convert a few hundred drones, as the sons of rich men may generally be termed, into working bees, the public, as well as the young men themselves, would certainly be gainers by the transformation. The complaint is that we have too many consumers, and too few producers. This would tend to restore an equilibrium: For the examples of the rich, be they good or bad, have an imposing influence on the middling and lower classes; and thus to improve the habits and morals of the rich, would be the surest way to improve the condition of society. Hence, therefore, if agricultural schools can be instrumental in annually converting a few hundred of the idle and dissipated sons of wealth—or rather in preserving them from these habits—into wholesome industrious farmers, agricultural pursuits will be more respectable and more followed; and we venture to predict, that then we shall not long continue to do, what we have done—import potatoes from Ireland and Germany, hay and oats from Scotland, eggs from France, and bread stuffs from all the countries of Europe, including the dominions of the autocrat of Russia and of the Grand Turk.

But it is not exactly true that the rich alone would find access into agricultural schools, were such established.—The rich rely upon their paternal wealth, and have not often the ambition to become useful, at least by the habits of manual labor, which would be rigidly required in such schools. The schools would be filled with the youth from all classes of society, who aspired to fortune and independence, by a manly exercise of their mental and physical powers—the young men of this description, even from the poorer classes, do obtain admission into literary institutions, and they would into agricultural ones with greater facility,—because the terms of admission here would be more reasonable—and with equal prospect of distinction and usefulness in after life. But whether these schools should be filled from the rich or poorer classes, or, as we have supposed, from all classes indiscriminately, a certain and great public good would result from their establishment: the pupils would go to swell the producing classes of society, with habits of application and usefulness, minds imbued with scientific knowledge, bodies hale and robust, and hands practiced in all the manual operations of the farm.

It verily seems to us certain, that if the importance of the subjects which we have discussed, could be justly appreciated by the community at large, every class of our citizens would concur in the propriety of a united effort to improve the condition of our husbandry, and of speedily adopting the measures we have suggested, or others equally availing, to produce the desired result.

On motion of Mr. Beekman,

Resolved, That the thanks of this convention be presented to Judge Buel, for his communication on the subject of the improvement of agriculture, and that a copy be asked for publication.

On motion of L. F. Allen, it was

Resolved, That a committee of five be appointed for the purpose of considering the propriety of introducing into our common schools, books which treat on agriculture.

The resolution was advocated by Messrs. Allen, Mann, Viele, Cheever, Bradish, Owen, Patterson, and Sibley, and opposed by Messrs. Culver and Crary. Before the question was taken, Mr. Buel offered the following substitute.

Resolved, That the introduction of elementary books upon agriculture and rural economy, into our common school libraries, as occasional class-books for boys, is considered by this convention as eminently calculated to advance agricultural improvement, to encourage industry, and to promote the moral health of society.

The substitute was supported by the mover, Mr. Crary and Mr. Patterson, and opposed by Messrs. Richards, Allen and Baldwin.

Mr. Culver offered an amendment to the substitute, which was lost; and the question being then taken on the substitute, it was lost also. The original resolution was then adopted.

The chair named the following committee: Judge E. Cowen, of Saratoga, Messrs. Allen, of Erie, Wardwell, of Jefferson, Mann, of Herkimer, and Baldwin, of Onondaga.

The following resolution was submitted by Mr Wardwell, of Jefferson, and laid on the table.

Resolved, That a committee on the culture of the sugar beet, and the manufacture of sugar therefrom, be appointed, whose duty it shall be to examine into the subject generally, and give the result of such examination at the next annual meeting of this convention.

The following resolution was submitted by Mr. Richards, of Washington, and laid on the table.

Resolved, That a committee be appointed to report to the next convention, any further information which may be collected on the subject of the grain worm.

Mr. Baldwin, of Onondaga, submitted the following, which was laid on the table.

Resolved, That in the opinion of this convention, the existing laws relating to highways in this state, are defective, and require revision by the legislature.

The convention then adjourned to meet at 4 o'clock tomorrow.

Friday, Feb. 2. 4 P. M.

On motion of Mr. Beardsley, of Otsego, it was

Resolved, That a committee of three practical and scientific agriculturists be appointed, whose duty it shall be to report to the next convention, upon the possibility and best practical method of extirpating the *Canada Thistle*, one of the most formidable enemies to successful agriculture.

Messrs. Beardsley, of Otsego, Duane, of Schenectady, and Fry, of Montgomery, were appointed said committee.

The consideration of the resolution submitted by Mr. Wardwell, on the subject of the culture of the *Sugar Beet*, &c. being called up, it was discussed, and adopted, and the following gentlemen appointed to report thereon, viz. Messrs. Wardwell, of Jefferson, Jonah T. Marshall, of St. Lawrence, and S. Cheever, of Albany,

On motion of Mr. Buel, it was

Resolved, That inasmuch as most of our wealth is derived from the cultivation of the soil, it is politic and just that a portion of our revenue should be applied to the *improvement* of the soil, and that, therefore, in the opinion of this convention, a part of the interest accruing from the investment of the surplus revenue, ought to be specially appropriated, by the legislature, to the improvement of the agriculture of the state.

Mr. Viele, from the committee appointed at the last annual state convention, under the resolution "to inquire whether in the distribution of public monies in aid of agriculture, a better mode can be devised than that of giving it to county agricultural societies to be awarded in premiums," reported to the convention,

That by reason of their being located in different parts of the state, the members of the committee had not the opportunity for meeting and consultation, but they nevertheless brought their individual minds to bear upon this important subject, and are highly gratified in being able to find on coming together at this time, that the result of their reflections had brought them all to the same conclusion. They would however express their regret that the occupation of the short time allotted them, by their duties in the State Society and Convention, have precluded them from doing the subject that justice its importance demands.

The policy of appropriating public moneys to stimulate to exertion the laboring and producing classes, and also to elicit the inventive genius of our country, has of late received much of the attention of the most enlightened and patriotic minds in this community; and as far as the committee have been able to ascertain, such attentions and reflections have almost invariably brought them to the conclusion, that the adoption of such a policy, would in its practical results be productive of the greatest benefits to the community.

That it would elevate and ennoble the character of our agricultural community—that it would rescue from ignorance, (we had almost said ignominy) this most useful class of our citizens—that would equalize in point of honor and respect the different occupations and professions—that it would improve not only the soil but the mind—that it would vastly increase the products of the earth, and by calling forth the inventive talent of the country, lessen the expense of production and manufacture—that it would enhance the value of our real estate by doubling its productions—that it would be productive in a degree, of a spirit of contentment, which would arrest the tide of emigration, that is abstracting our population, our labor and our wealth—that instead of impoverishing, it would enrich the public treasure, by increasing the taxable property of our state, and increasing those productions which require transportation, and consequently the revenue derived from our public works—in a word, that it would redound to the honor and promote the prosperity of all and every interest in this great state, the committee cannot entertain a doubt.

In coming to this conclusion, they do not rely upon what has perhaps too justly been termed "vain theory and idle speculation," but they have consulted the experience and practical results of those countries and states, who (with "shame and confusion of face" we acknowledge) have gone ahead and taken the lead of our boasted "empire" in this march of improvement.

Improvement in this branch of domestic industry is a distinguishing feature between civilization and barbarism, liberty and despotism—wealth and poverty—moral and intellectual advancement and mental degradation. Thus we see the more liberal and enlightened nations of the eastern continent encouraging and patronising this great interest, which lies at the foundation of all true national greatness, and under proper attention is the prolific source of a nation's prosperity and wealth. Most of the governments of Europe have set apart a portion of the public bounty, and adopted some system, to increase the productiveness and enhance the value of well applied labor.

In France great encouragement is given to the cultivation of the vine and the sugar beet—two objects to them, of great national importance. Germany has proved the wisdom of her councils, by the establishment and patronage of schools, devoted to scientific and practical agriculture. Prussia, too, has shown that she is not asleep to her interest, by the introduction at the public expense, of the science and practice of this invaluable art into all her public schools. On the other hand, the despotism of Russia, neglecting alike the improvement of her agriculture and her semi-barbarous population, labors studiously to keep her boors and serfs in a state of vassalage and mental degradation; and chooses rather to expend the treasure which legitimately belongs to the people, in a forty years war with the Georgians and Circassians, with a view ultimately to wrest from Great Britain her most profitable trade with the East Indies. Great Britain, always alive to what promotes her interests, has adopted an enlightened policy on this subject, and Scotland, by means of her societies and premiums, has brought that romantic country,

> "Where wild woods grow and rivers ro'
> Wi' mony a hill between,"

into a state of improvement and cultivation that challenges the admiration of the world.

While these efforts have been making abroad, and while this improvement has been going on, our own country, favored of Providence above all others, in the richness of her soil and the enterprize of her citizens, has been retrograding, or at all events, remaining stationary, in the condition of her agriculture.

The consequence has been, that with all our boasted *independence*, and with all our natural advantages of soil, climate, and the industry of our citizens, we have been *dependent* upon these foreign despotisms for the means of subsistence. To say nothing of luxuries—in a time of almost universal peace and prosperity, even the "staff of life" has been suffered to fall from under us, and we obliged to trust to one, "that while we lean upon it, it pierces us." We allude to the most astonishing and humiliating fact, that our country, the most fertile and productive of "Gods heritage to man," has been under the necessity—and is even at this time importing her bread-stuffs, forage &c. to support a population essentially agricultural, in a country the best adapted by nature to the growing of grain of any in the world.

The committee however congratulate themselves and the community, that public attention is being more directed to this subject. The people generally are arousing from their stupor, and public opinion, that mighty engine of all moral and civil reform, the resistance of whose breath is as fatal as the deadly Simoon of Africa, is beginning to move, and we have good reason to believe it will advance until its influence shall reach our legislative halls, and induce those entrusted with the public weal, to see to it—to protect, encourage, and advance it—instead of spending the people's time and money in useless political manouvreing; in making political harangues for out-door effect.

Among the evidences we have that "the people are a coming" on this subject is, that in many of the states of the union, legislative action has been already had, and an enlightened policy adopted, which has already been production of much good.

Among the first to advance in this matter was the state of Massachusetts. She encouraged some years since the establishment of County Societies, and sustained them by liberal appropriations. The law under which they organized expired not long since, and she has proved her devotion to this cause by a renewal of the same. This is conclusive evidence to her, that the policy is sound and salutary, and in perfect accordance with the views and wishes of her enterprising and thrifty population. The State of Maine has also given an example of great wisdom and liberality in recent efforts to improve her agriculture. The bounty which she this year pays to her citizens, to encourage the culture of wheat alone, will draw from the treasury more than all the expenditures which the "Empire State" has ever made directly in aid of agriculture.

Several of the other states have taken measures for the establishment of agricultural schools, and others have offered liberal bounties to encourage various useful and lucrative branches of home industry, as the cultivation of the sugar beet, the mulberry, and the production of silk.

The indications of public sentiment in our own state, we are happy in stating, are as far as we have been able to ascertain, in favor of a judicious and liberal appropriation by the state, to promote and advance the condition of her languishing agriculture.

As to the question raised by the resolution under which the committee act, we would remark; that although the establishment of schools, especially devoted to the education of young men in scientific and practical agriculture, is a matter of very great importance, demanding upon every principle of justice and expediency, the attention and patronage of the state, still they believe that more *immediate* and more general benefit would be derived from the establishment of a state board of agriculture, with branch societies in the several counties of this state; each having the power and authority, under proper regulations and restrictions, of awarding premiums for the production of the greatest results with the least expense in tillage; and also for the invention of useful and labor-saving implements for production, or machinery for manufacturing.

By this mode of distribution an immediate advantage would be reaped by the present generation of farmers, which perhaps no other means would reach. There is a class, we regret to say, in this community, so "wise in their own conceit" as to be above all improvement, in this most complicated and imperfectly understood art. So riveted are they to their old practices, that every improvement is denounced as an innovation. Even the most palpable errors in practical husbandry, having the sanction of ages, and having been handed down from sire to son for "time the memory of man runneth not to the contrary," they are loth to acknowledge, and slow to correct. This class composing the most illiterate of the community, and having passed the meridian of life without cultivating their minds, would derive little or no advantage from the slow but sure process of diffusing knowledge by means of schools. But by means of societies, distributing premiums, the whole community would be excited and vie with each other to excel in all that relates to their occupation. The effect woud be to improve this class, not by reason of themselves, but in spite of themselves. Every step in improvement would add not only to individual but to national wealth.

The law of 1819, "to improve the agriculture of the state," although limited in its operation and duration, was productive of a vast amount of good to the people of this state. Although imperfectly, and in many cases, badly administered, as all new undertakings are liable to be, it gave an impulse to useful enterprize and improvement, which is felt and acknowledged up to this day. It improved our farm stock—farm implements—farm crops and modes of culture. That law involved a public expenditure of about thirty thousand dollars, and the committee are induced to believe that no like sum has ever been expended from the public treasury with greater public advantage. The advantages derived from it are now palpable, and acknowledged by all intelligent men who have reflected on the subject. It is the opinion of men whose judgment is entitled to the greatest respect, that the expenditure has been more than thrice returned to the treasury, in the form of canal tolls upon extra products of the soil, which it virtually created.

While, therefore, we are unwilling to say that any *better* mode can be devised, in the distribution of public monies than that of awarding it in premiums, still we confidently hope that something also will be done for the rising agricultural generation, by the endowment of schools, where the sons of farmers can be educated in a manner suitable to their occupation, and taught those branches of science which are applicable to those arts and that business, which they are destined to pursue through life. It is only through schools that we can ever hope to elevate the intellectual character of our yeomanry. It is to the youth of the country that we must look, for a simultaneous improvement of the soil and the mind. They will soon be our Legislators, our Judges and our Jurors. They are to be the future guardians of our liberties, and all those invaluable privileges which we enjoy.—Is it not important then that they should be properly qualified by education, for the discharge of these sacred trusts? Five-sixths of the population of the country are engaged in agriculture, and in a measure deprived of the means of a suitable education. In view of these facts the committee believe that it would be the dictate of wisdom, to make suitable provision for the education and diffusion of knowledge among this class of our citizens. On the score of justice, they have a right to demand it. As a matter of expediency, it does not seem to admit of a question.

In conclusion the committee would respond to the language of the resolution which created them, that in their opinion, there is no way that public money can be appropriated *more* beneficial to the cause of agriculture than by awarding it in premiums, and they confidently hope that the legislature will adopt a policy worthy of our great state, and discard that "penny wise and pound foolish" system which has hitherto rejected all applications on this subject.

They, therefore, recommended to the convention the adoption of the following resolution,—

Resolved, That in the opinion of this convention, an appropriation ought to be made from the public treasury—

1. For the purpose of establishing a State Board of Agriculture;
2. For the improvement of agriculture through agricultural societies to be established in the several counties;
3. For the endowment of a state agricultural school or schools.

The report was accepted, and the resolution being under consideration, it was, on motion of Mr. Crary, of Washington, divided; and the first numbers thereof, recommending an appropriation of public monies for establishing a central board of agriculture, and county societies, was passed unanimously. On the last number of the resolution, recommending the appropriation of monies towards the establishment of schools of agriculture, considerable debate ensued, in which Mr. Crary opposed, and Messrs. Mann, Allen, Buel, Baldwin, and Gen. Root, of Delaware, supported the proposition; and the entire resolution was finally adopted by an almost unanimous vote.

On motion of Mr. Beekman, the president was desired to read a letter addressed to him by Willis Gaylord, which having been read, a copy thereof was requested for publication, and is as follows:

Otisco, Onondaga County, Jany. 29, 1838.

J. R. Lawrence, Esq.—

Dear Sir,—I last evening received the Evening Journal of the 24th, and have only one apology to make in answer to the query it contained. Though I knew, at the time of receiving your last kind letter requesting the draft of a bill and report, that there were multitudes who could perform the service as well, and perhaps better than I could, yet as it was a subject in which I believed the public was deeply interested, I determined to do what I could, and had commenced throwing my ideas on the matter together with the intention of reducing them to form thereafter, when I was taken with a weakness and partial inflamation of the eyes, which has effectually prevented any further progress. Even this is written with difficulty, and must be finished at intervals, and probably contrary to what might be deemed prudence where the eyes are concerned.

Soon after I received yours, I addressed a letter to Col. Voorhees, and received an answer, going into the details of his plan somewhat at length, which, with some remarks on the system proposed, I presume, will appear in the Genesee Farmer, of this week. I can see no reason why the plan of experimental farms may not be connected with County Societies, or why such farms should have any influence in preventing aid from the treasury of the state, to such societies, and the Col. I think is of the same mind. I have been looking over the law of 1819, and think it might be safely adopted as the base of a new one with one or two exceptions. My ideas on the subject are about these—

I would have a sum of money appropriated for this purpose from the treasury; say for form sake, 100 dollars for each member of assembly; or 400 to this county. This money should be at the service of the county society on condition that the society raised by voluntary subscription one half that sum, (the old law allowed only as much as was raised by the subscription) or in the same proportion for any smaller sum subscribed; so that if $200 was raised by subscription, the sum to distribute would be $600; and so in proportion. *I would not have the choice of officers confined to practical farmers;* and this I think was one of the most fatal features of the old law; for experience proves that they are not the most fit persons to manage concerns of that kind. In superintending the ploughing; in estimating the qualities of stock, or the productions of the soil, the practical farmer is at home; but in conducting the affairs of such societies they usually fail. The choice of officers of the society should therefore be unfettered. I would have no money taken from the treasury unless societies were formed and in actual operation, and the certificate of the treasurer of the society should state that the money subscribed was actually in his possession before he could draw from the treasury. The state therefore would have every security that the money granted would be carefully appropriated, and whatever the sum granted might be, if no societies were formed under the law, no money of course could be taken from the treasury.

The act as amended in 1822, authorised the supervisors to raise and expend money as they pleased for the benefit of agriculture and domestic industry. This I think was preposterous. The society should have the expenditure of all the moneys raised; for if there is not spirit enough in any county to form a society, it is idle, and worse than idle, to levy a tax on the inhabitants for distribution by supervisors.

The societies must embrace the plan of *annual shows*, and the *distribution of premiums*, or no legislation will be productive of benefit. These constitute the springs that must move the whole machinery, without these nothing can or will be done.

A general law embracing the formation of associations for experimental farms, might also be passed, either in connection with, or independent of the county societies. If such farms were established near the centre of the county, they might serve as places where the annual fairs might be held as well as farms on which the most improved systems of husbandry could be exhibited. I have no doubt that such a farm properly conducted might be a profitable speculation to the stockholders, as well as beneficial to the community; witness the sales of improved animals, made by Bement and others, at prices which would justify the greatest care and attention.

You have undoubtedly seen by this county papers, that a meeting is to be held this day at Syracuse, for the formation of a County Agricultural Society. I trust it will be well attended, and only regret that I could not have been present. This county should have a society, whether aided by the state or not, that will be active and efficient. We have the means, and we must have the spirit. But I think it can be demonstrated, that every dollar the state pays out, to promote agriculture, will be returned to the treasury eventually fourfold.

From the Governor's not introducing the subject into his message as he usually has done, I was apprehensive the whole matter would fall through, and no committee be appointed; and even now I do not know who the members of the committee are, except that L. F. Allen is chairman. I think this a most fortunate selection, as there are few men more thoroughly acquainted with the subject in all its bearings, and more capable of taking enlarged and liberal views of the matter, than he. With your aid I am confident justice will be done; and whether we get such a law passed, or whether old prejudices will operate so far as to defeat the object, the friends of the best interests of the state will at least have the consciousness that they have done their duty.

I remain yours respectfully,
WILLIS GAYLORD.

On motion of Mr. Baldwin, it was

Resolved, That this convention memorialize the present legislature for an appropriation for the objects enumerated in the resolution just adopted.

Messrs. S. Cheever, F. Rotch and J. P. Beekman were appointed a committee to draw up said memorial.

On motion of Mr. Randall, it was

Resolved, That a committee of three be appointed to prepare the proceedings of this convention for publication; and that said committee furnish the publishers of The Cultivator and Genesee Farmer with copies of the same for publication.

Messrs. Randall, Buel and Baldwin were appointed said committee.

The following resolutions were submitted by Mr. Buel, and adopted.

Resolved, That the introduction of foreign seeds and plants, through our consuls, public ships and merchant vessels, and the establishment of an office at the seat of the general government, for the reception and distribution of such seeds and plants, would conduce to the improvement of our farms and gardens; therefore,

Resolved further, that this convention respectfully request the Senators and Representatives of this state, in the Congress of the United States, to use their exertions for the passage of a law for procuring such seeds and plants, and the establishment of such office, to be under the supervison of the commissioner of the patent office, or of such other responsible officer as congress in its wisdom may designate.

Copies of these resolutions were directed to be signed by the presiding officer of the convention, and forwarded to our senators and representatives in congress.

The convention then took up the resolution offered by Mr. Baldwin yesterday, "to petition the legislature to alter the existing laws in relation to highways," and adopted the same.

On motion of Mr. Richards, the committee appointed last year on the subject of the grain worm, were requested to continue their investigations, and to report thereon at the next convention.

On motion of Mr. Baldwin,

Resolved, That the thanks of this convention be presented to the Hon. the Assembly, for the use of their chamber for this convention.

On motion of Mr. Baldwin,

Resolved, That the thanks of this convention be presented to the president and vice-presidents, for the able and dignified manner in which they have presided over its deliberations, and to the secretaries thereof, for the performance of their duty.

On motion of Mr. Grove,

Resolved, That a state agricultural convention be appointed to be held at the City Hall in the city of Albany, on the first Wednesday in Feb. next.

The convention then adjourned without day.

JAMES R. LAWRENCE, *President*.
HENRY S. RANDALL, *Secretary*.

Gen. Root's Remarks.

In the agricultural convention, a resolution being under consideration for memorializing the legislature, *to appropriate a part of the interest of the surplus fund towards an agricultural school or schools*, Gen. Root, of Delaware, rose in support of the resolution, and offered the following, among other reasons, in support of the propiety of such an appropriation.

Gen. Root proceeded to state, that the fund in question originated in a surplus revenue, which had grown out of proceeds of the sales of the public lands. It had appeared by the treasury reports, that the customs and other sources of revenue, exclusive of the public lands, had been, for the last four or five years, just about enough to complete the extinction of the public debt, and meet the ordinary expenses of government. The avails of the public lands, for the last five years, very nearly gave the exact amount of the surplus, directed by the act of congress to be distributed among the several states, to be deposited with them, and to be redrawn, when needed, by the secretary of the treasury. By the late act, postponing the payment of the fourth instalment, it is provided, that the secretary shall not draw upon the states, until directed so to do by act of congress. This act will virtually give to the states the absolute dominion over this money. The only question that remains is, how the interest arising from this fund shall be appropriated. By the bill, commonly called Mr. Clay's land bill, which some years ago passed both houses of congress, and by a large majority in each house, it was provided, that the nett proceeds of the public lands, for five years, should be distributed among the several states, for the purposes of EDUCATION AND INTERNAL IMPROVEMENTS. This bill did not become a law, as it was withheld by the president, and not returned with his objections, till the meeting of a new congress. The people, however, had expressed their will in regard to the disposition of this fund, in the only way the constitution of their own choice had provided for the expression of that will,—that is, through and by their representatives. That national domain, which was constituted by cessions of the several states having claims to unseated or crown lands, as they were then called, and lying within the limits of their respective charters, belonged to all the states then existing, or thereafter to be admitted into the union. It belonged to the whole, as a fund pledged for the redemption of the debt incurred by the war of the revolution; and after the extinguishment of that debt, its proceeds rightfully belonged to the states, to be divided among them, according to their federal numbers. The people, through and by their representations, have declared, that the interest arising from this fund, so distributed, ought to be applied to purposes of education and internal improvement, and we have it from very high authority, that the will of the people is the supreme law.

This state has additional reasons, and stronger perhaps than any other state in the union, to apply the whole of this fund to the purposes of education. We have already our system of internal improvements, with an accumulating fund for their onward and progressive march. The legislature may, therefore, be spared any pressing importunities for such objects. And further, the people of this state have solemnly declared in their constitution ratified by them, that the proceeds of its own public lands shall be permanently devoted to the support of common schools. As the people of this state have, by solemn constitutional enactment, thus proclaimed their will in regard to their exclusive domain, we have reason to believe that their representatives, in the state legislature, will feel, that they are acting in obedience to the will of their constituents, by appropriating the whole of this fund to the various branches and schools of education.

The only remaining question to be examined, said Gen. Root, is whether an agricultural school, including, of course, the art as well as the science of horticulture, would come within the provision of common schools, or of academic schools, in which are taught the higher branches of an English education. The education of the rising generation, he said, had always been held by him as a matter of public concern and public care. The whole people—the political community, were deeply interested in educating its children, and fitting them for the various duties and avocations they may be required to perform. The training and development of the moral and intellectual powers are all-important,—so are the exercise, guidance and discipline of the physical powers. If it is the part of a common school education "to teach the young idea how to shoot," it is no less so to direct the tender limbs and muscles how to exercise. By exercise, a vigorous exercise of the muscular powers, the mental are undoubtedly improved. The exercise of the one, imparts a vigor not only to itself, but to the other. And are not the rural exercises pertaining to the field, or the garden, better calculated to give strength to both, than the playful sports usual with school boys?

Gen. Root then adverted to the propriety of annexing to our academies, or to some of them where it could be conveniently obtained, a piece of ground, if not sufficient for extensive agricultural, yet ample for horticultural pursuits. Chemistry, geology, mineralogy and botany, are among the higher branches of an English education, which entitle an institution to draw for its student a distributive share from the literature fund. Is not a practical application of these sciences necessary to fix them upon the understanding, and make them enduring upon the memory? Not more necessary are maps and globes to the young students in geography and astronomy, than a practical observation of the soil, the seeds, and the growth of plants, and the use of the various implements of husbandry and gardening, are to the student in rural labor. Natural philosophy, too, cannot attain its highest elevation, cloistered within academic walls. Let its votaries learn to guide the plough, and till the furrowed glebe, and they may vie in vigorous and manly thought and action with the peripatetic and gymnastic youth of ancient Greece.

Gen. Root concluded by expressing a hope, that the resolution would meet the decided approbation of the convention—that a respectful petition be prepared and presented to the legislature, and that its prayer would be granted by that honorable body.

In Assembly, February 10, 1838.

Report,

Of the committee on agriculture, on the memorial of the State Agricultural Convention assembled in Albany on the first day of February, instant.

Mr. L. F. Allen, from the committee on agriculture, to whom was referred the memorial of the State Agricultural Convention assembled in Albany on the first day of February, instant, reports:

Although the duties of the committee on agriculture have oftentimes been considered rather nominal than active, yet your committee, on a review of past years, and a careful examination of the present condition of the state, have come to the conclusion that a serious responsibility, at this time, rests upon them; that they are charged with some of the highest duties which devolve upon the legislature of a state—the guardianship of that primary branch of industry which is the source of our prosperity and greatness, and our sure dependence in times of public peril and and misfortune. Politicians may speculate upon the influence which free institutions, or a partizan administration, may have upon the prosperity of a country; commercial men may extol the advantages of an extended foreign commerce; manufacturers may claim pre-eminence in conferring independence upon their country; and literature may arrogate the exclusive credit of rendering a community enlightened and polished; yet, after all, agriculture constitutes the broad base upon which the whole superstructure of society depends for support. If that languishes, either for want of the protection and patronage of the constituted authorities, or from the inattention and lack of intelligence in its rural population, the government becomes embarrassed, commerce crippled, and manufactures paralyzed. A maritime war may sweep our commerce from the ocean; our manufactures may sink for want of a market for their fabrics, as they have done; but agriculture never disappoints our hopes, while we continue to enjoy the blessings of a kind Providence, whose favor it is alike our duty and our interest to propitiate, by prudent forethought and dutiful submission to all his requirements. The soil, under judicious management, never withholds the tribute of reward to those who humbly devote themselves to its culture, and place upon it their only sure reliance. Upon this, then, we ought to bestow our special attention, our protecting care. These truths have been amply illustrated and established in the experience of the two last years. Your committee are persuaded that the condition of the agriculture of any country affords a safe criterion whereby to judge, not only of its general prosperity, but of the social and moral condition of its population.

The recollections of the age will serve to show, that the relative condition of our agriculture and that of many of the countries of Europe has undergone a remarkable change within the last forty years. While the latter has been increasing, ours has been diminishing in its products. About the commencement of the present century the exportation of bread stuffs and other provisions, from the northern and middle states, amounted, annually, to twelve or fourteen millions of dollars, principally to the continent of Europe. In the two last years, instead of exporting provisions to Europe, as formerly, we have imported from thence bread stuffs to the amount of seven or eight millions of dollars. These facts conclusively show, that the agricultural products of Europe have greatly increased, while ours have been diminishing, in proportion to our population, notwithstanding the vast accession of fertile virgin soil which has been constantly enlarging our borders. Whence this great change but from a neglect, on our part, to nurture this great branch of national industry; and a diligent and constant endeavor, on the part of the governments and people of Europe, to improve it? We have the most ample evidence that the efforts of our cotemporaries on the old continent have been crowned with abundant success. France and Germany have made great advances in agricultural improvement. The once barren sands of Brandenburgh, and the no less unproductive heaths of Prussia, are now covered, through the active efforts of the Prussian government, with plentiful harvests of the finest grain in the world. The soil of England has been made to more than double its products within the last sixty years; and Scotland has quadrupled her agricultural products since the termination of our revolutionary war.

While such has been the recent progress of agricultural improvement in Europe, what has been our progress in husbandry? Has it not been retrograde? Have not our cultivated lands been generally deteriorating, under an exhausting system of husbandry? and have not large tracts, once fertile, on the Atlantic border of our country, been absolutely abandoned, as unprofitable for culture, on account of the sterility produced by our bad husbandry?

Under the view of the subject which these facts present, the committee feel it their duty to press upon the consideration of the legislature, who are delegated to take care of the public weal, an investigation into the the causes which have led to this great, this alarming change, in the relative condition of the two continents; and to urge them to adopt prompt and efficient means, not to repress the European spirit, which has done so much good to the human family, but to transfuse a portion of that spirit into our own population, and to raise the character of our agri culture, as we can and ought to do, to the level of that of any country on the globe. Fortunately, we are not left in doubt as to the prominent means of effecting this desirable object. Other governments have made the experiment for us; have set us the example, and in a measure demonstrated the certainty of success. Those governments have patronized and aided this noble art, by protection and rewards; by instruction, in the primary schools, in the elementary principles of husbandry; by national boards of agriculture; by agricultural surveys, and by schools of scientific and practical instruction in the diseases and management of domestic animals, and in the business of agriculture generally.

The state of Massachusetts was among the first to encourage the establishment of agricultural societies, and to dispense to them the public bounty. Her continuing to persevere in this policy to the present time, by a renewal of the law making an annual and liberal appropriation to this object, is at once an evidence that she has found such expenditure salutary, and in perfect unison with the feelings and wishes of her enlightened population.

The state of Maine has also given an example of great liberality and wisdom, in recent efforts to improve her agriculture. The bounty which she this year pays to her citizens, to encourage the culture of wheat alone, will draw from the treasury a greater sum, than all the expenditures, which the " empire state " has made *directly* in aid of *her* agriculture, put together.

Several of the states have likewise, with a view to encourage a useful and lucrative branch of home industry, offered liberal bounties for the cultivation of the mulberry, and the production of silk. A slight reference to the proceedings of the current legislatures of several of our sister states, at this moment, may show the position which our own proud state should assume on this important subject.

A bill is now before the legislature of Massachusetts for giving a bounty to her citizens for the production of wheat.

A bill is in discussion in the legislature of Kentucky to establish a board of agriculture, and state and county societies.

A bill is before the legislature of Maryland to establish and patronize agricultural schools, &c.

A bill is under consideration in the young and enterprising state of Michigan, for the establishment of state and county agricultural societies, with appropriations from the state funds for their support.

And even Wisconsin, that wild, though fertile and rapidly increasing territory of the great west, is engaged in the same laudable work.

Nor do we lack a useful lesson of instruction at home. The law passed in 1819, " to improve the agriculture of this state," did do what its title purported; it did IMPROVE the agriculture of this state. It improved our farm stock, our farm implements, our farm crops, and modes of culture; and it gave a new impulse to useful enterprize and improvement. And although the manner of its execution was in many cases faulty, as all new experiments are liable to be in the outset; yet it effected a great public good. That law involved a public expenditure of twenty-five or thirty thousand dollars, and no like sum, your committee are induced to believe, has been expended from the state treasury with greater public advantage. Its benefits are now palpable, and are acknowledged by all intelligent men. Indeed, it has been stated, upon no slight grounds, that the expenditure has been more than thrice returned to the treasury, in the form of canal tolls upon the extra products of the soil, which it virtually created.

There is another subject to which the committee deem it proper to call the attention of the legislature. The insect denominated the grain worm, has, for several years, been greatly destructive to the wheat crop in the northern and north-eastern counties of the state. It is progressing south and west, and threatens to cut off, or at least seriously to diminish, the great staple of our soil, and the source of much of our wealth. If the attention of naturalists, and the critical observation of practical farmers, were directed to the character and habits of this insect, by offers of a liberal bounty for the discovery of an efficient preventive of its depredations, it is believed that great public benefit might result from the measure, while it seems certain that no injury could ensue from it.

Your committee believe that in all the arts of productive labor, and particularly in agriculture, it is highly important, to the attainment of excellence, to commence instruction in the primary schools. And as we now have published, in our state, agricultural journals of as high and useful character as are published in the world, and at a price less than one-fourth the cost of an equal quantity of matter in a book form, they consider their introduction into our common schools as occasional class books for our youth, a cheap and efficient means of improving both the mind and the soil.

From the best consideration which the committee have been able to give to the important matters which come within the purview of their duties, they have come to the unanimous conclusion, that the time has arrived, when the public interest, and the popular will alike require the exercise of legislative wisdom, and legislative bounty, to improve the condition of our agriculture; the business, as has been already remarked, which gives employment to the mass of our population, and which is the main source of prosperity to all the other classes of society. The committee, therefore, recommend that, with a view of promoting the desired improvement, a law be enacted to organize a state board of agriculture, and to establish agricultural societies in the several counties of this state; and that an annual expenditure of 25,000 dollars be authorized, for five years, with suitable provisions and under proper restrictions, to improve the agriculture of this state. The committee have prepared a bill in accordance with their views upon this subject, and have directed their chairman to ask leave to present the same.

An Act

TO IMPROVE THE AGRICULTURE OF THIS STATE.

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. That the sum of twenty thousand dollars per annum shall be, and hereby is appropriated, for the term of five years, for the promotion of agriculture and household manufactures, in the several counties of this state, in the manner following, to wit: To the county of Albany five hundred and twenty-one dollars; to the county of Allegany, three hundred and forty-eight dollars; to the county of Broome, one hundred and seventy-four dollars; to the county of Cattaraugus, three hundred and forty-eight dollars; to the county of Cayuga, five hundred and twenty-one dollars; to the county of Chautauque, five hundred and twenty-one dollars; to the county of Chemung, one hundred and seventy-four dollars; to the county of Chenango, five hundred and twenty-one dollars; to the county of Clinton, one hundred and seventy-four dollars; to the county of Columbia, five hundred and twenty-one dollars; to the county of Cortland, three hundred and forty-eight dollars; to the county of Delaware, three hundred and forty-eight dollars; to the county of Dutchess, five hundred and twenty-one dollars; to the county of Erie, five hundred and twenty-one dollars; to the county of Essex, one hundred and seventy-four dollars; to the county of Franklin, one hundred and seventy-four dollars; to the county of Genesee, six hundred and ninety-five dollars; to the county of Greene, three hundred and forty-eight dollars; to the county of Herkimer, three hundred and forty-eight dollars; to the county of Jefferson, five hundred and twenty-one dollars; to the county of Kings, three hundred and forty-eight dollars; to the county of Lewis, one hundred and seventy-four dollars; to the county of Livingston, three hundred and forty-eight dollars; to the county of Madison, five hundred and twenty-one dollars; to the county of Monroe, five hundred and twenty-one dollars; to the county of Montgomery, five hundred and twenty-one dollars; to the county of Niagara, three hundred and forty-eight dollars; to the county of Oneida, six hundred and ninety-five dollars; to the county of Onondaga, six hundred and ninety-five dollars; to the county of Ontario, five hundred and twenty-one dollars; to the county of Orange, five hundred and twenty-one dollars; to the county of Orleans, one hundred and seventy-four dollars; to the county of Oswego, three hundred and forty-eight dollars; to the county of Otsego, five hundred and twenty-one dollars; to the county of Putnam, one hundred and seventy-four dollars; to the county of Queens, one hundred and seventy-four dollars; to the county of Rensselaer, five hundred and twenty-one dollars; to the county of Richmond, one hundred and seventy-four dollars; to the county of Rockland, one hundred and seventy-four dollars; to the county of St. Lawrence, three hundred and forty-eight dollars; to the county of Saratoga, three hundred and forty-eight dollars; to the county of Schenectady, one hundred and seventy-four dollars; to the county of Schoharie, three hundred and forty-eight dollars; to the county of Seneca, one hundred and seventy-four dollars; to the county of Steuben, five hundred and twenty-one dollars; to the county of Suffolk, three hundred and forty-eight dollars; to the county of Sullivan, one hundred and seventy-four dollars; to the county of Tioga, one hundred and seventy-four dollars; to the county of Tompkins, three hundred and forty-eight dollars; to the county of Ulster, three hundred and fifty dollars; to the county of Warren, one hundred and seventy-five dollars; to the county of Washington, three hundred and fifty dollars; to the county of Wayne, three hundred and fifty dollars; to the county of Westchester, three hundred and fifty dollars; to the county of Yates, one hundred and seventy-four dollars.

§ 2. That when an agricultural society shall be formed in any county, or in two contiguous counties, and the members thereof shall annually procure, or raise by voluntary subscription, any sum of money, the president and treasurer shall make and subscribe an affidavit of the facts of the formation of such society, and of their having raised a certain sum, specifying the amount thereof, which affidavit shall be filed with the comptroller of this state, who shall draw his warrant on the treasurer for a sum equal to double the amount of such voluntary subscription, not, however, exceeding the amount to which such county or counties would be entitled, according to the apportionment aforesaid.

§ 3. That the several agricultural societies which shall be formed in this state, during the continuance of this act, shall annually elect such and so many officers as they shall deem proper, all of whom shall be actually engaged in carrying on the business of farming; none of whom, however, shall receive any emolument from his office; and it shall be the duty of such officers annually to regulate and award premiums on such articles, productions and improvements, as they may deem best calculated to promote the agricultural and household manufacturing interests of this state; having especial reference to the nett profits which accrue, or are likely to accrue, from the mode of raising the crop or stock, or the fabrication of the article thus offered, with the intention that the reward shall be given for the most economical or profitable mode of competition: Provided always, that no individual shall receive more than two premiums at any anniversary meeting, nor more than one first and one second premium at any subsequent time upon the same animal, and that no person shall receive any premium from an awarding committee of which he is a member thereof: And provided further, that before any premium shall be delivered, the person claiming the same, or to whom the same may be awarded, shall deliver in writing to the president of the society, as accurate a description of the process in preparing the soil, including the quantity and quality of manure applied, and in raising the crop, or feeding the animal, as may be; and also of the expense and product of the crop, or of increase in value of the animal, with the view of showing accurately the profit of cultivating the crop, or of feeding or fattening the animal.

§ 4. That if an agricultural society shall not be organized in any county, or shall neglect to raise by voluntary subscription, a sum which shall entitle them to the apportionment made to said county by this act, the board of supervisors of said county are hereby empowered, at their pleasure, during the continuance of this act, to raise annually, in the manner the contingent charges of said county are required to be raised, a sum equal to one half the amount hereby appropriated to said county. And whenever the president of said board of supervisors shall certify to the comptroller that such board of supervisors have resolved to raise such sum, it shall be the duty of the comptroller to draw his warrant on the treasurer of the state, in favor of the treasurer of such county, for the sum appropriated for said county by the first section of this act.

§ 5. That it shall be the duty of the supervisors of every such county, to cause all the money so raised and received for agricultural improvement, to be paid and expended at an annual agricultural exhibition, to be held in such county, at such time as they shall appoint, in such manner as shall in their judgment best promote the legitimate object of this act, and subject to all the provisions contained in the third section hereof.

§ 6. That the several presidents of the said societies, and of the boards of supervisors, who shall receive or expend any of the moneys hereby appropriated, shall annually, in the month of December, transmit all such reports or returns as they are required to demand and receive, to the secretary of the state board of agriculture, hereafter named and organized, together with an abstract of their proceedings, exhibiting a detailed account of the expenditure of all the moneys which shall come into their hands under this act, and stating to whom and for what purpose paid, with the vouchers thereof.

§ 7. There shall be organized a state board of agriculture to consist of five members, who shall hold their offices for five years from the second Tuesday of February, one thousand eight hundred and thirty-eight, and shall receive while necessarily employed in the duties enjoined by this act, the same compensation as members of the legislature. They may choose such officers as they may deem necessary, and shall hold quarter-yearly meetings in the city of Albany on the first Tuesdays in February, May, August and November; and may also meet at such other times as may be found expedient to fulfil the duties hereafter enjoined upon them.

§ 8. There shall be assigned for the meetings of the state board of agriculture, and as a museum for models, geological specimens, and agricultural productions, a suitable apartment in the state buildings now erecting; which room and museum shall be kept in order by the secretary, or by some person to be appointed by the board, and shall at all reasonable hours be open and accessible to the public without charge.

§ 9. It shall be the duty of the state board of agriculture to examine all reports and returns made by the presidents of the county agricultural societies, and boards of agriculture; to select, for publication, such of them, and such other essays as they may judge advisable; and shall annually publish a volume, to be distributed in the several counties of this state, by the county agricultural societies, or by the boards of supervisors thereof: And they shall examine, when in session, and determine by practical experiment on the merits of all new farm implements or machinery offered for their examination, and may award discretionary premiums, upon such as may be found truly meritorious and deserving of public patronage, provided the whole amount expended in any one year shall not exceed the sum of one thousand dollars for that purpose; and provided further, that no such premium shall be delivered to the person claiming the same, until he has deposited with the board a model of his implement, machine or improvement.

§ 10. There shall be deposited in the room assigned to the board, a complete set of mineralogical and geological specimens, properly arranged and labelled, from the collections now being made by the geological corps in the public employ; specimens of choice or rare agricultural productions, models of implements, drawings of choice animals, books, and other articles which may be presented to the museum, a registry of all which shall be made by the secretary, and open to the public inspection.

§ 11. The said state board of agriculture shall report annually to the legislature, in the month of January, a statement of their expenditures and of their proceedings during the previous year; and also all matters that they may deem calculated to promote the improvement of agriculture and of household industry.

§ 12. A reward of five hundred dollars shall be and is hereby offered to any person who shall discover and will communicate to the state board of agriculture, for the public benefit, a sure and efficient preventive of the depredations of the insect denominated the Grain Worm; the efficacy of the said preventive to be tested by the said board during at least one year, and satisfactorily confirmed before the said award shall be given; and if the discovery shall prove but a partial remedy of the evil, it is made discretionary with the said board, or a majority of them, to award such part of the sum hereby appropriated as its importance may seem to justify.

§ 13. That the treasurer of the state shall annually pay on the warrant of the comptroller to the said state board of agriculture, the sum of five thousand dollars, to enable them to pay the aforesaid premium; to purchase and distribute such useful seeds as they may deem proper; to publish an annual volume, and to defray such other necessary expenses to promote the object of this act, as are not otherwise provided for; and the said board shall annually account with the comptroller for the expenditure of this money.

§ 14. That the presidents of the several county societies, or delegates to be chosen by them annually for the purpose, shall be ex-officio members of the New-York State Agricultural Society.

§ 15. The board of agriculture, constituted as aforesaid, shall have the authority in their discretion, to award premiums for the production of extraordinary and valuable crops of grain; beet root, and sugar manufactured from the same; mulberry orchards, and silk manufactured therefrom; or any other agricultural or horticultural productions or household manufactures, which in their view shall by such encouragement add to the productive wealth of the country, not exceeding, however, in amount, the sum of five thousand dollars hereby placed in their hands.

§ 16. The collectors of taxes in the several towns in the state of New-York are hereby required, while collecting, the same, to ascertain, as near as may be in their power, the number of bushels of grain of different kinds, of esculent roots, and of hay produced during the current year in their respective towns, and the number of horses, cattle, sheep and swine then in existence, and report such amount to the board of agriculture in the city of Albany, on or before the first day of January in each and every year hereafter. Such report to be directed to "The State Board of Agriculture, Albany."

§ 17. The sum of twenty-five thousand dollars appropriated by this act, shall be taken from the income of the surplus fund deposited with the state of New-York by the United States.

§ 18. The first board of agriculture shall consist of
who are hereby appointed for the term of five years aforesaid, and all vacancies that may occur in said board shall be filled by joint ballot of both houses of the legislature at their annual session, to be held by the incumbents for the same period of time.

§ 19. The State board of agriculture shall procure of the agricultural periodicals entitled "The Cultivator," and "The Monthly Genesee Farmer," as many copies of each, commencing with the current volumes, as there are common school districts in the state, and shall cause ss many copies of each to be addressed to the school commissioners of each town as there shall be school districts in the same; and it shall be the duty of such school commissioners to cause the said papers to be promptly distributed, one copy of each to the several schools, and of the trustees of said school districts to have the same properly taken care of, and to be used as occasional class books in said schools.

§ 20. The comptroller shall, on the requisition of the said board of agriculture, draw his warrant on the treasury of the state for the payment to each of the proprietors of the said agricultural papers for the number of copies so delivered, estimating each of them at fifty cents per copy; such payment to be made from the common school fund.

EXTRACTS.

Agricultural Convention.

At a meeting of the citizens of the county of Onondaga, convened pursuant to public notice at the Mansion House, in Syracuse, for the purpose of adopting measures for the incorporation of a County Agricultural Society, ASA EASTWOOD, Esq., was temporarily called to the Chair, and MILES W. BENNETT, Esq. appointed Secretary. Whereupon it was

Resolved, That a committee of five persons be appointed by the Chair to report officers for the Convention.—The following persons were thereupon appointed said committee, viz: *Harvey Baldwin*, *James L. Voorhees*, ——— *Doane*, *H. Moses*, and *Rufus Cossit*.

The committee reported the following gentlemen as Officers of the Convention, viz: JAMES L. VOORHEES, President; GABRIEL TAPPAN, and ASA EASTWOOD, Vice-Presidents; *John B. Brown*, and *H. N. Howe*, Secretaries.

The report of the committee being adopted by the Convention, it was thereupon, on motion of Mr. *H. Baldwin*,

Resolved, That a committee of five be appointed by the President to draft resolutions expressive of the sense of this Convention on the subject of forming a Board of Agriculture for the county of Onondaga, and also to devise measures for procuring the incorporation of a County Agricultural Society,—whereupon, the President appointed the following gentlemen on said committee, viz: *H. Baldwin*, *B. F. Stone*, *E. F. Wallace*, *D. S. Earll*, and *R. Cossit*.

The committee, after a short recess, reported by their Chairman, *Mr. Baldwin*, the following resolutions, which were adopted by the Convention, together with the petition also reported by the committee.

Resolved, That we regard agriculture as the first and best pursuit of man, as a science more ancient in its origin, more useful in practice, and more important in its results to the whole human family, than any other art or science, and which therefore commends itself to the attention of every philanthropist and true patriot.

Resolved, That a science so intimately connected with the best interests of society, is entitled to our warmest approbation, and cordial, vigorous, individual, and united support, and that we will henceforth exert every means in our power to improve and elevate its character, disseminate its principles, and extend its blessings.

Resolved, That we regard as among the most efficient means for advancing these great objects, the establishment of State and County Agricultural Societies—the establishment of Agricultural Schools, in conjunction with pattern or experimental farms, and the periodical publication of Agricultural Papers, and that to establish, foster, sustain and protect these, is an imperative duty which every well regulated government owes to itself and to its citizens, and should at all times be regarded as an object of primary and paramount importance.

Resolved, That in view of the immense interests involved in the science of rural economy, as connected with the natural, physical, moral, political and religious wants of man, we, with deep humiliation confess, as well in our individual as in our corporate capacity, that we have hitherto come far short of our duty as men, as citizens, as philanthropists, as patriots, and as christians, and now offer, as the best atonement we can make, a dedication of our time and means to the advancement of this work, so far as it is consistent with other duties and other obligations.

Resolved, That the policy hitherto pursued by this state in refusing to grant pecuniary aid from the surplus revenue, for the promotion of this great object, is, in our opinion, unwise, illiberal and unfair—*unwise*, because her wealth consists in the wealth of her citizens, and whatever promotes the one, increases the other in the same ratio—*illiberal*, because the appropriation of that money to this object, was but to return it to hands from which most of it was directly or indirectly drawn, and because if returned it would have been again reinvested in a manner most beneficial to the state and the country—*unfair*, because the aid was solicited by a class composing seven-eighths of the whole community, and which, as such, has never to any considerable extent partaken of the bounties of the government.

Resolved, That the warmest thanks of this Convention, of this state, and of this nation, are due to those few individuals who have long been toiling with unabated zeal and perseverance in the cause of Agriculture—who have freely devoted to it their time, talents and money, and whose able and well conducted periodical publications have done much, and indeed, have mainly contributed to awaken public interest and inquiry on this all important subject; and in the foremost ranks of whose works, we, with pride and pleasure, recognize '*The Genesee Farmer*,' and '*The Cultivator*.'

Resolved, That a committee be apppointed for the purpose of circulating a petition to the present Legislature for the incorporation of a County Agricultural Society, with a capital of $50,000, with power to increase it to $100,000, to be divided into shares of $20 each, and to be employed, or so much thereof as may be necessary, in the purchase of an experimental farm—preparing and stocking the same, and in the establishment, in conjunction therewith, of an Agricultural School, and in such other objects as are calculated to advance the great and permanent interests of the institution.

Resolved, That Victory Birdseye, Azariah Smith, Phares Gould, James R. Lawrence, Samuel L. Edwards, Harvey Baldwin, James L. Voorhees, John Stevens and George Geddes be appointed delegates to represent this county in the next meeting of the State Agricultural Society, to be held in Albany on the first day of February next.

Resolved, That the proceedings of this Convention be signed by the officers thereof, and published in the county and village papers, the Albany Argus, Evening Journal, Gazette and Daily Advertiser, the Cultivator and Genesee Farmer.

To the Honorable the Legislature of the State of New-York, in Senate and Assembly convened:

Your memorialists, inhabitants of the county of Onondaga, beg leave respectfully to represent,

That from the benefits resulting to the farming interests in this county, from the law of 1819, establishing Agricultural Societies, your memorialists are satisfied that all the interests pertaining to rural economy would be largely promoted by the re-enactment of that law, or of some similar law on that subject.

Your memorialists are also satisfied that the cultivation of an experimental farm, and the establishment in connection therewith of an Agricultural School, would also have an important bearing on the same interests, and should be provided for, and protected by the future enactments of the State in relation to that subject.

Your memorialists, therefore, respectfully solicit your Honorable body to pass a general law for the incorporation of County Agricultural Societies, securing the aforesaid objects, or a law for the incorporation of an Agricultural Society of this County, incorporating therein provisions on the above subjects, with a capital of fifty thousand dollars, to be divided into shares of twenty dollars each, and for such other and further enactments and aid in reference to the subject matter, as to your Honorable body shall seem right and proper—all of which is respectfully submitted.

Syracuse, January 29, 1838.

JAMES L. VOORHEES, *Pres't.*
GABRIEL TAPPEN, } *Vice-Pres'ts.*
ASA EASTWOOD, }
John C. Brown, } *Sec'rys.*
H. N. Howe, }

Massachusetts Agricultural Society.

We have great pleasure in announcing some of the Premiums of the Massachusetts Agricultural Society. The society offered two most liberal premiums for the best and second best managed farm, which might be offered, requiring that the entry of these farms for premium should be made early in October, and that a full account of the whole condition and management should be given in detail. The first premium was 150 dollars, the second 100 dollars. It was hoped that these would have presented a sufficient inducement for many applications. The offer of premiums made by the society, though the trustees took great pains in extending it, did not reach all parts of the State; and in this matter it is to be feared great neglect is to be attributed to some persons in whose hands their prospectus was placed, and by which neglect the liberal and excellent intentions of the society have been in a measure defeated. The conditions were as liberal as they could with any propriety be made; and we have many farms in the state, which might have honorably entered into the competition. Only three claimants appeared, and two of those not having been seasonably entered, the trustees did not consider themselves at liberty to bestow on them either of the premiums; but bestowed liberal gratuities only. The claim seasonably entered was, for reasons detailed in their report, not deemed entitled to either of the premiums; but at the same time deserving of an honorable notice. We shall give the reports in full in our next paper, at this time we announce only the rewards.

To Joshua R. Lawton, of Great Barrington, in Berkshire Co., a gratuity of seventy-five dollars, ...	$75 00
To Joseph Howe, of Methuen, in the county of Essex, a gratuity of fifty dollars, ...	$50 00
To William Buckminster, of Framingham, in the county of Middlesex, a gratuity of fifty dollars,	$50 00

The statements of these several claimants, with their particular accounts of their management and crops will be given, in due season with the report. We presume that these premiums on the management of farms will be continued, and we hope they will excite that attention among our farmers, which they deserve. If the pecuniary value of these rewards is not sufficient to rouse them, yet have they no public spirit? have they no interest in the improvement of that great art, to which they have devoted their lives? and what can more directly contribute to its advancement than an animated and public competition? When we come to present the detailed reports to the public, we shall take occasion to extend our remarks. We have only to add that Mr. Howe, of Methuen, Essex Co., who appears here honored by a liberal gratuity, obtained a premium on his farm, of thirty dollars, from the Essex agricultural society, the current year. This returning home with two medals will, we hope, make his neighbors sufficiently envious to induce them to go and do likewise. If they choose to say, as we know they will say, there is nothing in Mr. Howe's farming which any body cannot do, we only say then in reply, let any body do it. That is the very thing we desire.

We subjoin the report of the committee on vegetable and grain crops.

The committee of the trustees of the Massachusetts agricultural society, on vegetable and grain crops, respectfully submit the following report.

Premiums they recommend as follows—

To Eldad Post, of Lenox, for the largest quantity of Spring Wheat, being 40 bushels to the acre, ...	$20 00
To Maxwell Lowry, of Marshfield, for his crop of carrots on an acre, being the only claim for that article, 472 32-56 bushels, ...	$30 00
To S. D. Colt, and Robert Colt, of Pittsfield, for the greatest quantity of vegetables for home consumption and not for sale, ...	$30 00
Also for the greatest quantity of Ruta Baga, being 1,080 bushels on 1 acre and 2 rods, ...	$30 00

The following claim was sent in too late to be admitted according to an indispensable rule of the trustees, but as the crop was uncommonly good, the committee recommend half the amount of the premium as a gratuity.

To Peleg S. Gardner, of Somerset, for his crop of Rye, on one acre, being 35 1-2 bushels, ...	$10 00

The committee notice with pleasure the following claims which, though not entitled to premiums deserve to be mentioned, as evidence of the increasing attention of our agriculturists to the raising of wheat, and as showing the practicability of growing to advantage this essential article of bread stuff, in Massachusetts.

Payson Williams, of Fitchburg, had to the acre of wheat, ...	38 1-2	bush.
Jos. S. Leland, of Sherburne, ...	32 14-32	"
Frederick Knight, of Newbury, ...	32 14-32	"

All these were Spring Wheat.

Mr. Benj. Cleveland, of Somerset, had 79 1-2 bushels of oats. No premium was offered on oats.

Mr. Peleg S. Gardner, had 40 1-2 bushels of barley on one acre. The quantity required was 45 bushels.

(Signed,) P. C. BROOKS,
Chairman.

The crops of wheat rewarded and noticed are excellent. Samples of some of them have been sent here; and present a beautiful grain. These are most important results, in various points of view. It is desirable that we should understand our capacity of raising our own bread. For some years past we have been rather too much engaged in making pictures, beautiful engravings on silk paper; and have been as much pleased with them as if we were all children. It would be well, if a large part of our population would go to producing something else, apply their ingenuity and industry to something more substantial, and see if they cannot induce the earth to make liberal dividends upon fair investments of manure and labor. The above results show what she can be made, or to speak more gratefully, what she is willing to do; or rather what she can be persuaded to do; and where shall we find any better investment than that which returns sometimes thirty, sometimes sixty, often a hundred fold for one.

The crops from Somerset are the effects of liberal manuring with fish. The effects of this manure, which is well known on many of the maritime parts of our state, are very powerful. But the farmers complain that is soon over; so is every thing else in human life soon over. I think, said a person to President Daggett of Yale College, on his introduction to him, you are President *pro tempore*—yes said he with some tartness of reply, would you have me President pro *eternitate?*—Every thing with us is for a *time*. Use it for that time and be thankful that it does well; but do not complain that its effects do not last forever. They were not meant to last forever. The pretence, that it impoverishes the land, is idle; and amounts to this, that the land will not produce so much without the manure as it did with it. The complaints of its being so transient, when its liberal returns are admitted whenever it is applied, are the complaints of selfishness and indolence.

The crop of carrots upon which a premium has been awarded is only an ordinary one; and we think the Board must have stretched their liberality as wide as the mantle of christian charity to have honored it as they have done. We presume however that they were bound by their rules, this being the only claimant. At any rate, we have no doubt they judged uprightly and well. It will, or it ought to make some men ashamed of their own neglect. We know several who have raised their six hundred, and eight hundred bushels of carrots to the acre, and we know some who have grown a thousand, who will say on reading this award, "Well I might have got that premium, if I had tried." Why did you not try then? Try next time, and try until you do get it; and then keep a trying, until you get it for a larger crop than was ever raised before. This is what farmers ought to do; and not be laying down in despair at the foot of every small hill, which they come to, which are often not higher than a tall man can look over, and crying out in despair, ah! I never can get over. Move on, Mr. Faintheart! Wake up, wake up! you sluggard!

Mr. Payson Williams, of Fitchburg, one of the most successful farmers in Massachusetts, who knocks every year at the door of the Massachusetts society, and whom they are obliged to admit because he shows his sufficient warrant to come in and take the best they have, has we believe been formerly honored with a premium for raising 55 bushels of Black Sea wheat on an acre. We have known in Massachusetts two hundred bushels of wheat gathered from four acres; and seventy bushels of rye grown on an acre; and ninety bushels of oats. What may not industry and skill effect. Barley is a crop, which ought to be much more cultivated than it is. The insect, which for some time, made fatal depredations upon it, has disappeared in a great measure. It was brought to this country in some importations of barley from Holland, made some years since by a large brewer in Newburyport.—The farmers for two or three years in that vicinity gave up the cultivation of barley, as they were advised and indeed obliged to do, and it became extinct. It ordinarily, to good cultivation, yields well. It does not mind a cold season, and for fatting swine, when intermixed with other feed, it is probably as good, pound for pound, as any other grain.

Caleb Kirk on Hedging.

Having preferred plashing to any other mode that I had seen made use of in training a hedge, I began the process when the stalks were about an inch in diameter near the root, and from that to an inch and a half; if well attended to in their previous growth, they will attain that size in six or seven years after they are planted, but if neglected they may require double that period. It may be observed that no advantage is gained by plashing before a good *root* is formed, for that is the future support and basis of the superstructure; by having a good strong root, the cutting or wounding the top or body of the stalk will soon recover any injury received in the necessary work of plashing, which is done by cutting the body of each stalk with a hedge knife or pruning hook, bending the stalk with one hand, in the direction it is to be laid, at same time by a stroke of the knife by the other, about four inches from the surface of the ground; if one stroke should not prove sufficient, a second or third may be applied, being careful to leave as much of the wood uncut as to afford the sap to flow into the top, and yet to bend easy into an inclined position of about forty-five degrees elevation from the base or bank on which it stands; one-third or one-fourth of uncut wood is sufficient to supply sap to the plashing, which must bend easy, otherwise it would incline to rise out of the proper degree of inclination. Much depends on this circumstance in forming a good and uniform hedge—the plashings should not press one upon another so much as to prevent a free and unobstructed circulation of air and the sun's rays also, as the health and vigor of the plashing is much promoted thereby. If there should be more wood in the hedge, by planting too close or any other cause, it must be cut away, leaving no more than what is really necessary to form the basis of a good and lasting live fence. One of my errors was, suffering too much brush wood to be crowded into my first live hedges, both living and dead—brush wood, such as was cut away, in some places where too thick, and filled in where too thin; in order to make a *present* fence I was induced to suffer it done in this way, from the recommendation of my hedger, who was from the west of England, and had been in that practice; for the immediate making a fence of such materials as he had to do with, I readily gave *his* judgment the preference, he having had experience in the business.

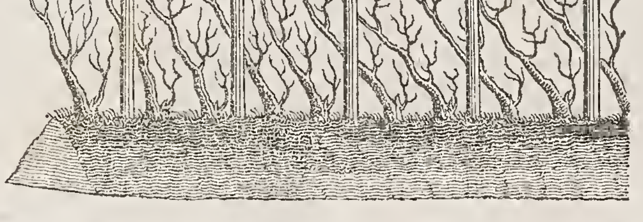
But my observations in two or three years more, convinced me of the impropriety of introducing dead wood to fill every vacancy, as well as crowding too much of that which was living. I had much of it to remove in places where a want of health demonstrated the present evil. After this was done, the remaining part became more healthy, but remains thin, and never will overcome the injury. There seems to be no inclination to put out shoots from the old wood in those vacancies—which would have put forth shoots when newly laid, if no obstruction had been present.

I find it is best to trim off the branches, especially the large ones, though not very close to the body of the stalk. It shoots young sprouts more abundantly from the plashing, which rise in an upright form, as well as those from the stumps shooting up through the plashing; interlocks the whole together, holding the plashing in their place as cross bars, and forms a kind of lattice work. On the contrary, if the plashing is too crowded, the shoots rising from the stump will evade the thicket and push out in a lateral direction, endeavoring to gain the benefit of sun and air, and rise on the outside, where they are injurious instead of beneficial; by secluding the plashing from the benefit of sun and air, the sap no longer inclines to the plashing, but flows freely into the suckers on the outside.

I have been more particular on this point, having seen errors in others, as well as my own, on that head.

Previous to laying a hedge, a quantity of stakes are to be provided about four feet and a half long, if it stands on a bank, or a little longer if the ground is not elevated, and split as small as they will bear to drive about one foot in the ground; they are to be driven through the plashing occasionally, as the work progresses, in a straight line two feet and a half, or three feet distant from each other, as seen in figure 18; those stakes are driven through the plashing, so as to keep the part laid directly over the stumps, for reasons before given, (the shoots raising immediately through the plash;) these stakes are bound in their place by wattles or poles, prepared of alder or willow, or any thing that will not in future make useful timber, as their use is only temporary, until the hedge becomes set by growth.

Fig. 18.



This binding has the appearance of a twisted rope; if rightly done it steadies the head of the stakes, and keeps them in a direct line, and serves the purpose of holding straggling shoots, that may be directed under its confinement, and confines the top of the hedge, holding it steady for trimming until its own growth gives it stability.

The next year after being laid it should be examined, and any shoot that inclines to leave the right direction should be cut away, unless there is a vacant spot to receive it; then it ought to be introduced into such vacuum; by frequently trimming the superfluous branches off, the body becomes more dense and impenetrable.

About five years past, I adopted the summer trimming about the middle of June, and found it much easier to accomplish while the shoot was in a tender state, and have regularly done the trimming in that and the following month ever since, finding the labor much easier performed, and no bad effect on the hedges, though warned by some to the contrary, apprehending bad consequences to arise from cutting at that season.

The present season having been excessively dry and warm, yet I have not discovered the least injury—though they have held their foliage as well as usual.

My conclusion has been, that by cutting when the sap is in full flow, and taking away the small shoots that were carrying off a considerable portion for their support, that portion must diffuse and spread through the whole body of the hedge, and add strength to every remaining part.

The foregoing remarks will apply to either kind of thorn as it regards the treatment of them, but the Virginia kind has advantages, though not so rugged in appearance, as the Delaware—they are more uniform in their growth, and give that regularity and uniformity to the hedge. But what is very important, is their inclination to send out an abundance of shoots or suckers, when cut not only from the stump, but from the plash also; the latter is not the case in the Delaware thorn; they seldom afford shoots out of the plash; except where the top end is cut off, the suckers will rise.

To attain a regular distribution of shoots from the plashing, we must be mindful to give every stalk laid a proper degree of slope or inclined plane, as before observed; by that means they are likely to rise on the body of the plash; if too much elevated the sap flows to the head, and produces a cluster at that point; and if laid too much in a horizontal position, the sap is not encouraged to follow that direction, and will produce succors from the stump only, leaving the plash without sufficient nourishment to become useful, and must consequently decline.

It will be readily understood, that the more general we can direct the flow of sap through the whole body of the hedge, the strength and uniformity is thereby promoted, becoming healthy in all its parts. After that object is obtained, all that is necessary, is the keeping it in proper limits by trimming.

The drawing represented by figure 18, is a view of a section of newly plashed hedge, divested of foliage, after having formed the first shoots from the old stalks, making the first effort to fill the vacancies, and seven years old before it was cut. The figure 19, represents a section of one that has been laid seven years, and annually trimmed, being in full foliage at the time the drawing was taken. The former showing the skeleton of a hedge, that may be useful to demonstrate the subject in that stage of its progress to maturity. Figure 20, represent an end view of section 19, showing a correct view of the shape, which I preferred for the forming a hedge the most impenetrable at the bottom; those views are elevated on a bank from a foot to eighteen inches high, which was formed from repeated dressing, as they required fresh earth to cover the grass about the roots, which retards their growth in a young state remarkably, if not kept down. This elevation gives the hedge a much more forbidden appearance to ungovernable animals.

Fig. 19.

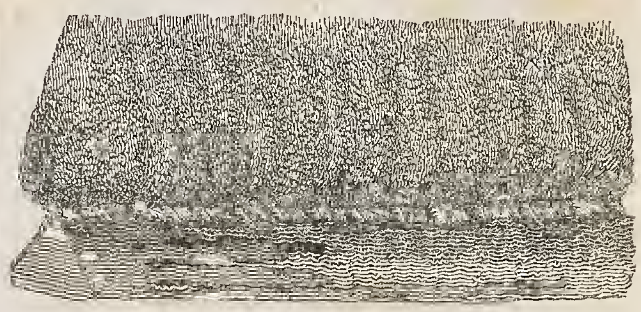
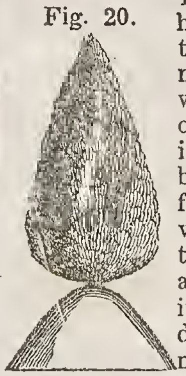


Fig. 20.



The trimming may be done with a hedge knife, about eighteen inches long, with a hooked point, used with one hand, or with any other sharp light tool that may best suit the operator, making the stroke upwards rather than downwards; the root being secure in the ground it will not give way before the stroke, as it would in making the stroke downwards. The last trimmings made on those specimens, were done with a common grass scythe, as the mowers were cutting the grass inclosed in the field. I found by applying the scythe to the hedge it was an expeditious mode, though rather unhandy to strike upwards, but a little practice overcame the difficulty.

After viewing those specimens of hedges produced by the foregoing mode of management and in a given time, it will be information to some, I have no doubt, sufficient to determine their choice, whether a dead or living fence is to be preferred.

I made the choice upon an imaginary view, without having advantage of ocular demonstration, and without any idea of the comparative expense, or even attempting to make any calculation on the subject, as I had made up my determination prefering a live fence.

There is now some data to form an estimate upon; and the subject is of such a nature as to require a series of years to gain the desired object; yet I have a confidence in believing it can be ascertained with much correctness.

The last number on this subject being more fully demonstrated by a drawing, not only to assist the young husbandman in the best mode of forming his live fences, but to give a view, of what may be considered a specimen of a *finished hedge*, or one that has attained maturity, being thirteen years old from the time of planting, and needs no further care but that of *annual* trimmings, shearing or clipping the extra shoots, that incline to enlarge it beyond proper limits. The mode has been heretofore treated of.

It now becomes the next inquiry *what is the cost* of obtaining such a desirable inclosure, to protect and secure the labors of the farmer, and, at the same time, ornament his farm. The following is a correct estimate, as near as the nature of the case will admit, calculated for the latitude or neighborhood of the writer of these notes, being done from actual experiments, made by himself, and some of his neighboring farmers pursuing the same plan of hedging; taking a given quantity or distance, say one hundred pannels of post and rail fence, measuring ten feet to the pannel, which is the usual length, makes *sixty perches* and ten feet over.

One thousand quicks will plant that distance, cost from nursery,		$5 00
Planting them by a man and boy each two days, man's wages and board at 75 cts.		1 50
boy's do. 50 cts.		1 00
One dressing the first year by running a furrow or two with the plough,		25
And then a light dressing with the hoe, (same hand)		75
Expense of first year,		8 50
2d. year dressing as above,	$1 00	
3d. year do.	1 00	
4th. year do.	1 00	
5th. year do.	1 00	
6th. year do.	1 00	
5 years dressing,	——	$5 00
7th. year trenching to prepare for plashing, plough and horse,	$0 50	
And three days' work, at 75 cts. throwing up a ditch,	2 25	
500 stakes, counting labor as above, including timber,	3 50	
Wattles and cutting them,	2 00	
One hand three days at plashing, at $1*	3 00	
Expense of 7th year,	——	11 25

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* The wages of a hand to plash is at $1, being an artist at the business, but that will, when generally in practice, be done by common laborers as readily as any other labor on a farm, with a little attention of the owner.

8th. year 1 day's work trimming and cleaning,	$0 75	
9th. do. do.	75	
10th. do. do.	75	
11th. do. do.	75	
12th. do. do.	75	
13th. do. do.	75	
Expense of six years,		$4 50
		$29 25

The foregoing process has produced such a hedge as is exhibited in the drawing, taken from a section of one thirteen years old, now in good condition and improving, becoming more dense every year; and, so far as I am able to form a judgment, I am of the opinion, that seventy-five cents annually applied to the trimming, will keep it in that form perpetually, not being yet able to discover any thing to form an idea of dissolution upon, in any reasonable time, therefore sufficient to ground a confidence of durability.

The calculation on this section of sixty perches, will afford data to apply to any quantity of greater extention; and the annual expense on this, after the seventh year, is uniform, and may be considered to continue so, for as long a time as they are regularly attended to, which will apply to any extent, at one cent and a quarter per rod or perch of sixteen and a half feet.

If the writer of those observations had commenced hedging with the knowledge now obtained by experience, one-half his labor would have been saved.

The expense of a fence made of timber, say post and rail, which is the most common in the vicinity of this place, is seventy-five cents for each pannel of a four rail fence, to those who have their fencing to purchase and the labor to pay; that is, seventy-five dollars for one hundred pannels, that, compared with the same length of hedging, places the case, for a perishable material, with thirteen

years of the time gone,	$75 00
And for a hedge growing better every year,	29 50
Leaving,	$45 50

as a balance in favor of sixty perches and ten feet distance; what that will amount to on a large farm, I shall leave to the owner's calculation.

I may further remark, the labor of making live fence can be done by weak hands, if rightly directed; my plashing was done by a man seventy-four years of age. The making of rails and handling them requires a person in the prime of life, and it is laborious in every stage of the process of erecting wooden fences; besides the destruction of much valuable timber, which, in some neighborhoods, is a heavy tax on the owner.

Each neighborhood may make their calculations of fences made of timber; according to circumstances attending the hedge, calculation may be relied on, if the rules and remarks foregoing are strictly attended to, and will apply to either kind of thorn; but it was the "Virginia parsley leafed thorn," of Marshall's catalogue of forest trees, that was preferred, and which grows spontaneous, from this place to the south as far as the Mississippi; and I have no doubt of it thriving in a northern latitude, seeing no bad effect from the winters of our Delaware climate, although I had a section plashed in the midst of winter to prove the consequence.

The hedge may be considered as made in seven years from time of planting, as it is only trimming, that is required afterwards; which amounts to one cent and a quarter for each perch of distance; the quarter may be thrown off, if the clipping is never *omitted in due time*, as it lessens the labor; a rule that will apply through every operation in husbandry, and should *never* be forgot, while twenty-five per cent is saved, often fifty.

Broad-tailed Sheep.

[*From Livingston's Treatise on Sheep.*]

"The race of sheep that I shall next notice, is one that is *more extensively diffused than any other*, since it is found throughout Asia and a great part of Africa, as well as through the north-eastern parts of Europe. I refer to the *broad-tailed sheep. (Ovis aries lati-caudata).* These differ as the ordinary European race in the nature of their covering. In Madagascar, and some other hot climates, they are *hairy*, at the Cape of Good-Hope they are covered with coarse harsh wool; in the Levant their wool is extremely fine, or in other words, they are *adapted to the necessities of the people* by whom they have *been changed from their wild to their domestic state.* These sheep *are generally larger than those of Europe*, in which circumstance only, and the form and size of their tails, they differ from them. The broad-tailed sheep are of three species. In the one the tail is not only broad, but long, and so weighty, that the shepherds are compelled to place two little wheels under it, to enable the sheep to drag it. These tails are said sometimes to weigh from forty to fifty pounds. Another species have the tail broad and flat, but not very long, covered with wool above, but smooth below, and divided by a furrow into two lobes of flesh; these are also said to weigh above thirty pounds: I should not however estimate the weight of those which I saw in the Menagerie at Paris, at more than ten or twelve pounds. *In some species a small thin tail projects from the centre of this fleshy excrescence.* The composition of this excrescence is said to be a mixture of flesh *with a great proportion* of *fat*, and to be a very delicate food; *but the animal has little other fat, the tail being in him the repository of that fat which lays about the loins of other sheep.* In cold climates the fat of the tails *resembles* suet; but in warm ones, as at the Cape of Good Hope, Madagascar &c. it is *so soft that when melted it will not harden again.* The inhabitants *mix it with tallow* in certain proportions, when it *assumes the consistency of hog's lard*, and is then eaten like butter, or used for culinary purposes. *Naturalists* imagine that this excresence is owing to some circumstances in the food of the sheep, which makes the *fat fall down from the loin into the tail* and thus occasion this *monstrosity.* I do not, however, think this probable, since the *prodigious extent of country through which this race is propagated*, must render the food as various as the climates in which they are bred. I rather think *it owes its origin to the art of man*, grounded on some of *those sports of nature*, which in all domestic animals, afford a basis whereon to *engraft his whims.*

It may be asked to what end would man cultivate this *deformity*, and that, too, through so extensive a region as to forbid our attributing it to whim or fashion? may not *the shepherd who first observed this Lusus Naturæ* in his flock have concluded, that he had made a very valuable acquisition, since he not only had a sheep that gave him *as much wool, milk or flesh* as the rest of his flock, but *a tail*, which, *in addition*, gave him a comfortable meal, or *what is still more valuable among savages*, plenty of *grease for his toilet and his kitchen.* This circumstance alone would make him attentive to *cherish and propagate the deformity;* and the rather as he must soon have found that it was attended with another important advantage; the sheep being *more unwieldly*, would be less apt to stray or return to its savage state; an object of considerable importance in the early state of society."

Rohan Potato.

[*From the Gardner's Journal.*]

We have had occasion to mention this potato in a manner to draw public curiosity strongly towards it. We subjoin, therefore, the account given of it in the Edinburgh Quarterly Journal of Agriculture. Some of these potatoes have been raised by Mr. Thompson, of Catskill, and by Judge Buel, of Albany, who received some tubers through the kindness of Mr. Thompson. The circumstances under which they have been cultivated here, were not altogether favorable; and the yield not so great as represented in the Journal from which we quote, but sufficiently remarkable to indulge sanguine expectations of their extraordinary productiveness. Their value for eating has not been ascertained. Their value for stock is undoubted. The Agricultural Commissioner was able, through the politeness of Judge Buel, to obtain a few plants; and others by purchase, which he will take care to distribute among those who will give them a fair trial. We learn that Messrs. Breck & Co. have the promise of a small quantity for sale, from Catskill, which may be expected as soon as the season will admit of their transportation.

The Rohan Potato, a new variety.—The following is an extract from a letter written from Geneva, of date 25th April, 1834, by Prince Charles de Rohan to M. Jacquemot-Bonnefont, Nurseryman, Annoney, in the Ardeche.

"I send you, through my friend M. Romilly, the potato which I promised you; and to which my name has been given in this country. The history of this potato is not less singular than the potato itself. He who obtained it from seed four years ago shews it, but will not give it to any person; he has refused it to King William. He has cultivated it in a little walled inclosure: he only wishes to see it in perfection, and the seed of the following year. He makes them to be taken up in his presence; keeps them under lock and key, and to be cooked for himself and cattle before his face. It is at great risk that I have been able to procure two tubers. This exclusive amateur having learnt that I had got some *cactuses*, which he wished much to have, begged me to give him some. I wished no money, but very much to have some of his wonderful potato. He gave me two of them, and made me give my word of honor that I would never send any of them to Holland, Belgium, England, Prussia, or Germany. Happily he has not thought of Switzerland nor France; for without this omission, I could not have had the pleasure of offering these to you.

"This is the mode of cultivating this potato: The earth is dug to the depth of twenty inches; make the distance between the holes four feet, and put two or three eyes, or sets, in each hole. Earth up frequently. The stalks, reaching six or seven feet in height, must be supported on transverse stakes. The kind being late, the tubers, which are very farinaceous, should only be taken up about Martinmas, when the stalks wither.

"To give you an idea of the extraordinary produce of this potato, I give three examples at random. M. E. Martail, at Alias, gathered last autumn tubers weighing 13 lbs. 7 oz., 11 lbs. 9 oz., and 9 lbs. 13 oz. M. de Montet, a proprietor near me, asked me for tubers when I could not give him more than a single small tuber having four eyes He weighed it for curiosity, and found that it wanted a few grains to make half an ounce. However, this small tuber being planted, produced 48 1-4 lbs. The Attorney of the Abbey of Auterive, canton of Fribourg, to whom I had given two tubers two years ago, and who, delighted with his first harvest, after having eaten and given some to his friends, planted the rest, and obtained last autumn six double-horse loads and eight scuttle-fulls. It is not the largest tubers which succeed best as seed."—*Le Cultivateur, Journal des Progres Agricoles.*

Orchard Grass;

Its value, and advantages over Timothy or Clover. Remarks on its culture, and seed. Poa viridis, or Green Grass.

Sow Orchard Grass; if in autumn, harrow it in with your winter grain. Some prefer sowing it in the spring. Much depends on the soil and season, and you can try both modes and periods, to enable you to form the best opinion. This grass will be permanent, when *clover* (with which it is a profitable companion,) fails. It is, on uplands, preferable to *timothy*, which is a great exhauster—yields but one crop of hay, and little or no pasture, on dry soils, thus leaving the field bare of cover, and exposing it to the exhaustion of the sun and winds; whilst orchard grass, by its quick and repeated growths, affords a ceaseless cover and defence.

By thus recommending *Dactylis glomerata*, for permanent pasture and hay, it is not intended to cast the least reflection on the clover culture. This is now so commonly practised, and its uses so generally acknowledged, that it is unnecessary to dwell on its excellent properties. But the clover is fugacious, (short lived,) and the orchard grass, sown with it, endures in uninterrrupted vigor and usefulness; when clover, in dry seasons particularly, is burned or shrivelled, or has entirely departed, having lived out its short period of existence; or having been prematurely destroyed by frosts, to which it is often a victim. The *clover* and *plaster* are so congenial, and the improvement of the soils suitable for them so universally known, that any detailed notices of them would now be superfluous.

Raise your orchard grass seed, and do not spare it on your fields. Thin sowing throws up tufts, detached and coarse. You buy, in the shops, much chaff, and little seed; insomuch that a bushel weighs only from fourteen to sixteen pounds, at best, and some much less, barely sufficient for an acre. It should be sold by weight, and not by measure. No grass seed can be raised more plentifully and cheaply; and yet the expense of purchasing, has deterred its more general use.

It will be difficult to keep an old weedy farm long in grass; and the plough must, therefore, be oftener used than a clean farm requires. Yet with composts, as top-dressings, and destruction of weeds, wonders may be performed in a *grazing* system. But when the old sod is broken up, *time*, as well as good husbandry, with proper courses of crops, must be afforded. No winter grain should be sown the first season of breaking up old grass lays. The stirring and culture of that and the ensuing year, are necessary to insure the complete destruction of weeds and other unprofitable vegetation.

If you should be so fortunate as to conquer weeds and pests, and obtain a clean cover of the *poa viridis*, or green grass, which will not grow unmixed in all soils; it is not to be told how long your fields, with top-dressings, will continue without being disturbed by the plough, if scarified, when surface-bound, by a proper instrument. This grass appears to be native, though not peculiar, to this country; and it must, according to general experience, grow spontaneously.

Plants spring up in soils in which they are indigenous, without previous seeding. The experiment of cleaning by tilling, and meliorating by manure, worn out lands, and suffering them to throw up grasses spontaneously, has decisively succeeded, so as to insure valuable crops of the appropriate kinds; which finally established themselves, after contending with intruders for a time. *White clover* seems most universally native; but *this* grows better in some, than in other soils.

Those who do not attend to the laws of nature in this regard, suppose that they can, *with plenty of manure*, force plants in any soil; but this is a great mistake. *Gorging* land with dung, for any product, is expensively ruinous. There is no surer mode of first deteriorating and finally destroying, any plant out of its natural soil, than that of lavishingly dunging it. And this misapplied extravagance, is injurious to plants, either of rich or poor soils. The latter are, however, the soonest killed by high dunging.—*Judge Peters.*

Agricultural Chemistry.

[*From the American Farmer.*]

The great Linnæus, has almost given animal life to vegetables, by his wonderful system of classification, and the eccentric Darwin, would fain give them passions like human nature; but it has been reserved for modern chemistry to discover, that vegetables possess a most refined taste, a wonderful discrimination in the selection, and the most active chemical powers in the preparation of their food. It is in vain to search for any single article as the "food of plants;" their tastes are as various as the taste of man; they invariably seek for those things which they like best; and if they cannot find them, they will take what they can get. Indian Corn in the vegetable kingdom, is like swine in the animal; it feeds indiscriminately and voraciously on all the food it can procure, and its growth and product is in proportion; while the more delicate mint is satisfied with water alone, from which it extracts its small portion of food. The seed of a vegetable may be considered the magazine or granary in which is contained the germ of the future plant, and a requisite supply of food to support it. In establishing itself in the earth, the germ in many *comparatively large seeds*, is so small, as to escape the power of the naked eye. What then is the vision of man, when compared with that power which creates in an *invisible seed*, an embryo plant, perfect in all its parts, perhaps an hundred times smaller than the seed itself? The grain preserves and defends the germ from injury until placed in its proper sphere of action. The earth then furnishes food to it, by its power of absorption, which it natually exacts as soon as it comes in contact with moisture. When it has taken in a sufficient quantity of water, the germ commences its operations by decomposing a part and appropriating to itself the oxygen, it gains strength and bursts its cell—it now finds itself in presence of earth and air.* It puts forth its fibrous roots in quest of more substantial food among the mineral and saline solutions in the earth, and separates, with unerring fidelity, those which are required for the formation of the plant. In the mean time its head rises towards the heavens, and bursts the surface of the earth; the voluntary expansion of its leaves, seems to offer praise to its Creator; the sun stamps upon it his brilliant colors, and gives the flower its beauty; by its heat, the plant prepares its oils, gums and balsams; and in return, gives to the light its oxygen, (which, for aught we know, may be the support of the sun.) The winds agitate the plant, and often threaten to carry away the beautiful superstructure; while its motions indicate to the root below, that it is in danger. The elder roots grasp with firmer strength the earth, and send forth an increased number of fibres, which collect materials and increase the growth of the plant. These operations go on until the fruit is produced, when the plant resigns itself to indolence, and delivers to the hand of man the result of its labors. Some are permitted to resume their action after delivering to the earth their fruit and leaves; but the greater number sink to the earth and furnish subsistence for the growth of some future plants. This is the unvaried round of matter, it lives, and dies to fill some other life.

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* It is usual to confine the presence of the air to the earth, but tillage extends it beneath the surface from one to twelve

Good yield of Corn.

[*From the Genesee Farmer.*]

Mr. Tucker.—The subscriber has raised 292 bushels of ears of corn from two acres, or 73 bushels of sound shelled corn per acre, of the Dutton corn, which I obtained from Judge Buel, Albany, a year ago last May. Process of tillage as follows: The land was gravelly loam, clover sod, mowed three years previous; ploughed once in April, rolled lengthways of the furrows and dragged the same way; planted the 4th day of May, three feet each way, with four spears in the hill; the seed rolled in plaster; ploughed and hoed three times, the ordinary way; plastered twice, one bushel to the acre, after the first and second hoeing. Cut up and stooked the 15th of September. It was ripe enough to cut up the 1st of September. I harvested it the last of October. If you think the above worthy a place in your paper, it is at your service.

N. B. One ear of the corn had twenty rows on it; sixteen had fifty-five kernels each, which made 880; the other four had twenty-seven each, which made 108; total, 988 kernels. Beat that! D. SUNDERLIN.

Yates county, Dec. 1837.

Young Men's Department.

Natural Philosophy.

VI. Electricity.—This name has been given to a science which explains and illustrates the operations of a very subtile fluid called the electric *fluid*, which appears to pervade every part of nature, and to be one of the chief agents employed in producing many of the phenomena of the material world. If a piece of amber, sealing wax, or sulphur, be rubbed with a piece of flannel, it will acquire the power of attracting small bits of paper, feathers, or other light substances. If a tube of glass, two or three feet in length, and an inch or two in diameter, be rubbed pretty hard, in a dark room, with a piece of dry woollen cloth, besides attracting light substances, it will emit flashes of fire, attended with a crackling noise. This luminous matter is called electricity, or the *electric fluid.* If a large globe or cylinder of glass, be turned rapidly round, and made to rub against a cushion, streams, and large sparks of bluish flame will be elicited, which will fly round the glass, attract light bodies, and produce a pungent sensation if the hand be held upon it. This glass, with all its requisite apparatus, is called an *electric machine.*—It is found, that this fluid will pass along some bodies, and not along others. The bodies over which it passes freely are water, and most other fluids, except oil, and the ærial fluids; iron, copper, lead, and in general all the metals, semi-metals, and metallic ores; which are, therefore, called *conductors* of electricity. But it will not pass over glass, rosin, wax, sulphur, silk, baked woods, or dry woollen substances; nor through air, except by force, *in sparks*, to short distances. These bodies, are, therefore, called *non-conductors.*

The following facts, among others, have been ascertained respecting this wonderful agent:—That all bodies with which we are acquainted, possess a greater or less share of this fluid—that the quantity usually belonging to any body produces no sensible effects; but when any surface becomes possessed of *more* or *less* than its natural share, it exhibits certain appearances, in the form of light, sound, attraction, or repulsion, which are ascribed to the power called *electric*—that there are two different species of the electric fluid, or, at least, two different modifications of the same general principle, termed *positive*, and *negative* electricity—that positive and negative electricity always accompany each other; for if a substance acquire the one, the body with which it is rubbed acquires the other—that it moves with amazing rapidity; having been transmitted through wire of several miles in length, without taking up any sensible space of time; and, therefore, it is not improbable, that were an insulated conducting substance extended from one continent to another, it might be made to fly to the remotest regions of the earth in a few seconds of time—that it has a power of suddenly contracting the muscles of animals, or of giving a *shock* to the animal frame—that this shock may be communicated, at the same instant, to a hundred persons, or to an indefinite number who form a circle, by joining their hands together—that it may be accumulated to such a degree as to kill the largest animals—that vivid sparks of this fluid, attended with a crackling noise, may be drawn from different parts of the human body, when the person is *insulated*, or stands upon a stool supported by glass feet—that electricity sets fire to gun-powder, spirits of wine, and other inflammable substances—that it melts iron wire, and destroys the polarity of the magnetic needle—that it augments the natural evaporation of fluids, promotes the vegetation of plants, and increases the insensible perspiration of animals; and can be drawn from the clouds by means of electric kites, and other elevated conductors.—By means of the electric power, small models of machinery have been set in action: orreries to represent the movements of the planets, have been put in motion; and small bells have been set a ringing for a length of time; and, in consequence of the knowledge we have acquired of the mode of its operation in the system of nature, the lightnings of heaven have been arrested in their course, and constrained to descend to the earth, without producing any injurious effects.

From these, and a variety of other facts and experiments, it is now fully ascertained, that *lightning* and electricity are identical; and that it is the prime agent in producing the awful phenomena of a thunder storm; the lightning being the rapid motion of vast masses of electric matter, and *thunder* the *noise*, with its echoes, produced by the rapid motion of the lightning through the atmosphere. There can be little doubt that, in combination with steam, the gases, and other agents, it also produces many of the terrific phenomena of earthquakes, volcanoes, whirlwinds, water spouts, and hurricanes, and the sublime corruscation of the *aurora borealis.* In the operations of this powerful fluid we behold a striking display of the sovereignty, and majestic agency of God. In directing its agencies, "his way is in the whirlwind and in the storm, and the clouds are the dust of his feet; the heavens are covered with sackcloth, the mountains quake before him, the hills melt, the earth is burned at his presence, the rocks are thrown down by him:" Neh. 1. 3—6. It is easy to conceive, that, by a few slight modifications produced by the hand of Omnipotence, this powerful fluid might become the agent of producing either the most awful and tremendous, or the most glorious and transporting scenes, over every region of our globe. As it now operates, it is calculated to inspire us rather with awe and terror than with admiration and joy; and to lead our thoughts to a consideration of the state of man as a depraved intelligence, and a rebel against his maker.

VII. Galvanism is intimately connected with electricity, though it is generally considered as a branch of chemistry. It is only another mode of exciting electrical action. In electricity the effects are produced chiefly by *mechanical* action; but the effects of Galvanism are produced by the *chemical* action of bodies upon each other. If we take a piece of zinc, and place it under the tongue, and lay a piece of silver, as big as a half crown, above it; by bringing the outer edges of these pieces in contact, we shall immediately experience a peculiar and disagreeable taste, like that of copper. The same thing may be noticed with a guinea and a piece of charcoal. If a person, in the dark, put a slip of tin foil upon one of his eyes, and a piece of silver in his mouth, by causing these pieces to communicate, a faint flash will appear before his eyes. If a living frog or a fish, having a slip of tin foil pasted upon its back, be placed upon a piece of zinc, by forming a communication between the zinc and tin foil, the spasms of the muscles are excited. These and similar effects are produced by that modification of electricity which has been termed *galvanising.* Three different conductors, or what is termed a *galvanic circle*, are requisite to produce such effects. A piece of copper, a piece of flannel, moistened with water or acid, and a piece of zinc, laid one upon another, forms a circle; and if this circle be repeated a number of times, a galvanic pile or battery may be formed capable of giving a powerful shock. The most common and convenient form, however, of a battery, is found to be a trough of baked wood, three or four inches deep, and as many wide. In the sides are grooves, opposite to each other, into each of which is placed a double metallic plate, of zinc and copper soldered together, and the cells are then either filled with salt and water, or with a solution of nitrous acid and water.

By means of the galvanic agency, a variety of surprising effects are produced. Gun-powder, cotton, and other inflammable substances, have been inflamed—charcoal has been made to burn with a most brilliant, and beautiful white flame—water has been decomposed in its elementary parts,—metals have been melted and set on fire, fragments of diamond, charcoal, and plumbago, have been dispersed, as if they had been evaporated—platina, the hardest and the heaviest of metals, has been melted as readily as wax in the flame of a candle—the sapphire, quartz, magnesia, lime, and the firmest compounds in nature, have been made to enter into fusion. Its effects on the animal system are no less surprising. When applied to a fowl or a rabit, immediately after life is extinct, it produces the most strange, and violent convulsions on the nervous and muscular system, as if the vital functions were again revived; and when applied to the human body after death, the stimulus has produced the most horrid contortions and grimaces in the muscles of the head and face; and the most rapid movements in the hands and feet.

The galvanic agency enables us to account for the following, among other facts:—Why porter has a different, and more pleasant taste, when drank out of a pewter vessel, than out of glass or earthen ware,—why a silver spoon is discolored, when used in eating eggs,—why the limbs of people under amputation, are sometimes convulsed by the application of the instruments,—why pure mercury is oxydised when amalgamated with tin,—why works of metal, which are soldered together, soon tarnish in the places where the metals are joined,—and why the copper sheathing of ships, when fastened with iron nails, are soon corroded about the place of contact. In all these cases a galvanic circle is formed, which produces the effects. We have reason to believe, that, in combination with the discoveries which modern chemistry is daily unfolding, the agency of the fluids will enable us to carry the arts forward towards perfection, and to trace the secret causes of some of the most sublime phenomena of nature.

VIII. Magnetism.—This department of philosophy describes the phenomena, and the properties of the *loadstone*, or natural magnet. The natural magnet is a hard dark colored mineral body, and is usually found in iron mines. The following are some of its characteristic properties:—1. It attracts iron, and steel, and all substances which contain iron in its metallic state. 2. If a magnet be suspended by a thread, or nearly poised on a pivot, or placed on a piece of wood, and set to float in a basin of water, one end will constantly point nearly towards the north pole of the earth, and the other toward the south; and, hence, these parts of the magnet have been called the *north* and *south poles.* 3. When the north pole of one magnet is presented to the south pole of another, they will attract each other; but if the north pole of one be presented to the north pole of another, or a south pole to a south, they will repel each other. 4. A magnet placed in such a manner as to be entirely at liberty, inclines one of the poles to the horizon, and of course elevates the other above it. This property is called the *dipping* of the magnet. 5. Magnets do not point directly north and south; but in different parts of the world with a different *declination* eastward or westward of the north; it is also different at the same places at different times. In London, and in most places of Great Britain, the magnetic needle, at present, points about 24 degrees to the west of north. For more than 160 years it has been gradually declining from the north to the west; but seems of late to have begun its declination to the eastward. 6. Any magnet may be made to communicate the properties now mentioned, to any piece of iron and steel. For example, by gently rubbing a penknife with a magnet, it will be immediately invested with the property of attracting needles, or small pieces of iron and steel. 7. Heat weakens the power of a magnet, and the gradual addition of weight, increases the magnetic power. 8. The properties of the magnet are not affected either by the presence or the absence of air; and the magnetic attraction is not in the least diminished by the interposition of any bodies except iron. A magnet will equally affect the needle of a pocket compass, when a thick board is placed between them as when it is removed. It has lately been discovered, that the *violet rays of the solar spectrum*, when condensed with a convex glass, and made to pass along a piece of steel, have the power of communicating to it the magnetic virtue.

The cause which produces these singular properties of the magnet, has hitherto remained a mystery; but the knowledge of the *polarity* of the magnet has been applied to a most important practical purpose. By means of it, man has now acquired the dominion of the ocean, and has learned to trace his course through the pathless deep to every region of the globe. There can be little doubt that magnetism has an intimate connexion with electricity, galvanism, light, heat, and chemical action; and the discoveries which have been made lately, and the experiments which are now making by Morichini, Oersted, Abraham, Hansteen, Barlow, Beaufoy, and Scoresby, promise to throw some light on this mysterious agent, and on the phenomena of nature with which it is connected.—*Dick.*

Abuse of Memory.

We recommend to teachers and others, who are in the habit of requiring children to commit long pieces to memory, the opinion of Lord Bacon upon this subject.

"The powers of the memory," he observes, "without the help of writing, can do little towards the advancement of any useful science." He acknowledges that the memory may be disciplined to such a point, as to be able to perform very extraordinary feats. But on such feats he sets little value. The habits of his mind, he tells us, are such that he is not disposed highly to rate any accomplishment, however rare, which is of no practical use to mankind. As to these prodigious achievements of the memory, he ranks them with the exhibitions of rope dancers and tumblers. "The two performances," he says, "are of much the same sort. The one is an abuse of the powers of the body; the other is an abuse of the powers of the mind. Both may perhaps excite our wonder, but neither is entitled to our respect."

We should often have reason to be ashamed of our most brilliant actions, if the world could see the motives from which they spring.—*Rochefoucault.*

We do not know what is really good or bad fortune.—*Rousseau.* Our condition in this world is mixed. We all, in *every state*, have our sufferings, but of none is the condition so abject, that he may not find grounds, of consolation, and discern the merciful finger of Omnipotence, pointing out to him a place of rest, of happiness unmixed, of everlasting peace.

We seldom find persons whom we acknowledge to be possessed of good sense, except those who agree with us in opinion.—*Roche't.* When such occasions do occur, our self-love always induces a decision in favor of their judgment.

☞ Mr. Allen has reported a bill in assembly proposing a bounty of ten cts. per pound for cocoons, and of fifty cts. per pound upon sewing silk, produced from family labor.

FROM THE STEAM PRESS OF
PACKARD & VAN BENTHUYSEN.

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inches, hence the difference in the same earth, cultivated and uncultivated; the presence of the atmosphere being requisite for vegetation as soon as the germ bursts the seed.

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A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

The New Husbandry.

Having shown that manures are indispensable to good husbandry—that they constitute the food of plants—and that they may be greatly increased by good management, we proceed now to the second requisite in the new system of husbandry, viz:

II. DRAINING.

Few improvements of modern date are likely to become more beneficial to the northern section of the union, than systematic draining. In the first place it will reclaim, and render highly productive, large tracts of land, which are now unproductive in any thing useful, by reason of the water which constantly covers or saturates them. In the next place, it will improve lands that are wet, and render them far more manageable and productive, in grain, roots, and the more nutritious grasses, by carrying off the superfluous water. Where there is an excess of moisture in the soil, ploughing can only be imperfectly performed, nor until late in spring,—the benefit of manure is lost, and the cultivated crop is light, and more subject to vernal and autumnal frosts, than it would be if the land was laid dry.

The soil, in regard to vegetable nutrition, may be compared to the animal stomach, which digests,—and the spongeoles or rootlets of the plant to the lacteals of the animal, which absorb and take up, and propel, the digested food to the elaborating organs—the lungs of the one, and the leaves of the other,—where this food undergoes its last preparation, and is fitted to become a part of the organic matter of the animal or vegetable. We all know that when the animal stomach is out of order, from any cause, so that the food taken upon it is not properly digested, the subsequent processes of nutrition are arrested, and if the cause is not removed, the animal sickens, and ultimately dies. So with the soil. If the vegetable matter deposited there, to feed the crop, is not decomposed, or rotted, and resolved into a liquid or gaseous form, so that it can be taken up by the spongeoles, the plant will become sickly and unproductive, and the processes of healthy nutrition be at a stand. Hence the accumulation of vegetable matters in swamps, marshes and other locations habitually saturated with water, and their great fertility when thoroughly drained, and exposed to the influence of all the agents of putrefaction; and hence the necessity of draining the wet grounds on our farms before we can expect to make them profitable by culture. Coarse and aquatic plants, it is true, do grow in wet grounds, and in water; but few of the cultivated crops, however, are found to thrive where the ground is not dry and permeable to the influence of the sun and atmosphere.

It is not enough that the surface of a soil be dry: it must be so to the depth to which the roots of plants penetrate for food, at least fifteen to eighteen inches, to insure a healthy growth of vegetation. It is the extremities of these roots which gather the food, and which are constantly elongating while the plant grows; and if roots extend into a wet stratum, the food which they take up is either too much diluted, or not otherwise adapted to a healthy vegetation. Nor is this all: the water injures or destroys the fibrous parts of the roots, and unfits them for the performance of their functions.

We have published ample directions in the Cultivator, for the various modes of draining; and have pressed upon the notice of our readers the importance of this branch of improvement. Yet we have a few remarks to offer here, on the particular advantages which underdrains possess over open drains, in certain locations.

The object of draining being to carry off the surplus water before it saturates the surface soil, impedes early tillage, and injures the crop, it should be our first care to ascertain the cause of wetness, and where the deposite, or fountain is, which is the source of the evil. Where water rises through the subsoil or the lower strata, in spouts or springs, as well as where, falling upon a flat surface, it collects and reposes upon an impervious subsoil, underdrains are decidedly best, at least to collect the surplus waters into a main open drain. They are not only best, because the most efficient, but they are the most durable, most economical, and waste no land.

They are the most efficient. They can be made to reach, by digging and boring, the depot of water, or water stratum, and thus to carry it off before it approaches the surface, or pasture of plants. Open drains do this but seldom, or but imperfectly, because they are not often carried deep enough, and are continually liable to obstructions, which impair their efficacy.

They are most durable. An underdrain, laid in the most approved mode, with stone or tile, will last an age, if not a century. Open drains are but temporary in their beneficial effects, without periodical repairs.

They are the most economical. A good underdrain generally costs no more than a good open drain, which effects a like purpose, and probably not so much, as the former can be carried down with nearly perpendicular sides, while the latter must be dug with sloping banks, and must embrace a width of surface corresponding with its depth—the deeper the drain, the broader it must be at top. The cost of the stone or tile is in a manner counterbalanced by the difference in excavation. And when completed, the underdrain will require no annual repairs, while the open one will be a constant drain upon the labor of the farm, requiring bridges and frequent scouring and cleaning. If underdrains cost sometimes the most, they are unquestionably cheapest in the end—provided they are well made.

Underdrains waste no land. They may be multiplied at every twenty feet, as they sometimes are upon stiff flat clays, without excluding the plough or the scythe, from a foot of the surface. Open drains, on the contrary, if made of suitable dimensions, require a breadth of three or four feet, and the plough is excluded from as much more at their sides.

We draw no comparisons, nor do we need any, between the products of a field of habitually wet soil, or the trouble and expense of managing it, and the same field after it has undergone a thorough drainage and amelioration. Every farmer, we presume, has noticed the vast disparity in both. If there is one to whom it is not familiar, let him make the trial, and he will be astonished at the result, and at his own want of forethought in not having made it before.

III. GOOD TILLAGE.

When thorough draining has been effected, upon lands to be benefitted thereby, there is another operation which is calculated to aid in the efficiency of manures, and in the increase of farm products. This is good tillage—a perfect pulverization of the soil, and the keeping it free from weeds, which retard the growth of the crop, and rob it of its food. Good tillage is important not only as it serves to exterminate weeds, to facilitate the digestion of vegetable food, and to mix and incorporate this food, with earthy elements,—but as it breaks and mellows the soil, and enables the roots of plants to range freely in search of this food. Every farmer must have observed, that where tillage has been but imperfectly performed, as is sometimes seen about stumps and rocks, and near fences, the crop is comparatively feeble and light. This is not owing to the poverty of the soil, because the plough, as it rises to the surface in these places, deposites and accumulates there the best and finest mould of the field. The feebleness of the grain arises from the imperfect tillage which those spots receive. The old practice of carrying the main furrows to the extremity of the field, and of dispensing with head lands, is a bad and slovenly one, and ought to be every where exploded. The cut and cover practice, is still worse, as it leaves one-half, and sometimes two-thirds, of the soil, undisturbed by the plough. We remember well, that when we followed the plough in our boyish days, and knew nothing of the philosophy of ploughing, our aim was, to go over much ground, and show a ploughed surface, regarding the complete breaking up of the soil as of minor importance. There will always be a great many boys at the plough, until the importance of *good* ploughing is better understood. Good ploughing consists in breaking or turning every inch of the soil; and good tillage requires that the harrow and roller should finish, if the plough has failed to effect, a complete pulverization of the soil. A green sward becomes pulverulent as the roots of the grasses decay, and is best without a second furrow, because this turns again to the surface, to the wasting influence of the sun and winds, the vegetable matters buried by the first ploughing, and which, if left buried, would contribute largely to the sustenance of the crop. As the roots of the grasses decay, the soil becomes loose and porous, and is permeable to moisture, air and heat. Hence the advantage of fallow crops over naked fallows, and of depositing seeds upon the top of a clover lay; the sod then imparts fertility to the soil, while it enables it to derive important advantages from the co-operation of external agents.

Good tillage requires, that where practicable, as in the culture of drilled and hoed crops, the surface soil should be *kept* clean and pulverulent, while the crop is growing, for the same reason that the soil is required to be made so before depositing the seed, viz: to facilitate the decomposition of the vegetable food, to stimulate the organs of the plants, and increase the growth and product of the crop. There is no better expedient for preventing the evils of drought upon a soil, than that of keeping the surface mellow and clean. Atmospheric air and dew, both always charged with the nutritive food of plants, settles into such a surface as into a sponge, and imparts to the roots of plants both aliment and stimuli. Dews fall *upon* a hard surface, and are evaporated by the first rays of the morning sun; but they *penetrate* a loose surface, and moisten and fructify it. Hence the high repute of the drill husbandry, which enables the cultivator to keep his crops clean, and the surface of his soil mellow and open.

Good tillage has reference to *depth*, as well as quality of tilth. "There are many plants, the roots of which are found at fifteen to twenty, and even thirty feet under ground—sainfoin and lucern, for instance; even red clover well strike down to nearly three feet if the soil be a fertile loam; and some of our commonest vegetables, if it be friable or sandy, push their tap roots to about the same depth. The roots of wheat will penetrate as far as eight inches into the earth; and when sown on the crown of ridges, they have been found at the depth of twelve. We may therefore assume the depth of twelve inches as the utmost vegetative limit of corn land. Provided the soil be open and fertile, the nearer its depth approaches to 12 inches, the greater number of plants may it therefore be supposed capable of furnishing with support."—*Brit. Husb.* vol. ii, p. 49, 50. Soils should be ploughed as deep as the substratum will admit, at least once in a course of crops, if this can be reached with the force of an ordinary team; and when the surface soil is superficial, it should be deepened, as fast as fertility can be imparted, by turning up, at suitable intervals, some portion of the subsoil. The atmosphere imparts to this apparent inert earth, more or less of the elements of fertility. Baron Von Voght, increased vastly the value and products of his farm, by increasing the depth of its mould, (krume,) or vegetable pasture, in this way, in the period of sixteen years, from three to fourteen inches. Land that in the outset would only yield him fourteen bushels of rye to the acre, was by this mode of improvement brought to yield twenty-four bushels of wheat; and the improvement was not confined to a part, but extended to the whole farm, comprising some hundred acres. The reader is referred, for a detail of these improvements, and an account of the Baron's excellent system of husbandry, to No. 1, Vol. 2, of the Cultivator. And it has just been announced to us in a foreign journal, as one of the greatest improvements of the age, in rural affairs, that a plough has been invented, which breaks and pulverizes the subsoil, without turning it to the surface. Its advantages to agriculture are thus described by Le Fever, in Loudon's Magazine:—

"Smith's subsoil plough seems calculated to render the most sterile and unproductive soil fertile and profitable. Mr. Smith's most ingenious invention, by breaking the subsoil without bringing it to the surface, renders it pervious to both air and water. The same chemical changes which take place in a fallow, owing to its exposure to the action of the winds and rain, are thus brought into operation in the subsoil, whilst the surface soil is in the ordinary course of cropping; and when, after a few years, by a greater depth of ploughing, the subsoil is mixed with the upper soil, it is found to be so completely changed in its nature, as to be capable of producing every kind of corn."

Jethro Tull and his disciples maintained, that the great secret of inducing fertility, consisted in minutely dividing and pulverizing the soil by culture; and John Taylor, the Arator of Virginia, and an excellent practical, as well as scientific farmer, considered the atmosphere as the great store-house of vegetable food, where this food exists in a gaseous form. The good tillage we advocate embraces all the advantages of Tull's and Taylor's theories, without lessening the importance which we attach to barn-yard manure.

The deep ploughing of dry land, or the breaking up and stirring of the subsoil, promotes fertility, by increasing the power of the land to absorb water by cohesive attraction. "The power of soils to absorb water from air," says Davy, "is much connected with fertility. This power depends in a great measure upon the state of division of its parts, the more divided they are, the greater their absorbent power. When this power is great, the plant is supplied with moisture in dry seasons; and the effect of evaporation in the day is counteracted by the absorption of aqueous vapor from the atmosphere, by the interior parts of the soil during the day, and by both the exterior and interior during the night." The soil imbibes caloric earlier in the spring, and retains it later in autumn, in proportion as it is dry and deep, a matter of high consideration in cold climates, where the length of the summer scarcely suffices to mature the crops. The quality and dryness being the same, a soil is fertile and durable nearly in proportion to the depth of the tillage which it receives; six inches giving nearly double the pasture for plants that a three inch stratum does—and a twelve inch tilth greatly exceeding in productiveness, one of only six inches. Von Thäer calculates this difference in proportionate degrees in lands which contain a vegetative stratum of soil of four, six, eight and twelve inches in depth; provided, of course, that it be all of equal quality. If, therefore, each seed were to produce a plant, it would follow that ground which contains eight inches of depth of fertile mould, might be sown with double the quantity of that which consists of only four inches. He however admits, that this principle cannot be carried to that extent, because the action of the atmosphere must ever afford that superiority to the surface, that a cubic foot of mould, if divided into two square feet, will always produce a greater number of plants than if the seed were sown upon one foot superficial; but he assumes the value of the land to be increased in the proportion of eight per cent for every inch of mould beyond the depth of six to ten inches, and to be diminished, in the same proportion, from six to three inches, in soils of a thinner staple.—*Principes Raisonnes d'Agriculture, vol. iii. p.* 138, *s.* 735. These considerations have been hitherto but little regarded in our practice, through they constitute an important feature in the new system of husbandry.

Good tillage demands also, the extirpation of weeds. Every plant which grows upon a soil tends to impair its fertility, and weeds generally more than cultivated crops, because theyare generally the most hardy, and the greatest consumers of vegetable food. They are particularly prejudicial to crops in a dry season, as they exhaust the soil of moisture in proportion to their superficies—or the surface of their stems and leaves, some species transpiring their weight of moisture every twenty-four hours. The drill culture and deep ploughing both lessen the evil of weeds; the first tends to destroy them, and the latter to bury their seeds so deep, as to prevent the plants getting ahead of, and choking, the young crop. Clean tillage has been too much neglected in our practice. Many crops are diminished a fourth, a third, and a half, by pestiferous weeds which are permitted to seed and propagate upon the land.

Good tillage requires good implements, and these to be kept in order, that the farm work may be economically done, and well done, and done at the proper time. The disparity between old and new implements of culture is great, not only in the time employed, but in the manner in which they do the work, and in the power which is required to perform it. The old plough required a four cattle team, and two hands, to manage it, and the work, ordinarily, was but half executed. The improved plough is generally propelled by two cattle, requires but one man to manage it, and, when properly governed, performs thorough work. Harrows and other implements have undergone a like improvement. Besides, new implements, which greatly economise the expense of tillage, are coming into use, as the roller, cultivator, drill barrow, &c. so that a farm may now be worked, with half the expense of labor that it was wont to be worked forty years ago, and may be better worked withal. Mind, likewise, where it is put in requisition, and enlightened by science, is doing ten times more in aid of agricultural labor than it formerly did.

If we revert to old, and in most cases to present practices, we shall perceive, that thorough tillage has not been sufficiently attended to. Our implements have been defective, and the manner of using them often imperfect. Good ploughing is all-important to good farming, and still there is no labor upon the farm that has been more imperfectly performed, than this generally has been. Light soils seldom require but a single ploughing for the seed, if well executed; but if badly executed two ploughings are too little. Our implements are, however, daily improving, the importance of good tillage is becoming more and more apparent, and our practical knowledge is increasing.

The Farmer's Garden.

Every farmer should have a garden, for health, for pleasure, and for profit. For *health*, as nothing, in the form of diet, contributes more to this blessing, than a variety of choice fruits and vegetables for his table; while the exercise and recreation which the cares and beauties of the garden excite, are highly promotive of health. For *pleasure*—and what can afford a more heart-felt pleasure to the eye, unalloyed with pain, than the various and ever changing beauties of a well-kept garden? and what a more rich and innocent enjoyment to the palate, than a succession of fruits and vegetables, the product of our own culture and of our own soil. For *profit*—believing, as we verily do, that the labor judiciously bestowed in garden culture is amply repaid, in the subsistence it furnishes for the family. "It is incredible to those who have not had occasion to observe the fact," says Cobbett, "how large a part of the sustenance of a country laborer's family, in England, comes out of his little garden." And yet the culture of the English laborer's garden costs him virtually nothing. His occasional hours of leisure, with the aid afforded by the otherwise unproductive inmates of his family, suffices to complete the work. The rural scenery of England derives much of its interest from the beauty of the farmer's and cottager's gardens which every where abound; and many of the successful competitors for premiums, on fruits and flowers, at the horticultural shows which are there held in almost every town, are weavers and manufacturers, who cultivate their little patches of ground in the hours of exemption from professional labor. Indeed so prevalent is the taste for garden improvement and embellishment, that a man is judged of by the character of his garden. "Poverty," says Cobbett, may "apologise for a dirty dress, or an unshaven face; men may be negligent of their persons; but the sentence of the whole nation is, that he who is a sloven in his garden, is a sloven indeed. The inside of a laborer's house, his habits, his qualities as a workman, and almost his morality, may be judged of from the appearance of his garden. If that be neglected, he is, nine times out of ten, a sluggard, a drunkard, or both." The great strife every where is to get wealth—and for what? To increase the enjoyments of life. A great many of the most substantial of these enjoyments are within the reach of most men—they lie at our door—IN THE GARDEN—but we too often reject or overlook them, because they are not "dear-bought" and "far fetched."

Under our impression of the great advantages which are to be derived from the garden, to the body and mind—as a source of health, of pleasure and of profit, we intend, now that our sheet is enlarged, to devote more room for its improvement. We will shortly give a plan of a garden; and in the mean time, the scientific principles of gardening, of Prof. Rennie, which we are publishing, will be found no less applicable to the farm than to the garden. Postponing to a future occasion, our remarks upon the soil, and laying out of a garden, we proceed to give some instruction for the management of gardens already located, more particularly adapted to the present season, barely remarking, that every man who would have a good garden, must, like the late Rev. Dr. Dwight, be at least his own head-gardener—he must make himself so far acquainted with the principles and manipulations of the art, with the qualities of his soil, and the wants of his table, as to be able to superintend and direct its principal operations. He *may* obtain a good substitute, but he may be assured there are more than two blanks to a prize. And the task of qualifying one's self for this duty, is conducive alike to bodily health and mental gratification. It may become a passion, increasing with experience and with age; but it is a passion which bodes no ill to any one, but, which, on the contrary, is fraught with the best feelings of our nature.

The *preparatory business* in the garden, in the spring, is to rake together the haulm of last year's crop, and to burn it, as well for cleaning the surface, as to destroy the seeds of weeds with which the litter more or less abounds; to put the fences in good order; to take the manure to those parts where it is likely to be wanted; to procure and sharpen, if leisure permits, poles for beans, and sticks and brush for peas; to prune the fruit trees, if they must be pruned in the spring; to put the garden implements in order, and to procure a supply of good seeds. If a hot-bed is to be employed, and we strongly recommend one, it should be prepared, if not already done, in the manner recommended in pages 6, both in our second and third volumes. In these may be sown early and head lettuces, peppergrass, radishes, peppers, tomatos, early cabbages, cellery, and seeds of many annual flowers. If cucumbers are designed to be raised under glass, they should have a separate frame, or be but little encumbered with other plants.

The seeds which should be *first* sown in the open ground, and the warmest border or part of the garden should be appropriated to them, are early peas, potatoes, turnip beet, spinach, sallads, radishes, early cabbage, cellery, &c. The *second* course of sowing may embrace onions, beets, carrots, early corn and beans, sweet herbs and flower seeds. The third course will consist of the tenderer kinds, as Lima and other beans, sweet corn, cucumbers, melons, squashes, pumpkins, &c. The plants of the garden possess different degrees of hardiness, and require different temperatures to bring them forward. Some will germinate and grow at a temperature of 45° to 55°; and will not suffer from slight frost; while others will not grow unless the temperature is higher, and are liable to be injured by the slightest frost, or by cold damp weather. When corn, put in the ground very early, shoots to the surface, it is deemed early enough to plant melons, cucumbers and other vines for a main crop. All roots, to be planted for seed, as turnip, beet, carrot, parsnip, onion, &c., should be put out as early as the condition of the ground will admit, where the soil has been well prepared. They should be put at sufficient distance from each other to permit their seed stocks to spread, and to enjoy the full benefit of light and air. No two kinds of the same family of plants should be put out for seed near each other, not even the turnip and cabbage, as the seed will thereby become adulterated.

It is important in planting, for most crops, that the ground should be well dug, or ploughed, to the depth of eight to ten inches, to which depth the roots of most plants run, and for the tap rooted plants, as beets, carrots and parsnips, it were better to have the tilth twelve to fourteen inches. The ground should be fresh turned or stirred when the seeds are put in, and either trod, on the lines where the seeds are to be deposited, before planting, or pressed upon them after they are covered with earth. Seeds should be planted no deeper than is required to keep them moist.—See our article upon the germination of seeds, in another column.

This is the season for transplanting. How often do we hear people regret, on seeing their neighbor's gardens abound with choice fruit, that they too had not planted in times past. The season for transplanting fruit trees is unavoidably limited to the season of defoliation, when the growth is dormant; and the excuse of men generally is, that they either had not time, or forgot, to put out trees when alone the work could be done. This is very much like the man who suffered his family to be drenched by every rain, because he could not patch his roof when it stormed, and because there was no need of doing it when the weather was fair. What short-sighted mortals, to undergo a life of privation, of many of the richest gifts of Providence, rather than incur the trifling outlay of expense and labor—of a few cents and a few hours—to secure those blessings for themselves and families? Mercenary considerations alone—the ruling passion—should prompt to the planting of fruit trees. One of our neighbors has been in the habit, for years, of receiving from $500 to $1,000, for the fruits of his garden, after supplying himself and a large circle of friends. Another once pointed to a fine black heart cherry tree in his garden, and remarked, "the fruit of that tree has brought me fifty dollars." The tree might have cost him fifty cents, and the planting fifty minutes of time. This was ten years ago, and the tree still continues to render its annual tribute. We know a Siberian crab, the fruit from which brings the proprietor from eight to twelve dollars every other or bearing year; and of a farmer's garden, from which the currants, besides the liberal use of this fruit in his family, afford an annual income of some twenty dollars. The planting of the cuttings for these did not cost three hours' labor.

But in our zeal to commend the practice of planting, we must not forget to give some hints as to the method of doing it. A tree is like a plant of corn, or of any other farm crop: it will prosper and repay for labor, according to the soil in which it is placed, and the attention bestowed upon its culture. The soil must be good, to afford the necessary food for its sustenance and growth; it must be loose, that the roots may penetrate readily in search of food; it should be free from habitual wetness, as an excess of water will injure, if not destroy it. Like farm crops, too, it depends, for its development, and the maturation of its fruits, upon the unobstructed agency of light and air. Hence it should not be planted below its natural depth in the soil, nor shaded by other trees, nor encumbered by shrubs, weeds or tall grass. Water is the medium by which food is transmitted from the soil to the plant, and is required, therefore, to be always present in the soil to ensure the growth of plants. In transplanting, make your holes as deep and broad, not as the roots require when transplanted, but as they are likely to extend the first season after being transplanted, and fill this hole, as you put in the tree, with rich surface mould, or at all events the lower stratum, which the roots are destined to penetrate in search of food; tread the earth firmly around the roots, when they are covered, to bring it in complete contact with them, and to prevent the evaporation of moisture, which latter evil will be further prevented by spreading some coarse litter upon the surface about the stock of the tree. Two or three potatoes may be thrown in about the roots, before they are covered; and a bucket of water, thrown in when the hole is partially filled, will tend to bring the earth in contact with the roots, and supply needed moisture. The transplanting of evergreens should be delayed till the new growth has commenced, in this the latitude the last of May.

Samuel Preston on the Apple.

We find in the second volume of the Memoirs of the Philadelphia Agricultural Society, an interesting letter from this old acquaintance, on the culture of the apple tree. Mr. Preston was an early settler at Stockport, in the county of Wayne, Pa.; he planted much orcharding, and personally superintended its management. From this letter we abstract the following hints:

A loose gravelly soil Mr. P. believes is best adapted for an apple orchard, a high and airy situation, and a north aspect, as most secure from the late frosts in the spring. He recommends that horse dung and litter be spread around the tree, to keep the ground loose, and free from sod, and, he might have added, to prevent evaporation of moisture, in a dry time. The trees whose fruit was affected with the bitter rot, Mr. Preston caused to be stripped of their bark from the roots to the limbs, at mid-summer, a practice which we have seen successfully performed to renovate trees that had become cankered and mossy. This operation prevented the bitter rot upon the fruit, though it injured the vigor of the trees. We think a better, and perhaps the *best* mode, of giving health and fruitfulness to apple trees, on dry bottom lands, is, to take off the ross, and moss, with a hoe, or other instrument, and then to wash the body with a strong ley, late in May, or early in June. This destroys insects, and imparts health and vigor. His mode of destroying the caterpillar, was to go early in the morning and twist their nests out of the tree with a stick or pole. The Pickering brush is better. He recommends the planting of natural trees, and that they be grafted with choice fruit when they have attained a good size—and commends the seek-no-further—now considered but a second rate apple. He sowed plaster *under* a part of his trees—a frost followed;—the blossoms were all destroyed, *save upon the trees under which the plaster was sown.* He thinks the plaster attracted the moisture, and prevented frost. This we doubt.

From Mr. Preston's experiments in grafting, we abstract the following: He inserted grafts which came from England and France, which generally grew. He received plum grafts from Esopus, in midwinter, which had come from Holland. He laid them in his cellar till the proper time for inserting them, and they grew well. He made cuttings the 15th September, carried them two days' journey in his pocket, till they were much shrivelled, preserved them till grafting time *under a sod,* then grafted them, and they all lived. He cut grafts in October, kept and grafted them in the same way, and they all failed to grow. Grafts were cut and sent to him in June, when the laeves were nearly of full size—they grew and did well. He took grafts from Albany in March, preserved them carefully, inserted them properly, and yet only two out of many lived.

Rotation of crops.—There need not be a stronger argument adduced, in favor of the system of alternating crops, than a condition which is generally inserted in the Scotch leases—*prohibiting the tenant from taking two white crops,* i. e. of small grains, *in succession,* from the same field—because such repetition tended to impair the intrinsic value of the land.

Long Manure.—"Were the practice general, [of using dung in its unfermented state] it would add above twenty millions sterling to the produce of the kingdom." So said Arthur Young. This should be received here with the qualification, that it should be always applied to Indian corn, potatoes, and other hoed and autumn-ripening crops. Unfermented manure, when applied in any quantity, *is* prejudicial to the small grains generally, and to all crops which ripen their seeds at mid-summer; but *it is not* prejudicial to the crops we have named, or others, which ripen their seeds in autumn. The farmers of Schoharie, Otsego, Oneida, Madison, &c. who are in the habit of *summer yarding* their dung, under an impression that it improves, like wine and cheese, by age, need not be afraid of hurting their corn and potatoes, by feeding these crops with long manure, and to them the remark of Arthur Young, applied under our limitation, may be turned to vast profit.

On the use of Gypsum.

There is not any longer doubt, in our mind, of the advantage of applying gypsum to all our meadow lands, in the spring, which are beyond the influence of marine atmosphere, and which are habitually dry. There are instances recorded, to be sure, of its not producing perceptible benefit the first year, and some instances where it did not seem to operate even the second year, and yet it ultimately developed its fertilizing properties.

We do not design now to discuss the question, *how* gypsum does operate—but to inquire and state, from the facts within our reach, to what crops its application is particularly beneficial—on what soils its effects appear to be greatest—how much should be applied to the acre, and at what season it is best applied. We are satisfied, that if the value of gypsum was better known, it would be much more extensively used than it is; and that the more it is used, the greater will be our agricultural surplus.

Gypsum, according to Chaptal, consists of

Pure calcareous earth, or lime, ...	30 parts, or	33
Sulphuric acid, ...	32 "	43
Chrystalized water, ...	38 "	24
	100	100

It requires from 450 to 500 times its weight of water to dissolve it. When pure, it does not effervesce with acids; it is insipid in taste, and free from smell. A simple mode of trying its quality, consists in putting a quantity of it pulverized into a dry pot over the fire, and when heated it gives out a sulphurious smell. If the ebullition, or bubbling, which then takes place, is considerable, the plaster is good; but if it is not, it is considered indifferent; and if it remains motionless, like sand, it is not thought to be worth any thing. Its colour is white, gray or blue. Its effects, in benefitting agriculture have been greatest in Germany and in the United States. Its benefits in Great Britain and France have been less certain.

The soils upon which gypsum operates most beneficially, are the light, dry, sandy and gravelly. Upon soils containing little or no vegetable matter, its effect is trifling; but if these lands are dressed with dung, the gypsum then produces a great effect; and the dung being present, the poorer the land, the greater its benefits. It seldom produces any sensible effects upon wet grounds, and frequently none upon stiff clays.*

The crops which are most benefitted by gypsum, are the clovers, lucern, Indian corn, peas. There are some few cases noticed of its being found beneficial to wheat, and other small grains, but it is the general received opinion that it does not operate directly on these. But gypsum may be made indirectly beneficial to all crops which are grown upon a clover lay, by causing a greater growth of clover, which becomes food for the crop which follows, and which is abundant in proportion to the rankness of the previous clover. Its effects upon turnips is doubtful; and some will not allow that it is beneficial to potatoes. Davy lays it down as a fact, that it is most beneficial to those plants which always afford it on analysis; and the small grains are not found to contain it at all. Many instances are given where its application has doubled and tripled the clover crop.

The quantity which should be applied to the acre is a point quite unsettled; and it should probably be varied according to soil and circumstances. John Taylor, of Virginia, and Judge Peters, of Pennsylvania, concurred in opinion, that on lands where it was applied annually, one bushel an acre was an ample dressing. In Europe it is recommended to dress with or five or six bushels an acre. We have generally sown but a bushel; but last spring, by way of experiment, we doubled the dressing on a portion of a meadow, and found the grass there much the heaviest. It is advisable to try it in different quantities, and to note the result of each, as a guide to future practice.

The time of applying gypsum is generally in the spring, sometimes as late as May or June. The writer of British Husbandry recommends, with much plausibility, that the gypsum be applied to clovers semi-annually, viz. soon after the crop is mown, in summer, and in the spring, just after the plants have begun to shoot. We will be thankful for memoranda of any experiments that may have been made in this practice in our country; and also, *whether it produces a better effect when laid on in dry, than in wet weather?* The work from which we have just quoted, dwells with emphasis on the importance of having the gypsum attach to and remain upon the leaves of the young plants—and repeats the charge to sow it when the leaves are wet with dew, or with a recent light rain, —and never just preceding or during a rain. Prof. Low says, that mineral substances, as powdered lime and gypsum, are absorbed through the pores of leaves, when scattered upon them. A watery temperature, it is alleged, at least arrests its effects, and seems to suppress them altogether if the gypsum has been calcined, a process which it is sometimes subjected to, to facilitate its reduction to powder. Burning, however, merely expels the chrystalized water, without otherwise altering the gypsum, the strongest heat not being sufficient to expel the sulphuric acid. When applied to tillage crops, it should be either sown broadcast in spring or scattered upon the hills or drills of the growing crop. Upon the principle quoted above, the latter would seem to be the better practice in regard to hoed crops; though our mode of applying it to corn has been to sow it broadcast before the ground is harrowed for seeding. When applied at the rate of five or six bushels to the acre, the effects of a dressing have sometimes continued some four or five years. The most common practice is to sow it annually, upon the crops and grounds likely to be benefitted by it, and to sow it in quantities from one bushel to two bushels on the acre.

To determine the capacity of gypsum for absorbing moisture, an ounce and a half, in fine powder, was exposed to the air during three foggy nights, and afterwards carefully weighed, when it was found to have gained not quite half a grain in weight. This fact overthrows the theory, that plaster is beneficial on account of its capacity and tendency to imbibe moisture from the atmosphere.

The benefits of gypsum are so palpable in our country, upon clover and some other crops, and indirectly upon nearly all, that we cannot but hope these remarks will serve to extend its use upon our farms, and to induce many to try it, who are experimentally ignorant of its fertilizing powers.

Economy of Manures.

Parkhurst, an eminent British farmer and agricultural writer, who resided some years near Baltimore, in speaking of our economy in manures, says, that

> "The farm yard manure in that country (the United States) is of little value; for it is ill-managed, the straw weak, and the generality of the horned cattle so poor, that their dung is light and worthless."

Now if this charge be true, as there is too much reason to believe it is, let us not scold at the exposure of our fault, but set to work in earnest to remove the reproach, by making our straw stronger, our cattle in better condition, and our manure, consequently, more abundant and valuable.

An advantage of a calcareous soil.—Calcareous soils, and soils dressed with lime, are stated, in British Husbandry, to possess the advantage of guarding the sheep which graze upon them from the rot, and also from the foot-rot.

The new lands of Kentucky wearing-out.

"Injudicious cultivation for a series of years," says the Franklin (Ky.) Farmer, "has robbed much of the soil of Kentucky of its freshness and fertility; and her agricultural sons must now *either content themselves with more sparing crops than repaid the labors of their fathers, or seek for richer and more fruitful fields in the far distant west or south.*" Kentucky became a state, we believe, in 1791. If fifty years "injudicious cultivation," has sufficed to impoverish the so late fertile soil of that state, it affords but another evidence that our system of husbandry is wretched bad, and shows the necessity of a prompt and thorough change. The Flemish soil is generally light and moist, and much of it was absolutely incapable of growing farm crops in its natural state. Yet the skill and industry of the Flemings have rendered it the most productive agricultural district in Europe; and its fertility is still on the increase. Houston, a distinguished British agricultural writer, has shown, that the Flemings get twice as much produce from their lands annually, partly by double cropping, as the English get from a like quantity. That country has been improving in its agriculture for eight hundred years. "In the Pays de Was in Flanders," says Sinclair, "the soil was originally a barren white sand, which by a slow but sure process has at last been converted into a most fertile loam." The county of Norfolk, in England, but a few years ago, was perhaps the least productive district in England; but by judicious management it has now acquired a fame in husbandry, which, in the words of the author just quoted, far surpasses that of other districts far more fertile. "Necessity is the mother," not only of "invention," but of industry; and hence, in poor districts, where nature has done least, we find men doing most; and hence rich lands are suffered to deteriorate, while art and industry are augmenting the fertility of poor ones.

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* See communication of Mr. Bayard.

Cicero, in eulogizing Socrates, passes a just encomium upon that philosopher, when he says—"He conceived the thought of bringing down philosophy from heaven, to place it in cities, and introduce it into private houses; humanizing it, to use that expression, and rendering it more familiar, more useful in common life, more in the reach of man's capacity, and applying it solely to what might make them more rational, just and virtuous." Now we want a Socrates to do all this for our farming community—to bring down the philosophy of science to the useful purposes of life—to place it in our dwellings—to apply it upon our farms; to ruralize it, render it more familiar, more useful, more in the reach of our capacities, and to make it the companion and guide of agricultural labor. This would teach us *when*, and *how*, our soils become exhausted, by "injudicious management," and instruct us in the means of *preventing* the loss of "their freshness and fertility," without diminishing their products or income. It would teach us, also, how to render lands productive which are not so naturally, and to simplify and economize labor in all the departments of our business. But alas! we have no Socrates to render us these kind offices—no schools in which the young farmer can acquire these useful aids to his labor—no public guardians that take cognizance of these highly interesting concerns. Our only alternative seems to be, that which necessity often calls forth on emergencies—we must each become a "*Rural Socrates*," and like the Swiss peasant, upon whom this title was justly bestowed, and whose memoirs we intend shortly to notice, become self-teachers, in the philosophy which instructs, dignifies and rewards rural labor. The means are accessible, and success, to the young at least, will be the result of perseverance.

We subjoin to our remarks a further extract from the article quoted from as our text, with remarking, that we very much fear that his object, scientific knowledge to the farmer, cannot be reached through the means he proposes—geological surveys. This may do something, but no great. Science rows with *one* oar—practice with *another*—and the boat will only go ahead, by the propelling influence of *both* oars, operated upon simultaneously. Now geologists, very properly make the *science* of geology their study, and, were they disposed, they seldom have the practical knowledge necessary to render it of great service to the agriculturist. We must combine the practice with the theory if we would gain useful instruction. And the only way we can conceive of doing this, is to have schools of theory and practice combined—that when boys find themselves at fault in practice, they may discover the cause and apply the remedy from the theory; and that where the theory is obscure or doubtful, they may solve their doubts, and establish their principles, by resorting to practice. If a new implement, or a new principle, is recommended for our adoption, prudence suggests that we try before we adopt it. If an operation in husbandry fails to realize our expectations, we naturally wish to know the cause of failure, and the means of averting it in future. This we generally alone learn from the philosophy of science, which seems to have been dispensed to us for the wisest purposes—to incite to study, to reflection, and to perseverance. But in our enthusiasm on subjects of this kind, we had like to have forgotten our promise, which was to give another extract from the Franklin Farmer. It follows:

"But in his first efforts to improve, the practical farmer is met by difficulties which he cannot surmount alone. He has been bred in the school only of *practical* agriculture, and though he has learned, and practised with success, many of her best lessons, he is now at fault,—and is seen to sink back in apparent despair, and exclaim, what can agriculture do without the light and help of science? He has seen a sickly and dwarfish plant growing where in years gone by it was vigorous, thrifty and prolific, and he does not fully understand the cause. He has seen his fields waving with a luxuriant and promising crop, and just as his hopes were about to be crowned, he has put the sickle to the harvest, and gathered little but disappointment and vexation. He asks himself the reason why,—in vain, for practical agriculture has not taught him that. With unwearying perseverance he tries again the fortune of another season, in hopes that by different cultivation, or more extensive manuring, or a change of crops, to meet with more success. But he is unacquainted with the character and condition of his soil, with the qualities and properties of the different manures, and with the adaptation of particular crops to particular soils, and again his well meant efforts are but half successful. He is constrained to acknowledge that without the light of science he is but groping in the dark, along a path which may lead to fruitfulness to-day, and to briars on the morrow."

Staggers in Swine.

Our attention has been drawn to this subject by the loss of several pigs in our neighborhood, and one of our own, by a disease denominated *the staggers*. We find in the second volume of the Memoirs of the Philadelphia Society for Promoting Agriculture, a communication from J. P. De Gruchy, of much interest. Mr. G. kept from 100 to 250 hogs, and lost annually several—six, eight and a dozen being taken in a few hours. They were generally attacked in the month of September. The hog would all at once turn round very rapidly, and if assistance was not at hand, would in less than half an hour die. Bleeding and brimstone were applied with but little success. At length one of his workmen put into his hands an old pamphlet printed in the year 1707, in which he found the following prescription for what he considered the staggers: "You will see a bare knob in the roof of the mouth, cut it and let it bleed, take the powder of loam and salt, rub it with it, and then give him a little urine, and he will mend." Mr. De Gruchy employed the remedy for several years, with almost unvarying success; but although his hogs generally recovered, they never throve so well afterwards. The disorder is generally confined to pigs and hogs of middling size.

Mr. De Gruchy mentions another disease which attacked his best hogs (in pen) in August, and which carried off thirteen in a few days. He denominates it the *sore throat*. The hog would often be dead in ten minutes after he was attacked. He bled the fourteenth that was attacked, and had him carried and laid in a clover field, and he recovered. The remainder of the hogs were then turned into the clover field, and the disease disappeared. This was done annually afterwards, and the hogs had neither staggers nor sore throat. It is now a well established opinion, that hogs should have access to pasture, in summer, or at least to the earth, to preserve their health.

On Climate, and the Means which may be Employed to Modify it.

There are considerations in regard to climate, which should obtrude upon a man who is about to fix his residence for life; and there are artificial means by which it may be partially modified by him who is already located in a bad one. By climate, we do not mean portions of country which are bounded by parallels of latitude; but we mean a district, a tract or a farm, differing in temperature, from local causes, from other districts adjoining. The local cause of this difference may be elevation, contiguity to marshes or waters, aspect, capacity of the soil for imbibing or retaining heat, &c. All of these circumstances have a bearing upon the products of agriculture, and most of them upon the health and comfort of the population.

A district is rendered comparatively cold, by being mostly covered with wood, by the contiguity of marshes, by being elevated above the surrounding districts, and by open exposure to bleak winds. The two first render the air moist, and cause a greater range between the extremities of heat and cold; the rays of the sun are partially excluded from the ground; evaporation is prevented; and the miasma which is often generated is prejudicial to the health of man and beast.

Altitude has a manifest influence upon farm crops. One hundred and eighty feet elevation produces a difference in temperature equal to a degree of 69 miles of latitude. In latitude 54 and 55, in Scotland, Sinclair tells us, 600 feet above the level of the sea, is the greatest height at which wheat will grow, with any chance of repaying the husbandman for his labor.

The quality of the soil and subsoil have an influence upon the temperature and products of a farm. If these are hard and retentive, and particularly if flat, the surplus rain-water does not pass off; solar heat is prevented from penetrating; the soil is cold and sour, and the finer crops cannot prosper. But if the soil consists of sand, gravel, or friable sand loam, and the surface has much of a slope, the excess of water passes off, the heat penetrates freely, and vegetation is healthy and comparatively vigorous, even though the subsoil is somewhat tenacious. A moderately undulating, or rolling surface is, therefore, better for farm purposes, particularly for arable husbandry, than a flat surface, or than a precipitous one, where the finer particles of the soil are liable to be washed into the valleys by heavy rains.

Aspect, in hilly or mountainous districts, is a matter of consideration with the farmer. The soil on the northern slope of a hill is generally richer than on a southern slope, from the circumstance that it is less liable to be wasted by alternations of freezing and thawing, and the effects of rains: But that on the southern slope, being more exposed to the influence of the solar rays, is warmer, and more congenial to grain, and other tender crops; while the north is best adapted to pasture and meadow.

The artificial means of ameliorating a severe climate, consist in diminishing the wood, and exposing more of the surface to the sun's rays; in draining the marshes and wet grounds; in planting the crowns of the hills, and the exposed quarters of the farm, with timber or other trees, where these points have been imprudently bared of their wood; by making small inclosures, divided by stone walls, hedges or belts of timber; by cultivation, and by ridging, and by blending light and friable soils with those which are heavy and stiff. By employing such of these means as are best adapted to the location, much may be done to ameliorate climate, and to render it salubrious. When the surface of the ground is broken, water subsides into the soil, instead of either resting on it, or being thrown off in torrents, often a source of much mischief; and if the surface is formed into ridges and furrows, water is drained off, and the soil is enabled to imbibe the salutary rays of the sun, and the genial influence of dew and air, and may be worked earlier in the spring. We consider it a great defect in northern husbandry, that on flat surfaces, and tenacious soils or subsoils, the lands are not more generally thrown into narrow ridges and furrows, that the winter and heavy rains may pass off as they fall. The above remarks, so far as regards the effects of draining and culture upon climate, we have seen verified in our own practice. The small spot which we improve, when it came under our care, contained much low marshy ground, and abounded in springs, and in wet seasons with waters concentrated in pools upon the surface. The tendency of all this was to render the air cold and humid, and unhealthy, and the crops liable to be injured by late and early frosts, from which the neighboring district was exempt. A thorough system of draining and good cultivation has effectually remedied these evils, and enabled us to work our lands earlier, and to bring our crops to earlier maturity—while the healthiness of the neighborhood has been correspondingly improved. We have done something towards sheltering our grounds, by preserving, where we could, a growth of wood on the exposed quarter, by planting it at other points, and by the culture of live fences.

As marshes and shallow waters are prejudicial to the health and climate of a neighborhood, large bodies of water, like those of the great lakes, which do not freeze over in winter, have a contrary tendency, and particularly to ameliorate the severity of winter, by the quantity of caloric which they give off at that season. Thus the mean temperature of the winter months is several degrees lower at Albany and Buffalo, than it is at Rochester and Oswego, or any where along the southern borders of lakes Ontario and Erie.

In our northern latitudes, every artificial means that is available should be employed to ameliorate the climate. We have many crops that require a combination of favorable circumstances to bring them to high maturity, and in a vast many instances their product is greatly diminished by early and late frosts, which in many cases might be averted, partially if not wholly, by a timely attention to the suggestions which we have now made. Indian corn, for instance, in late years, in order to ensure its maturity, requires to be planted on a warm dry soil, in which sand greatly preponderates, which imbibes heat readily, can be worked and planted early, and that the auxiliary aid of unfermented manures be employed to increase the warmth.

Olden Times—1795.

CANKER-WORM.

Referring again to the first volume of Memoirs of the Society of Agriculture, &c. the next paper that we shall notice, gives us the character and habits of the canker-worm, and suggestions for preventing its ravages upon our apple trees, by Dr. S. L. Mitchill.

The Doctor tells us, that Forskall has enumerated twenty species of insects which prey upon the apple tree, seventeen of which are *phalœnas*, (millers,) of which the canker-worn is one, and more destructive than the rest. This insect in its miller state, conceals itself in holes and under the shaggy bark of the tree. The male has wings, and flies, but the female appears to have no wings, and ascends the tree by creeping up the body. The doctor had noticed them as early as the 25th March, on Long-Island, which was the period of their copulation. Soon after the female, guided by instinct, crawls towards the extremities of the branches, and deposites her eggs where there is likely to be an abundance of foliage to nourish her progeny, and dies. The same degree of heat that causes the leaf to expand, vivifies and hatches the eggs. The worm attacks the tender foliage, the elaborating organs, and thus deprives the blossoms of their proper nourishment; and if the blossoms do expand, they are either destroyed, or become abortive, for the want of elaborated food, which the leaves can only furnish. The tree becomes unhealthy from the like cause, and is cankered and covered with moss. Such is a brief notice of the habits of the canker-worm.

As preventives of the injury they cause, the doctor suggests the scraping off all the loose fragments of bark, an excellent practice from other considerations, and which may be readily done with a hoe, taking care not to wound the fresh young bark; also, tarring the bodies of the trees, or other impediments to prevent the ascent of the females. For the latter purpose, a hair rope has been recommended, wound once or twice around the bole of the tree. By making the bole clean and smooth, the insect is deprived of its winter shelter, and is exposed to destruction, in its ascent, from birds, which soon begin to make their appearance.

The canker-worm does great injury to orchards, particularly at the east. The late T. Pickering turned his attention to the means of prevention, and made a brush, similar to a bottle brush, though larger, and of a conical shape, which being attached to the end of a pole, is effectually employed in destroying the worm after it has formed its web upon the tree. This brush, denominated the Pickering brush, and sold by our seedsmen, we have successfully used for many years. It is our practice, when the leaf buds of the apple tree begin to burst, to send a man or boy into the orchard, with this brush, properly rigged, while the dew is on, or the weather damp, at which times the young worms are concentrated at a point which may often be covered with the thumb, and hundreds of the nests, with their inhabitants, may be destroyed in two or three hours. When within reach, they may be crushed by the hand, and when farther removed by the stiff hairs of the brush, which, by a turn or two, collects and brings down the web. At this period almost every nest may be descried; and if any should escape notice, they may be seen on a second visit, which may be made a week afterwards, when the worms and their nests become more conspicuous. A day has served to go through an orchard of three or four hundred trees, planted from ten to fifteen years, and to destroy these pests in their germ.

ON PRESERVING AND PROPAGATING TREES.

This is a report from a committee appointed to examine this subject. It relates principally to forest timber, a subject which is daily acquiring increased importance with us. The principal points suggested in this report are the following:

1. That woodlands should be inclosed, to guard the young growth from cattle and sheep.

2. If the wood is old and decaying, it is most profitable to cut clean, and let the land lie for a new growth, which will thus have an equal advantage of sun and air. If inclosed, nature will do all the rest, and much better than art or labor.

3. This mode of propagating wood and timber is profitable upon poor land. One of the committee purchased ten acres of poor land, which had just been cleared of its wood, at $2.50 per acre; and in twenty years the growth of this wood had enhanced its value to $12 an acre.

4. When sprouts have been nipped or bitten by cattle, cut them close to the ground: new sprouts will immediately shoot up, straight and vigorous.

5. Woods ought not to be thinned too much, lest it cause the decay of trees, and by encouraging the growth of weeds, &c. prevent their growth. It may be added, it bares them to the unaccustomed force of the winds, which often does serious injury, as is often witnessed in groves of sugar maple, which have been deprived of their protection, by the other timber having been cut away.

6. Woods intended for timber are excepted from the preceding rule; as that growing in thick shade, and moist air, is not so hard and tough as that which has the benefit of the sun and free air. Upon this we remark, that *timber* trees ought to be of the second, not of primitive or forest growth. The best timber trees are from isolated clumps, or belts along permanent division fences, as we have seen in Pennsylvania, of second growth, where trees are thin from the outset, and not where they are made so by the axe, after they have attained to large size. These belts, by the bye, we particularly recommend to the notice of our readers, not only as an economical mode of obtaining timber and fuel, but of giving shelter to cattle and crops, and as imparting beauty and health to the farm and landscape. The remark is particularly applicable to the bleak exposures of the farm, as the west, north and north west. Crops are specially benefitted by the shelter they afford in winter; and both cattle and crops are benefitted by them in summer.

7. Recommends, that upon all poor and stony lands, unprofitable for tillage, the growth of trees be encouraged, as the most profitable use to which they can be applied. It also gives directions for planting the acorn, the oak being deemed the most valuable tree to plant; but these directions apply to the seeds of many other forest trees, many of which are worth propagating in this way, as the maples, beech, ash, &c. The directions are, to gather the acorns in the autumn; make a bed of loam two inches deep; on this plant the acorns two inches deep, we should say one inch; over them lay another bed of six inches of earth; over that another layer of acorns, and so on, as far as occasion requires. Cover the whole to preserve them from frost, and plant them where they are permanently to grow. We consider the last as unnecessary. The seeds of all forest trees, as they fall and lay, are exposed to frost naturally, and yet they do grow; and so they will grow if artificially managed.

8. Directs the mode of planting the seeds where it is intended to grow permanently,—which is, to make a hole with a pick axe, drop the acorn, and cover it with two inches of earth. We dissent from this. A plantation is as much benefitted, by the ground being previously broken and pulverized by the plough and harrow, as a cultivated crop—and it should be so prepared before the seeds of forest trees are deposited in it. A mistaken idea is too common, that trees and shrubs should live, and grow, and thrive, any where they may be planted, without reference to the nature and condition of the soil in which they are planted, or to the care which is afterwards bestowed upon them. Trees are like cultivated crops. They derive their principal nourishment from the soil. The more food they can find there, adapted to their wants—the more facility that is afforded them, by a mellow soil, of extending their roots, to obtain this food—the greater will be their growth, and ultimate product. A man who would derive extra advantage from his trees, must bestow upon them the care and attention he would upon a favorite animal or favorite crop.

9. Directs, as another mode of propagating the oak, to *pare* the earth with a plough, to plant the acorns in rows, and cover them with the turf. We would, for the reasons already stated, substitute, *plough and harrow well*, for pare, and direct the acorns to be then planted.

10. Recommends that the society take steps to encourage the cultivation of wood upon the sea coast, not only as a means of furnishing fuel and timber, but as a means of fertilizing the soil: the leaves of forest trees which fall in autumn, producing a rich mould.

Efficacy of nitre in steeps of seed grain—a paper by Robt. Johnson, Esq. then a senator from Dutchess. After stating his own experience of its benefits in a steep for seed corn, he states a prominent case of its benefit to seed wheat. His neighbor sowed his main crop of wheat at the usual time, a fortnight later he sowed another parcel, the seed of which was steeped in a pickle in which salt petre had been dissolved. The latter ripened first, although the seed and the soil were the same as the first, grew four inches longer, and was at least twenty-five per cent better than the early sown, and which had not received salt petre.

Analogy between Medical and Agricultural Education.

The physician and surgeon, to qualify them for their professions, of preserving life, are required to study the anatomy of the human frame, the functions of every part of the system, and the nature and quality of whatever is requisite to administer to its wants, or to avert or remove the ills which it is heir to. Without this knowledge he can but *guess* at the cause or seat of disease, and of course his prescriptions must be questionable, and often hazardous. A knowledge of these matters cannot be acquired by bare practice. It must be obtained from the teachings of ages—in schools of medical science—in the dissecting-room. Hence the laws of every civilized people require in the pupil this preliminary study, before he is permitted to practice the art professionally. And no intelligent man, who justly appreciates the necessity of the science to perfect the art, likes to trust his health and his life, in the hands of a pretender, who knows nothing of the great principles of the business which he professes to practice.

So with husbandry. It embraces principles of science, upon which good modes of practice must necessarily be based; and without a knowledge of these principles, the labors of the farmer, like the prescriptions of the quack, must be either *guess work*, or confined to the routine in which he has been instructed. His soil and his animals are liable to sterility and disease which he is ill-qualified to cure. Unless he knows something of the composition of the one, and the anatomy of the other, as branches of natural science, he is not likely to discover the true cause of an evil, nor to apply to it the right remedy. We will give a single illustration in the alternation of farm crops. It is now universally admitted, that the alternation of crops is highly conducive to good husbandry. But why is it so? Science, who expounds the laws of the Creator, in regard to inanimate matter, not only furnishes a satisfactory answer to the question, but suggests the classes of farm crops, and the order of succession, that ought to alternate and follow each other. Again, —gypsum, lime, marl and ashes, are beneficially applied to some soils, to some crops, and in some seasons, while they are not beneficial upon other soils, to other crops, or in other seasons. Science can alone explain these seeming contradictions. In a school of scientific and practical agriculture, in which a series of experiments should be continually going on, these problems would ere long be solved; rules of practice would be laid down; the results, and the natural causes of these results, would be explained, and the community, and every member thereof, who had a latent spark of improvement, or the ambition to improve his condition, would seek for, practice, and profit, from the discovery. In this, agriculture differs from most other professions. While in other professions, the benefits of improvement may be monopolized by an individual, or a small number, improvements in husbandry are accessible to all, who are not too conceited to learn, or too indolent to practise, from the examples of improvement which are every day making around them.

The result of the analogy which we have drawn, between medical and agricultural education, is this,—that science is equally beneficial to both; that while the one is destined to preserve and prolong life, the other is charged with nourishing it, and of multiplying its comforts and enjoyments; and that both are, consequently, entitled to the protecting care of an enlightened community.

Pruning Fruit Trees.

This operation is directed to be performed, by a writer in the Horticultural Register, *in the winter*. The common practice is to prune *in the spring*. Both we conceive to be wrong. It is unnecessary again here to repeat our reasons, for pruning *at mid-summer*, as we have already twice published them in the Cultivator. We will only add, that our opinion in this matter is fortified by the philosophy and practice of the late Rev. Dr. Dwight—(see last Cultivator)—and by four years' observation and practice in our own grounds. We prune in the last of June and first part of July. We earnestly recommend a *trial* of the practice.

The objects of pruning are at least three fold. We trim shade trees to produce symmetry of form. We trim forest trees to produce a handsome and valuable bole, or stem, for timber. And we prune fruit trees for the double purpose of giving them a good shape, and of inducing them to bear well. To the pomologist that shape is most handsome, in a fruit tree, which indicates the best bearing qualities. It is remarked, particularly of the apple, that upright shoots produce less abundantly than those which grow horizontal, or deviate materially from an upright form. Hence, in forming the head of a young apple tree, it is customary to take out the upright shoot, when the tree has attained a proper height, say seven to nine feet, and to leave three or four laterals or limbs to form the head. And as pruning does not increase the quantity of wood, but has a different tendency and effect, by lessening the leaves, which are the organs of nutrition, the upright shoot should not be taken out until the laterals have acquired considerable wood and foliage. In pruning fruit trees, all limbs which are likely to interfere with each other, should be taken out while they are small. The head of the tree should be kept open, so as to admit light and air, essential to the maturity of the fruit. In pruning all trees in the nursery, the limbs should be left always upon one-third of the stem, that is, only two-thirds of the stem should be denuded of limbs.

Tunis Mountain Sheep.

About thirty years ago this breed of sheep excited much attention in Pennsylvania, and the more southern states, several having been imported by Judge Peters and Commodore Barron some years before that time. They belong to the broad-tailed, or five quarter species—the tail weighing from six to sixteen pounds. These sheep were extolled for their great weight, good health, fineness of meat, early maturity, and quality of fleece. Individual animals weighed 175, 192, and 214 pounds alive. Several of the Philadelphia butchers and victuallers certify that their meat was uniformly superior to any in the market, that they fatten with little food, and are uniformly healthy. Maj. Raybold butchered 2,000 broad-tailed sheep, and is decidedly of opinion the meat is better than that of any other sheep, and that the Tunis sheep fattened the most speedy; and "I have slaughtered," says the Major, "half and three-quarter blooded lambs, many of them weighing fourteen and fifteen pounds a quarter." We should be very much obliged to any correspondent, who would furnish us an account of the present condition, value, &c. of these broad-tailed sheep.

It is matter worthy of note, that the Merino sheep of Spain are supposed to have attained their present high character from crosses with rams from the north of Africa, perhaps of the stock from which the present Tunis breed have descended. These crosses, and consequent improvement of the Spanish flocks, are thrice noticed in history—first in the time of the Romans, by Columella; thirteen hundred years after that by Pedro IV. of Spain; and again by Cardinal Ximenes, two hundred years subsequently.

Humus—Humic Acid.

As we have already observed, these are terms applied to the fertilizing matters in the soil, which are produced by the decomposition of animal and vegetable substances, placed there by nature or art; and which, through the agency of heat, moisture and air, are converted, after death, into the pabulum, or food, of the farmer's crops, and ultimately into animal food. Philosophers may mystify the subject—but after all, it is enough for the farmer to know, that these highly fertilizing matters, are nothing but DUNG, deprived of it gaseous properties, which by the bye are equally fertilizing, by the process of fermentation—they are organic matters, principally carbon and hydrogen, variously modified, according to circumstances, by the addition of oxygen, nitrogen, salts and earths. All the farmer has to do, to obtain this valuable food for his crops, is judiciously to deposite the raw material—the dung—in the soil, and the elements—nature—will readily perform the manufacturing process. But further to satisfy the scientific, or curious, we proceed to quote the remarks of some of the best modern investigators in the matter. We will begin with what we deem the *highest* authority, Thäer, the head of the Prussian School of Agriculture.

"Besides the four essential elements of its composition [oxygen, hydrogen, carbon and nitrogen,] humus also contains other substances in smaller quantities, viz. phosphoric and sulphuric acids, combined with some base, and also with earths and salts. Humus is the product of living matter, and the source of it. It affords food to organization, [i. e. to animals and vegetables.] Without it nothing material can have life. The greater the number of living creatures, the more humus is found; and the more the humus, the greater the supply of nourishment and life. Every organic being in life adds to itself the raw materials of nature, and forms humus, which increases as men, animals and plants increase in any portion of the earth. It is diminished by the process of vegetation, and wasted by being carried into the ocean by its waters, or it is carried into the atmosphere by the agency of the oxygen of the air, which converts it into gaseous matter."—(See Thäer, *Grundsatze der Rationellen Land wirthschaft*. Berlin, 1810. 4 vols. 4to.

We ought to have stated, that what is now more generally distinguished by the term humus, first attracted the philosophical investigations of Sprengel, who noticed it in exudations from the bark of the elm, and denominated it ulmin. We quote next from the Penny Cyclopædia, p. 221.

"This substance has been called *vegetable mould;* but as this is not a very distinct term, we shall, after Thäer and other eminent writers on agriculture, adopt the name of *humus* when speaking of it. *Humus* is a dark, unctuous, pliable substance, nearly uniform in its appearance. It is composed of oxygen, hydrogen, carbon, and nitrogen, which, with the exception of nitrogen, which is found only in some substances, are the elements of all animal and vegetable substances. It is the result of the slow decomposition of organic matter in the earth, and is found in the greatest abundance in rich garden mould, or old neglected dunghills. It varies somewhat in its qualities and composition, according to the substances from which it has been formed, and the circumstances attending their decay. It is the *product of organic power,* such as cannot be compounded *chemically.*"

We close our extracts with one from Raspail, who is distinguished as among the most indefatigable and intelligent chemists of the day. In controverting the theory of Sprengel, which it is not necessary here to particularize, he remarks as follows:

"What we have learnt from experiment of the insolubility of *humus,* and the origin of its apparent acidity, destroys all the authority of the theory which Sprengel and other authors had reared on a different supposition. The part which the *humus* has to act, seems to be merely to absorb a sufficiency of oxygen to furnish the herbaceous part of the plant with the carbonic acid which it is the office of the green substance to decompose for the nourishment of the growing textures; and possibly one day may confirm the idea that, by artificially supplying to the plant the carbonic acid which is necessary for its growth, the use of any kind of manure may be dispensed with(?) In fact, if a small plant be reared in pure sand, taking care to water it frequently, it will thrive and flower without difficulty. It cannot, in these circumstances, obtain the carbon of its texture, except from the small quantity of carbonic acid contained in the atmosphere. The roots, then, transmit to the plant only water and the salts of which it can be the vehicle; and the part which is exposed to the air is destined to absorb the gases which are necesssary for the formation of the textures."

We interrupt the extract here, to object to any hypothesis which dispenses with manure as *indispensable* to the fertility of the soil—to supplying the raw material, artificially, for vegetable mould, or *humus,* which one writer has termed *the cooked food of plants.* The plant in pure sand may grow and flower, by the aid of water and the carbonic acid in the atmosphere, but will it fructify, will it reward the labor of the husbandman who nurses it? But we resume our extracts from Raspail.

"Consequently it is not the leaves of the leguminous plants that absorb the gypsum which is dusted over them, but the roots, when the dew or rain has washed it into the soil; and hence the advantage which has been found of applying this powder a little before the dew comes on."

This hint comes in corroboration of what we have long believed, that gypsum benefits plants through the medium of their *roots,* and not of their *leaves—in* the soil, and not *above* it. Hence we have recommended that it be ploughed or harrowed in on its application in arable husbandry;—and hence, probably, its inefficiency, applied to the surface, in dry seasons, when there is not rain sufficient to carry it to the mouths of plants, or to decompose and fit it for those minute and delicate organs. We add another extract from Raspail, which cannot fail to interest the intelligent farmer.

"The use of quick-lime in the preparation of composts, has no other object than to supply the place of potash, which would be too dear, for the purpose of disorganizing the texture intended to form the manure and of disposing them, by carbonizing, for condensing and combining with the oxygen of the air, in order to furnish that part of the plant which is above ground with carbonic acid, which its leaves may elaborate. So also the ploughing in of the manure has no other effect but to preserve these textures in a state of moisture indispensable to their decomposition. Finally, all these perparations would be useless, if the soil in which these treasures of vegetation have been buried, were either not sufficiently porous to admit the passage of the air into it, or so much so as not to retain, to a certain degree, the air and water which the manure absorbs. Soils that are too clayey, and those that are too sandy, are, in fact, sterile; and, in order to fertilize them, it is necessary to mix them; but, as the textures of plants assimilate principally the carbonate of lime, the fertilizing of the soil is completed by enriching it with calcareous matter."†

Agricultural Society of New-Castle, Del.

At the quarterly meeting of this society in January, a committee appointed to "inquire into the causes of the scarcity and high prices of cattle, and to point out, if possible, the proper remedies by which the large farming and grazing interests of the state may augment their supplies, and maintain their reputation, among the graziers and feeders of the country," reported, among other causes, the following:

"1. The neglect of the farmers in the middle states in raising so small a portion of their young cattle except for the dairy, and universally adopting the culpable practice of selling them for veal, when from four to eight weeks old.

"2. The increasing demand for this description of stock, in the interior of the country, to the west and south-west, hitherto but partial grazing districts.

"3. The moneyed derangement of the country, within the last two years, which has lessened considerably the number of drovers, who from their heavy operations are necessarily dependant more or less on bank accommodations.

"4. The injurious practice which has for some time been operating against the graziers, compelling them to buy stock second and third handed, from companies and individuals, who go out and meet the cattle on their way to market, monopolize the trade, buy up, and retail out to farmers at an advance too great for their profits, or for the good of the public, as to their supply of beef at a reasonable price.

"To remedy in a great measure the first and second evils alluded to, the committee are of opinion that the farmers and graziers of the Atlantic states should all at the same time turn their attention to raising more of their own oxen and store cattle; believing it will pay them well to do so, especially by crossing our large native breeds with the fine imported Durham and Devon cattle of England, now so common amongst us.

"Of this the committee are more positive since visiting the celebrated New-Jersey cattle now in feeding by Mr. Edward Tonkins, of Gloucester county, which are three-fourths Durham from large native cows. Two of his large oxen will now nett, at seven and a half years old, 4,000 to 5 000 pounds of beef; and his three year old stock of the same breed, are now worth, to the butcher, about 120 dollars per head, though they have never been housed in winter, nor had more than a fair and ordinary keeping.

"To remedy the last evil alluded to, your committee unanimously recommend a meeting at an early day, of the farmers and graziers of this county, and the adjoining counties of Pennsylvania, for the purpose of forming an association, that shall, by experienced and competent agents, selected from among themselves, go into the cattle districts and buy in first hands on their account, and bring to stands established in this vicinity, such cattle as shall be ordered by the association; none of which shall be sold or bartered on the way, or disposed of by said agents until after their arrival at said stands, and not then, till sanctioned by the association. In this way alone, the committee believe, will the monopoly and high price of stock be met and regulated by the farmers and graziers themselves, a full supply always ensured to them of cattle of the best quality and at the lowest market price."

In the culture of Spring Wheat, in districts infested by the grain-worm, we feel justified in recommending, from the personal observations we have made, and from the information we have been able to obtain from others, that if the sowing is delayed till the 12th or 20th May, the later as we progress north, the crop will not be likely to be injured by the worm. Grain sown very early *may* also escape, as has been the case with some sown in April; but we want further evidence before we venture to recommend the practice. Should the early sown in any case escape uninjured, or late sown be injured, we shall take it as a favor to be notified of the fact. There were instances in this vicinity of the Italian being sown as late as June, and doing well.

Statistics of American Wool and Woollen Manufactures.

We have been presented with a small volume of 144 pages, duodec. giving a detailed account of the sheep and woollen manufactories in the northern states, and a partial account of the same in the other states; to which is added two valuable communications from Col. Jarvis, of Weathersfield, Vt. and of H. D. Grove, of Hoosick, in this state; the first giving the history of the introduction of the Spanish Merino sheep, and the writer's mode of treating them, and the latter a like history, and his mode of treating the Saxon Merino sheep. These two gentlemen were particularly engaged in the introduction of the sheep they describe. The statistics are compiled by G. Benton and S. F. Barry; and the work may be had at Little's.

The following is an exhibit of the number of sheep in each state, and of the woollen manufactories,—the number of pounds produced in each state, and its value, at 50½ cents, which seems to have been the average price for the last ten years.

	Sheep.	*Sets machinery.*	*Quantity. lbs.*	*Amount dollars.*
Maine, ...	622,619	24	2,023,512	1,021,873
Hew-Hampshire,	465,179	43	1,511,832	763,475
Vermont, ...	1,099,011	100	3.571,786	1,803,751
Massachusetts, ..	373,322	519	1,213,297	612,715
Rhode Island, ...	81,619	80	265,262	133,957
Connecticut, ...	265,169	184	829,299	410,313
New-York, ...	4,299,879	234	13,974,606	7,057,176
New-Jersey, ...	250,000	20	812,500	410,313
Pennsylvania, ..	1,714,640	123	5,572,580	2,814,158
Delaware, ...	150,000	20	487,500	246,187
Maryland, ...	275,000	15	893,750	451,343
Virginia, ...	1,000,000		3,250,000	1,641,250
Ohio, ...	1,711,200	30	5,561,400	2,808,500
Kentucky, ...	600,000		1,950,000	984,750
Total, ...	12,897,638	892	41,917,324	21,168,246

There was imported, in 1836, over and above our exports, 12,296,249 pounds of foreign wool, mostly of coarse quality, costing abroad less than eight cents per pound, and not subject, therefore, to duty.

Of this gross amount of wool, it is estimated that thirty-one millions of pounds were worked up in the manufactories, leaving twelve millions for family manufacture, three millions and a half pounds of which are supposed to be worked up in New-York, three in Pennsylvania, and two in Ohio.

The manufacturing establishments are employed in the following fabrics, viz: in broadcloths 344; cassimeres 178; sattinets 574; flannels 158; jeans, linseys, &c. 210: blankets, yarns and hats 24; carpets 61. Total sets of machinery 1,549.

Hoosick has 37,807 sheep, the greatest number of any town in this state; and Dutchess county 234,294, the greatest number of sheep of any county in the state.

The matter of this volume is interesting to the wool grower, manufacturer and political economist, and we recommend it to their notice.

In regard to Lime,

To be employed in agriculture, we find some new suggestions, and we think important ones, in a communication in the Farmer's Cabinet. They satisfactorily explain why ground limestone is not so good for land as effete lime, or lime which has lost its caustic quality, after being burnt, by the re-absorption of carbonic acid, and furnish useful hints for the application of lime in husbandry. The writer remarks on the first point—

"We cannot, by grinding, destroy the attraction of cohesion in limestone; there will be two or more atoms adhering. While this is the case it never will be converted into a super-carbonate. Destroy the attraction of cohesion, as the result shows is done by burning and slaking, and it will ultimately be converted into super-carbonate, when incorporated with the soil; is then soluble in water, and acts beneficially or injuriously, as the quantity is in accordance with the wants of the plant, or in excess, as other manures do."

Upon the application of lime the writer says:

"I have been in the practice of using lime for twenty-five years; there is little of the land that I occupy that has not had 200, and some 300 bushels per acre, applied in that time. In my first applications, it was slaked, spread and incorporated with the soil as soon as practicable from the kiln. But for more than twenty years I have spread but little that has not lain from three to twelve or more months, and when spread avoided all means that would incorporate it with the soil, that necessity did not urge for the accomplishment of other objects. The change was the fruit of a doubt of the ultimate utility of using lime to hasten the decomposition of vegetable matter contained in soil under regular cultivation, and that this questionable advantage was all I concei ved I had to place against the known and certain result, that by so applying it, it would be converted into carbonate at the expense of a material contained in the soil that there was, or in future would become, capable of supporting a vegetable; and that so far as it could be converted into a carbonate, before mixed with the soil, was clear gain; and I regard my experience as having fully sustained the conclusion."

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† New System of Organic Chemistry, by F. V. Raspail. Henderson's translation. London: 1834: p. 172, &c.

To render Corn prolific.

It seems to be a great desideratum with farmers, to plant that variety of corn which will produce the most ears on a stock. This criterion of a good variety is deceptive, and passes for more than it is worth; and withal leads to a neglect of the main point which should engage the farmer's attention. It is not the *number of ears on a stock*, but the *number of bushels on an acre*, that should be the first aim of the grower; and this depends not so much on variety, as upon richness of the soil. Corn, like cattle, will produce according to the food which is consumed; and if this food is not in the soil, it matters little how many ears grow upon a stock, the product will be in the ratio of the food: if there are many ears, they will be comparatively small; if but few, comparative large, in proportion to the richness of the soil. An acre of good pasture will carry, say five sheep, through the season, and fit them for the butcher; but if the acre is made to carry ten sheep, they cannot thrive, and will not be fit for the butcher. And again—if the acre of pasture is poor and light, the five sheep put upon it will be stinted in food, and will not thrive. The gain in the sheep will be in proportion to the quantity of herbage they convert into mutton and wool. So with corn. The roots of this grain, like the sheep, range over the whole pasture of a field, gather the nutriment which it contains, and this is transmuted into grain and forage; the aggregate of which is not very dissimilar, whether the ears are three, two or one upon a stock, provided due regard is had in planting to the habits of the variety—so that the pasture be fed off clean, without being overstocked. We have frequently observed, that we have more ears upon a stock on the borders of our corn field, and where the intervals are large between the hills, or some of the stalks deficient, than we have in the centre of the field, or where the planting is close; and that the size of the ears, or the aggregate of the product, is always in proportion to the richness of the soil, and the excellence of its cultivation. The atmosphere undoubtedly contributes essentially to the food of the corn crop, where the surface of the soil is kept clean, open and permeable to it. The fermentation of long dung, in the soil, and the frequent use of the cultivator, tend to keep it in this favorable condition. There is no danger of gorging or injuring the corn crop with long manure, if it is spread and buried with the plough; nor are its fertilizing properties so much impaired, in using it for corn, potatoes and ruta baga, in this way, as they are by the system of *summer-yarding* it, so generally adopted in some counties lying west of Albany.

The remarks which we have made upon Indian corn, tending to show, that the product depends essentially upon the quantity of food which it finds in the soil for its subsistence, applies, with greater or less force, to all farm crops. The economy of management depends upon the judgment of the farmer in adapting the food, both as regards quality and quantity, to the wants of the particular crop. But let us not be misapprehended on one point: unfermented dung should not be used for the small grain or other crops which ripen at mid-summer—until it has been first prepared and fitted for them, by the autumn-ripening crops, as corn, potatoes, ruta baga, &c. These latter subsist principally upon the gaseous and volatile portions of the manure, which are first disengaged from the mass in the process of fermentation, and which are rather deleterious to the former, at the season when they are maturing their seeds.

Another criterion which some farmers consider as essential to a good variety, is smallness of cob. So far as this conduces to the early and perfect drying of the grain, it is entitled to weight, but no further. The objection to a large cob was answered by a gentleman, by asking the objector, whether it required most cloth to make him or his son a vest, pointing to a boy standing by his side? The circumference of a cob two inches in diameter, will contain double the quantity of grain that a cob of one inch in diamater will contain.

There is no doubt but the habits of corn change with change of climate; or in other words, that the dwarf northern varieties, when taken to the south, in a few years become acclimated, and assume the tall growth of the south. It is hence advisable, that where early maturity is desired, as it seems to be in our latitude, seed should be occasionally procured from the north. Another means of preserving the early ripening properties, is to select for seed the ears which ripen first. We have raised the Dutton corn, obtained from the green mountains of Vermont, for sixteen years; and yet, taking care to save for seed the earliest matured ears, we are not sensible that it ripens much, if any, later now than it did when we first planted it

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Varieties of Indian Corn.

Dr. Brown, in an essay lately published in the Farmer's Cabinet, enumerates thirty-five varieties of Indian corn which he has in his cabinet. He divides them into five classes besides sub-classes. We give the names, as well for future reference, as matter of curiosity.

A. YELLOW CORN.

A. a. No. 1. Genuine gourd seed, of 24 rows; No. 2, of 22 rows; 3, of 20 rows; 4, of 18 rows; 5, of 16 rows; 6, of 14 rows; 7, of 12 rows.

A. b. No. 8. King Philip Indian corn, 8 rows.

A. c. No. 9. Sioux, or early flint, 12 rows; 10, Sioux of Pennsylvania, 12 rows; 11, Sioux and gourd seed mixed, 16 rows.

B. WHITE INDIAN CORN.

B. a. White flint. No. 12, genuine white flint, 12 rows, Virginia; 13, white flint, 10 rows; 14, early white flint.

B. b. White flour. No. 15, from Peru, 8 rows; 16, Pennsylvania, 8 rows, called Smith's early white; 17, New-Jersey, 8 rows; 18, New-York, 10 rows.

B. a. and *B. b.* No. 19, Mandan Indian corn, a mixture of 12 and 15.

B. c. No. 20, early sugar or sweet corn, 12 rows, grains shrunken.

C. HAEMETITE, OR BLOOD-RED INDIAN CORN.

No. 21. Common sized, 12 rows and red cob.
No. 22. Red cob with white grains.
No. 23. Reb cob with yellow grains.
No. 24. Red cob with brown grains.
No. 25. Red cob with white gourd seed.
No. 26. Red cob with gourd seed and yellow flint.
No. 27. White cob with yellow grain.
No. 28. Speckled red and yellow grains, on a white cob.
No. 29. The same on a red cob.
No. 30. Dwarf haemetite, commonly called Guinea corn.

D. BLUE CORN.

No. 31. Blue corn, 10 rows.
E. No. 32. The corn of Texas; each grain is inclosed in a pod or husk, and the ear in a husk.
No. 33. Corn found in the envelope of a Mexican mummy.
No. 34. Cobbett corn, grown in England.
No. 35. The famous Dutton corn.

We take the liberty of adding to the above list five other varieties in our possession, seemingly not embraced therein, viz:

1. Lake Superior corn, ears six inches, 12 rows, reddish brown color, said to be very early—from S. Robinson.
2. Squaw corn, 8 rows, blue grain, also early.
3. Corn from Trieste, on the Adriatic—ears six inches, and semi-conical, 12 and 14 rows, orange yellow.
4. Rice corn, ears four inches, grains like rice, and ears four inches long.
5. A yellow 12 rowed corn, from Vermont, ears considerably smaller than the Dutton.

Dr. Brown gives four criteria, the three first from Mr. Taylor, which should be regarded in selecting our seed corn, viz: 1, The most stalk; 2, the largest cob; 3, longest grain; and 4, early growth and quick culture. The reason for the first is, that a man can gather more grain, stalk, blade, top, shuck and cob, of large than he can of small stalks. This quality would not be so highly esteemed in the north; for tall large growing would be here late ripening corn; and besides, corn of this description will not bear planting so thick, and consequently will not yield so much per acre, as varieties of more diminutive growth. The large cob is preferred, because it gives the most corn. 3. The longest grain, because it decidedly settles the superiority of the farinaceous product. We dissent from this conclusion, and think the superiority in farinaceous product depends more upon *weight* than the *length of the kernel*. The Dutton, it will be seen by the communication of J. Wright, has weighed 69 lbs. the bushels. This has a short kernel; and yet we doubt if any long kerneled variety can be found to weigh so heavy, or to afford so much nutriment. The fourth requisite, early growth and quick culture, is a very important one to northern farmers.

New Agricultural Publications.—The *Practical Farmer* is the title of an agricultural paper which has been commenced at Mechanicsburgh, Pa. to be published monthly, on a sheet of 24 pages. The *Buckeye Plough-Boy*, on a 12mo. sheet, has been commenced at Cayahokia Falls, Ohio.

"Help one another."

This is an excellent every-day admonition, applicable to all ranks; and if acted upon with brotherly kindness, how much wretchedness and crime would it avert—what incalculable blessings would result to society. But it is not our present purpose to moralize upon the text generally, but merely to illustrate its beneficial tendency in its particular application to husbandry.

"*Help one another*" to do good, was the great maxim that prompted Sir John Sinclair, in his eminently successful labors to multiply the products of his native soil. He, more than any other man, effected the establishment of the British Board of Agriculture, and rendered it subservient to the noble purpose of multiplying the resources and comforts of his countrymen. He was principally instrumental in effecting the grand improvements in Scotch husbandry—improvements which, in sixty years, have quadrupled the products of her soil—which have converted the noisome moss into fields of luxuriant grain, reclaimed the barren heath, and covered her hills with herds and flocks. It is no stretch of fancy to suppose, that his individual efforts to help others, by his example in improvement, by enlightening the public mind in rural affairs, and in inciting to industrial emulation, and consequently to virtue, has annually added millions of wealth to the British empire. How many thousand individuals may at this day say he has bettered their condition! how many should bless his memory! How much more useful are the labors of such a man to the human family, than those of the chieftain in offensive war, who, at the head of armies, devastates towns and provinces, slaughters thousands, and reduces their widows and and offspring to penury and wretchedness.

The late Chancellor Livingston was another example of the great good which an individual may render to society, in rural matters, by acting upon the principle —"help one another." He was among the first and most active in efforts to improve our agriculture, by introducing new modes of culture, and valuable stock, and in illustrating their advantages by his practice and his writings. He has been eulogized as a statesman, a civilian and a patriot; and yet perhaps in no department was his usefulness more conspicuous, than in the departments of husbandry. His disposition to *help others* was a prominent trait in his character, and contributed very much, if we mistake not, to raise the agriculture of Dutchess to a pitch of excellence, excelling that of any other portion of the union. As an agricultural writer, he was not surpassed, in extent or usefulness, by any other citizen of the state; and his ample means were liberally employed in demonstrating the utility of what he recommended. Who will pretend to estimate the benefits, in dollars and cents, or in human happiness, which have been produced, by his individual exertions to improve our agriculture, to the state at large, and particularly within the sphere of his immediate influence.

We might cite innumerable examples, from the dead and the living, to show the immense benefits that have resulted to society from praise-worthy efforts to "*help one another*," of men engaged in rural affairs. The two we have cited will suffice to impress upon all, we trust, the importance of adopting the precept: and though we may not be able, individually, to do *much*, we may each do *something* to *help one another*; and these somethings, in the aggregate, will effect a great deal towards improving the moral and social condition of society. We see the benign influence of this precept happily illustrated in the conduct of the Friends towards each other; and it were well for society if these examples of brotherly kindness were more generally followed by other religious denominations. The duty rests upon all, and the recompense is alike attainable by all.

But we come now to the *improvement* of our subject—which is, to enforce the precept "*help one another*"—particularly upon our correspondents, and upon those who may *become* useful correspondents, and to ask them to communicate for our columns, whatever in their practice or knowledge may conduce to the benefit of our readers. If an individual, by cultivating a new kind of grain, root or pulse, or by any new mode of practice, adds ten per cent to ordinary profits, his discovery, or improvement, or new mode of practice, if made known, and adopted by his neighbors, will in like manner add ten per cent to the profits of each of them. Say, for instance, that a farmer, by discovering a means of preventing the ravages of the grain-worm, saves from destruction fifty bushels of his wheat crop, worth one dollar per bushel—the gain to him is fifty dollars. Now if this improvement is made known to twenty thousand farmers, as it would be in a short time if published in the Cultivator, and successfully adopted by them, it would add, in a single year, one million of dollars to the solid wealth of the country. Although the case we have hypothecated may be considered extravagant, and not likely to happen, yet it is but one of hundreds that may happen; and shows what great public advantage may grow out of a general disposition to promulgate useful information in husbandry, through the medium of agricultural journals.

On the Germinating of Seeds.

Seeds often fail to grow; and the seedsman is often faulted, for vending bad seeds, when the seeds are really good, and when the cause of their not growing is owing to the gardner or planter. To induce germination, moisture, atmospheric air, and a certain temperature, are indispensable; and it is also requisite that light be excluded from the seed, until the nutriment in the seed is exhausted, or until the root can draw nourishment from the soil. The first effect of the air, heat and moisture upon the seed is, to change its properties—to convert its starch into sugar—into a sort of milky pulp, the proper food of the embryo plant. If at this stage the seed becomes dry, its vitality is believed to be destroyed; but if these agents are permitted to exert their influence, the contents of the seed swell by degrees, and the first point of the future root having formed, breaks through the shell in a downward direction, and about the same time the first point of the future stem comes forth in an upward direction. The presence of air, heat and moisture are as indispensable to the growth of the plant, as they are to the germination of the seed.

Now it often happens, that when seeds are planted in fresh stirred ground, or when the soil is moist, they undergo the incipient process of fermentation, and the earth not being pressed upon them, and dry weather ensuing, the moisture is abstracted, and the seeds perish. Too much moisture is also often destructive to the vital principle of seeds—and others again are buried too deep to be vivified by solar and atmospheric influence. The first object in planting, therefore, should be, to place the seed just so far under the surface, and so to cover it with earth, as shall barely secure to it a constant supply of moisture. There are many seeds, as of the carrot, parsnip, orchard grass, &c. which, if not previously steeped, or the soil well pulverized and pressed upon them, fail to grow for want of moisture. Hence, in sowing orchard grass, it is found prudent to spread it upon a floor and sprinkle it with water, before it is sown, and to pass a roller over the ground after the seed is sown. And hence, in light garden mould, it is advisable to press, with the hoe or spade, the earth upon all light seeds after they are sown.

But we would draw the attention of the farmer, as well as of the gardner, to another mode of preventing failure and disappointment in the growth of certain seeds—and that is, by *sprouting* them before they are planted. This may be conveniently done with Indian corn, pumpkins, mangold wurtzel, beets, &c. on the farm, and with melons, cucumbers, beans, peppers, and a great number of other seeds which are assigned to the garden. The mode of doing it with the field seeds we have named is this; steep the seed twelve to twenty hours in water of a tepid or warm temperature—then take off the water, and leave them in a warm place, covered to exclude the light and prevent their drying, or in a dark cellar or room, and the radicles or roots will shoot in a few days, and may then be planted without injury. Being obliged to suspend our planting for four days, on account of rain, we found our seed, which had been previously steeped, and set by in a dark room, with radicles two or three inches long. It was planted with but little inconvenience, and did remarkably well. Mr. J. Nott sprouted a part of his corn last year, while a part of the seed was not sprouted—and what is worthy the particular notice of the farmer, he assures us that *the sprouted corn was not injured by the wire-worm, while the unsteeped seed was seriously injured*, although planted by the side of each other. Mr. Nott accounts for the difference in this way: The wire-worm attacks the chit, and feeds upon and destroys the germ; but the radicles having protruded, and not being to the taste of the worm, the insect attacked the solid part of the kernel, where its progress was too slow, and too remote from the germ, to retard its growth. Mr. Nott also sprouted his mangold wurtzel seed, and planted it so late as the 27th June. Almost every seed grew, and the crop might be called a good one early in September.

To sprout garden seeds, procure two sods, of equal size, say eighteen inches square; lay one down in the corner of the kitchen chimney, grass down; lay your seeds upon it, if small wrap them in a piece of brown paper; then place the other sod upon them, grass up—water well with warm water, and the seeds will sprout in twenty-four to forty-eight hours.

There is one manifest advantage in sprouting seeds—it tests their goodness, and shows whether they will or will not grow. A small quantity of seed corn, submitted to this test before planting, would in many instances prevent great loss to the farmer.

What quantity of Manure should be applied to the Acre?

The answer to this question involves many considerations which preclude a definitive reply—such as the condition of the land, the quality of the manure, and the kind of crop. Too much, as well as too little manure may be applied. What would be beneficial for an autumn-ripening, or hoed crop, would be prejudicial to a small grain, or summer-ripening crop, and more particularly if the manure is applied in an unfermented state, and be withal a waste of fertilizing matter. Twenty tons to the acre would not be too much for corn, potatoes, ruta baga, &c. if applied broadcast, and ploughed in; but if long manure, and applied in the drill, or hill, and a dry season should ensue, it might prove an injury; and if this quantity of long, or even short manure, were applied to the acre of small spring grain, it would probably cause a flush of straw, likely to be affected with rust, at the expense of the more valuable part—the grain. Dr. Coventry, late professor of agriculture in the University of Edinburgh, whose business and study it was to collect data, and make correct deductions in this and other agricultural matters, was of the opinion, that from four to five tons are yearly requisite to keep up the fertility of a soil, of the kind usually denominated spit, or tolerably rotted dung; and this supply he thinks a well managed farm may be made to produce. To show how this quantity may be obtained, and how it should be applied, we quote from Mr. Youatt, the writer of British Husbandry.

"According to that calculation," says our author, "it must be observed, that the course of crops is supposed to consist—on light soils, of the alternate plan of corn and green crops, [see New System of Husbandry,]—on clays, which do not admit of that system, that the holding contain a proportionate quantity of grass land; and that the quantity of manure should be supplied, not in small quantities annually, but in large ones, at intermediate distances of four, five and six years. Light soils, in the common course of husbandry, rarely require the application of putrescent manure oftener than once in four years, and in all cases where the clover is allowed to stand two seasons, it may be deferred without disadvantage for another year. Heavy soils may run six years without it, provided that the land be laid one year in fallow, and that there be sufficient meadow to be reckoned at least one crop in the course. It being, however, clearly understood, that—whether on light or heavy land—nothing but grain, seeds and live stock is to be sold off the farm, unless replaced with an equal portion of purchased dung; that the whole of the green crops, the haulm of pulse, and the straw of corn, be used in the most economical manner; and that some of the live stock be either soiled or fattened upon oil cake: which plan, if carefully pursued on good soils, with capital sufficient to secure an abundant working and fattening stock of cattle, ought, under fair management, to furnish an adequate supply of dung for any of the usual courses of culture."

"Having thus submitted to our readers all that occurs to us of importance on the subject of farm-yard manure, we shall here recapitulate a summary of the chief points which we deem particularly worthy of their consideration:

1. To bottom the farm-yard with furze, fern [in Yankee dialect brake,] dry haulm, [stubble, &c.] or any other loose refuse that takes the longest time to dissolve; and over that to bed it deep with straw.
2. To occasionally remove the cribs of store cattle to different parts of the straw yard, in order that their dung may be dropped, and their litter trodden, equally.
3. To spread the dung of other animals, when thrown into the yards, in equal layers over every part.
4. To remove the dung from the yard at least once, or oftener, during the winter, to the mixen.
5. To turn and mix all dung-hills, until the woody or fibrous texture of the matter contained in them, and the roots and seeds of weeds, be completely decomposed, and until they emit a foul putrid smell; by which time they reach their greatest degree of strength, and arrive at the state of spit-dung.
6. To keep the dung in an equal state of moisture, so as to prevent any portion of the heap from becoming fire-fanged. If the fermentation be too rapid, heavy watering will abate the heat; but it will afterwards revive with increased force, unless the heap be either trodden firmly down or covered with mould to exclude the air.
7. To ferment the dung, if to be laid upon arable land during the autumn, in a much less degree than that to be applied before a spring sowing.
8. To lay a larger quantity on cold and wet lands than on those of a lighter nature; because the former require to be corrected by the warmth of the dung, while, on dry, sandy, and gravelly soils, the application of too much dung is apt to burn up the plants. Stiff land will also be loosened by the undecayed fibres of long dung, which, although its putrefaction will thus be retarded, and its fertilizing power delayed, will yet ultimately afford nourishment.
9. To form composts with dung, or other animal and vegetable substances, and earth, for application to light soils.
10. To spread the manure upon the land, when carried to the field, with the least possible delay; and, if laid upon arable, to turn it immediately into the soil.
11. To preserve the drainage from stables and dung-hills in every possible way; and if not applied in a liquid state, to throw it again upon the mixen.
12. To try experiments, during a series of years, upon the same soils and crops, with equal quantities of dung, laid on fresh, and afterwards rotted; in order to ascertain the results of their application to the land. The whole quantity to be first weighed or measured, and then divided.

"The fermentation of farm-yard manure is, in fact, a subject of far greater importance than is generally imagined, for on a due estimation of its value mainly depends the individual success, as well as the national prosperity, of our agriculture. The experiments to which we point cannot, therefore, fail to come home to the interests of every man; they may be made without expense, and without any other trouble than the mere exercise of common observation and intelligence. Leaving, however, aside the discussion concerning the disputed worth of fresh or fermented—of long or short dung,—let the farmer sedulously bend his attention to the accumulation of the utmost quantity that it may be in his power to procure. The manner and the time of using it, in either state, must, however, be governed by circumstances which may not always be within his control; and every judicious husbandman will rather accommodate himself to the exigency of the case than adhere strictly to his own notions of what he conceives to be the best practice. In fine, whether favoring the one or the other side of the question, let him collect all he can; apply it carefully to his crops; and then, trusting to events,—"*let the land and the muck settle it.*"

On Stall Feeding Cattle.

In the management of our cattle, as in the management of our crops, much is lost for want of system and regularity. The stall feeding of neat cattle for the butcher is annually increasing, and promises to increase in interest as we progress in the culture of roots. There is probably a difference of one-third to one-half, in the profits of the business, whether it is well or badly managed. Under this view of its importance, we extract from the Farmer's Series, the following compendium of the management recommended in that work, although it be not precisely the season to apply the instructions which it conveys:

"The first point is the comfort of accommodation; for in whatever way they may be placed—whether under sheds or in close ox-houses,—they should have the security of perfect shelter from the weather, with a certain degree of warmth; that is to say—if in open hammels, the sheds should be broad, the roof low, and the floor well covered with an abundance of dry litter. We are, however, decidedly of opinion, that close walls will further the object more promptly; though we do not coincide in the idea that it will be promoted by too much heat; and we should therefore recommend a moderate degree of healthful ventilation. In these stalls litter is, indeed, very frequently dispensed with,—or else sand, or any rubbish, is substituted for straw; but there can be no doubt that the animals enjoy the comfort of a dry bed as well as their master, and the more they seek repose in it the better.

"The next, is strict regularity in the administration of food—both as regards the stated quantity, and the time of supplying it. The periods may be regulated as the feeder thinks proper; but, whenever adopted, should never be afterwards altered. The ox is a quiet animal, and those which are fed in the house soon acquire a precise knowledge of the exact hour at which it is usually given: if that be transgressed, or the customary quantity be not furnished, they become restless, but if the time and quantity be strictly adhered to, they remain tranquil until the next period arrives. If no disturbance takes place, they, indeed, then generally lie down to ruminate, and nothing will be found more to forward the process of fatting than this perfect quietude; wherefore, should not only the stalls be well bedded, but light should be very much excluded, the doors should be closed, all outward annoyance as far as possible prevented—and, in short, every means should be induced to promote complete rest, ease, and contentment.

"Some persons serve it out as often as five times a day; but the most prudent, and we think the better practice, is to give it as soon as possible after day light, at noon, and some time before sunset; which enables the animals to fill their bellies; and to have time sufficient for that quiet digestion which is interrupted by too frequent feeding. In stating that the quantity should be moderate, we however alluded merely to the not allowing the animal to have so much as will cloy him; he ought always to have as much as he can fairly eat with a relish, but the moment he begins to toss it about, it will be then evident that the keenness of his appetite is satisfied, and it should be instantly removed.

"The last is thorough cleanliness. The ox house should be opened before day light, and well cleaned, both by pail and broom, from every impurity. After the animals have been satisfied with food, whatever may remain should be immediately removed; and the cribs and mangers, should be carefully swept out, and washed, if necessary; water should then be given without limitation.* If their hides be then wisped, it visibly occasions a very pleasurable sensation: as they begin to fatten, the ancient coat falls off, and if this be accelerated by the curry-comb, the better appearance of the beast will well repay the trouble."

The atmosphere and the dews abound in the food of plants, in a gaseous or liquid form—with the "*cooked food*" of plants. The nutriment which they afford is principally available through the *roots* of plants, which are buried in the ground. In order that the food may reach these mouths, and contribute to the growth and perfection of the crop, the soil which covers them must be pervious to air and dew—it must be pulverized, the whole stratum or tilth—and the surface kept clean and mellow. If the latter is suffered to become baked and hardened, the air does not find admission, and the dews rest upon the surface, and are dissipated by the rays of the early sun, and are lost. Hence many grounds long in grass, become too close and compact, and lose at least a portion of these fertilizing properties of the atmosphere; and hence the utility of good ploughing and thorough tillage, and of keeping the surface, where there are hoed crops, mellow and clean. Curwen, the distinguished British agriculturist, grew field cabbages to the weight of 50 lbs. each, principally by keeping the horse and cultivator constantly at work among them, and thus feeding them with the cooked food of the atmosphere.

The New-York Farmer, the publication of which was suspended last fall, has been revived, and the editors give an assurance that it will continue to be published as formerly.

Potato Sugar.

We give the following as supplementary to the remarks in our last, on the conversion of potato starch into sugar. The first extract is from Saussure, and the other from Silliman's Journal of Jan. 1832. Taken together they afford an answer to the inquiries of our correspondent. The quantity of sulphuric acid employed does not seem to be material, according to Saussure.

"As starch boiled in water with sulphuric acid *and thereby changed into sugar*, increases in weight, without uniting with any sulphuric acid, or gas, or forming any gas, we are under the necessity of ascribing the change wholly to the fixation or solidification of water. Hence we must conclude that starch sugar is nothing else than a combination of water with starch in a solid state.—The sulphuric acid is not decomposed nor united with the starch as a constituent.

"A bushel of potatoes (see Silliman's Journal,) weighs about 60 lbs., and gives eight pounds of pure, fine dry starch. This amount of starch will make five pints of sugar, of the weight of nearly 12 lbs. to the gallon, equal to seven pounds and a half to the bushel of potatoes, or a little less than a pound of sugar to a pound of starch. The sugar is not so sweet as the Muscovado sugar, nor is it actually so sweet as its taste would indicate.

"This sugar may be used for all domestic purposes. It ferments with great liveliness and spirit, when made into beer, yielding a healthful and delicious beverage, and on distillation a fine cider-brandy flavored spirit.—It would, however, be most useful in making sweetmeats, and may be used upon the table instead of honey, for which it is a good substitute. It has already become a favorite with most people who are acquainted with it. Its taste is that of a delicious sweet, and as an article of diet is unquestionably more healthful, and less oppressive to the stomach, than any other sweet ever used."

State policy.—Maine has paid to her farmers more than $76,000 as a bounty upon wheat raised by them last year. Thus Maine, with a population of less than 400,000, gives 76,000 dollars, annually from her public treasury, directly in aid of agriculture. New-York, with a population five times as large as Maine, gives —*nothing!!* What WILL she give?

Correspondence Condensed, &c.

CUTTING UP CORN.

"*Baltimore, March* 1, 1838.

"While I have the pen in my hand, will you permit me to suggest, that you may confer an essential service on the southern portion of your subscribers, by some observations on the advantages of *cutting up the corn*, instead of *topping* it, as now generally practised here.

"H. M. F."

Thirty years ago we read a communication of John Nicholas, then we believe of Virginia, on the advantages of *cutting up*, instead of *topping*, Indian corn. These advantages appeared to us so palpable, that in the noviciate of our farming operations, nineteen years ago, we reduced it to practice; and although we have since adopted occasionally the topping system, by way of comparison, we have made it our general practice to *cut up* the crop ever since. We are convinced, from our long experience, that it possesses over the old mode of topping, the following advantages:

1. *It saves labor.* With proper implements, which every farm can furnish without expense, two smart men will cut up and stook two acres in a day. They cannot top more than one acre, and the tops are afterwards to be bound, stooked, and backed off the field, or left to be bleached till the corn is harvested, when they have lost half their value. A hill is gathered with a blow in cutting up; in topping, a cut must be made upon every stock.

2. *It adds to the grain crop.* We have satisfied ourselves, by careful experiments, that we gain six bushels of corn per acre, by cutting up, above what we obtain by topping our corn. And we account for it on the well known principles in vegetable physiology, that all the nutriment of plants must be elaborated, or prepared, in the leaves, and that this elaborated sap, or prepared food, *descends*—consequently, that when the leaves *above* the corn are taken off, by topping, the grain can gain no further nutriment, or accession of growth; and that when the crop is cut up, and stooked, the grain does continue to obtain nutriment, and accession of growth, for some days, from the descending, or elaborated sap, with which the succulent stems are abundantly charged. The leaves also continue their elaborating process for some days after the corn is cut.

3. *It augments the cattle fodder, and preserves its nutrient properties.* Cut and well stooked, neither the grain nor the forage are liable to be seriously injured by the weather, even if left in the field late. If topped, the tops must be exposed to the deteriorating influence of rains, wind and sun, till they are dry enough to bind, which diminishes their value. If cut up, the whole of the stocks are converted into forage. If topped, but a small part becomes useful. And if the butts are fed in the cattle yards, they imbibe additional fertilizing properties from the urine and liquids which abound there, and which are lost if there is no litter to absorb them. Hence,

In the fourth place, it gives more food to the crops, as well as to the cattle, by saving that which otherwise is often lost to the farm. And,

Finally, cutting up has this important advantage, at least in the north—it secures the crop, both grain and forage, from damage from early autumnal frosts—for after the grain is cut and stooked, it is not liable to injury from their occurrence. We may add, that the ground may be cleared two or three weeks earlier, for a winter crop, where it is desirable to sow in autumn.

From the general accounts we have of southern products in corn, we apprehend, that if fewer acres were planted, and these better manured, the labor would be less, and the products, or at least the profits, greater than they are at present—always excepting our friend Reybold, of Delaware, whose example is worthy of all commendation.

Spring Rye.—W. A. of Baltimore county, has our opinion, that spring rye is not worth his notice. We consider it the poorest crop a farmer can cultivate, and wherever it is seen growing, it betokens bad husbandry. Seed may be obtained from farmers at about a dollar a bushel.

"*A Young Farmer of Suffolk*" is informed that we have had no experience in *caponizing* fowls, and that we have no authorities which enable us to answer his queries upon this subject. The wood to be preferred for *smoking hams*, &c. is green hickory, next green hard maple—corn cobs are good with these woods, or alone. The colour of the hams indicates when they are sufficiently smoked—they should be a deep russet brown.

SUGAR BEET SEED.

Sherman M'Lean, writes us from Royalton, N. Y. as follows: "I raised last summer about 400 bushels sugar beets, and not having the necessary apparatus to manufacture sugar, I have concluded to set out an acre or more for seed, if the prospect of selling the seed will warrant the undertaking. Will it be safe for me to do so?" Yes, if contracts are early made with seedsmen before supplies are ordered from Europe. Great quantities of seed, we doubt not, will be wanted. Prepare the ground well, leave intervals of three feet between the plants—let either all the sprouts grow, or reduce them to one or two, and support the seed stocks by stakes or poles.

Swamp Muck.—J. Winch, jr. of East Roxbury, Vt. writes us that he has an exhausted farm, which he is in a hurry to improve; that he has a large quantity of barn-yard dung, and an inexhaustible supply of swamp-muck, and he asks how he can apply them both to the best advantage to the coming crop. If the muck resembles leaf mould, as we infer from his letter, that is, if it is reduced to a powder, and devoid of ligneous and woody matters, he may mix it with profit with his barn-yard dung, in equal parts, as early as possible, and apply both together; or he may apply the muck to his grounds for small grains, or as a top-dressing to his grass lands. The fermentation of the manure in the soil will induce a decomposition of the vegetable matter in the muck. We advise Mr. Winch to take time by the fore-top—and as soon as his cattle yards are cleared, as they ought to be, in the spring, to bed his yards from six to twelve inches with muck, as a source of fertility in 1839; and further, to grade his yards so that the liquids may not run off, but may be absorbed by the muck and litter to be deposited in them.

Hedges, &c.—G. G. Cotton, who writes us from Homer, Ill. will find his queries in regard to hedges answered in our late numbers. The indigenous crab and wild plum are probably the best plants he can employ, and the sod fence he proposes to build around his 400 acre prairie lot, will constitute an excellent protection for the young hedge. But if he begins, he must not look back—he must persevere, or his labor will be lost. A belt of forest wood, on the bleak side of his lot, would give beauty, shelter, and ultimately profit. We can say nothing, from personal knowledge, of the grain cutting machines, propelled by horse-power, not having seen such in operation.

SPREADING LIME.

Samuel Howard, of Perry, inquires if there is any mode of spreading lime, at the rate of twenty bushels an acre, other than that of doing it with the hands? A machine for scattering lime or gypsum, has been invented by Julius Hatch, of Great Bend, Pennsylvania, which our neighbor Bement has tried, and highly approves of. We think lime might be spread very well, at the rate of twenty bushels an acre, with a shovel, the man standing in, or at the tail of a cart containing it, and passing back and forward through the field.

Abel Curtis, of Laurel, Vt. wishes to know the cheapest means of raising water 100 to 150 feet. There is no *cheap* process of doing this. It can only be done by wind, water, steam, or animal power. Inquire at the Fair Mount Philadelphia Water Works.

Eli Stephenson, of Cabotsville, Mass. would advertise the public, that he has a fine three year old Short Horned Durham bull for sale.

Poll-evil.—John D. Rodney, of Lewis, Del. asks for directions to cure the poll-evil. Willich directs, that *to disperse the swelling*, the part be bathed with hot vinegar; and that if the hair be fretted off, and a discharge ooze through the skin, a fomentation, prepared with two parts of vinegar and one of spirits of wine, will be more proper. Should great inflammation ensue, bleed, apply poultices of bread, milk and elder flowers, and give physic. To *discuss tumors*, Mr. Clark recommends, that as soon as matter is preceived to fluctuate in the part affected, to introduce a large seton-needle, armed with a cord, at the upper end of the swelling, and bring it out under the lower part of it; from which orifice the pus will speedily discharge itself; and in a few weeks the wound will be perfectly healed, without leaving any scar or blemish, or the least trace of the disorder.

Foul in the foot.—L. B. of Wayne county asks how this should be treated? We give the answer from Lawrence on Cattle.

"In case of any fissures or cracks, attended with heat, wash them with strong lather, and apply oil of turpentine, or tar and brandy, and keep the feet dry until healed. When the claws appear distended and inflamed, and the cracks have an offensive discharge, scrape with a knife and cleanse the parts, dress with Egyptian honey and oil of turpentine, hot, butter of antimony, or any of the corrosive waters in common use. Should the foul be neglected until it becomes indurated or bony, extirpation with the knife will become necessary. But nothing is so necessary towards the cure, as keeping the parts perfectly clean and dry, for want of the resolution and care to do which effectually, many patients are never thoroughly cured.

"*Water for foul in the foot.*—Strong solution of blue vitriol and alum in water. If required very powerful, the acid of vitriol one ounce, corrosive sublimate four drams; or an ointment made from the above, mixed with honey and verdigris, applied on pledges of tow."

We can give no directions for the cure of the *hoof-ail*, as its symptoms are described. It seems to be a disease peculiar to our country. All we can do, is to suggest the preventives of keeping the animals dry, and well, and of giving them daily salt and roots. Can any of our correspondents cite a case of mortality among cattle which have had a daily allowance of roots and salt, and been protected from storms?

Rotation of Crops.—We have been desired, by a respectable correspondent, to give a list of a course of crops adapted to each of the leading divisions of our soils. The task of doing this, on a scale adapted to the circulation of the Cultivator, would be one of some difficulty. We shall offer some general remarks upon this subject in our essay upon The New Husbandry, and may afterwards enlarge upon it, so far as our personal knowledge will justify. In the mean time we would accept it as a particular favor, and the public would no doubt be greatly benefitted, if some gentleman in the south, or south-west, would furnish us with the courses adapted to those sections of our country.

"*A Young Farmer*" writes us from Salisbury for advice, whether he shall put his corn crop upon an old and very stiff-sodded meadow, not yet ploughed, or upon a two year old clover ley? We answer the latter. Let the long manure be taken out, spread, and ploughed under, and the ground well harrowed and planted, in as little time as practicable, from the 5th to the 15th of May. The old meadow may be turned over, and sown with oats, or oats or peas, this spring, and will be in good condition for long manure and corn next year. The fear is, that the vegetable matter of the tough sod will not decompose in time to feed the corn crop this year.

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* According to an experiment stated by Sir John Sinclair, an old man was appointed to discover how often some cattle, consuming chaff and straw on a farm, went to the watering-trough in a short winter's day, and that he might not be confused in the execution of his orders, one particular bullock was pointed out for his report; according to which, *he drank eight times in the course of the day*, and the man was convinced that the rest of the cattle drank as often as the one fixed on. Now, twice a day is the most in which they generally get water; and they are not able, at one or two opportunities, to drink a sufficient quantity. Husb. of Scotland, p. 100.

SHEEP HUSBANDRY.

Samuel Manning, of Weston, Vt. will find most of his queries on this subject satisfactorily answered in our last number, in the extract from Daubenton, and the report of Mr. Randall to the State Society. In crossing breeds, with a view of multiplying good points, it is a general rule to take the male from the smaller, and the female from the larger breed. The markets are too fluctuating to quote, and prices vary greatly according to the purity of blood and beauty of the individual, often fifty per cent. The Hampshire among us are a variety of the South Down. We do not know of any Ayreshire cattle in the market. It is impracticable to obtain the statistical information our correspondent asks for. An excellent work on sheep, written by Chancellor Livingston, was published some years ago, at the expense of the state, and may be had of the Messrs. Skinners, booksellers, in this city.

To restore worn-out lands to fertility.—B. S. Patton, who dates at Clarksville, and who represents himself as being young in farming, solicits our advice. We possess no universal panacea; and can only apprise Mr. Patton, as we do all others like circumstanced, that exhausted lands can only be renovated by a course of management the reverse of that which has made them sterile; and that abundant instructions in the *modus operandi* of imparting, or perpetuating fertility, may be found in the columns of the Cultivator, and particularly in our March number. Men young in farming, as well as those young in life, must learn to depend for success, principally, on their individual efforts—on their mental as well as physical powers. Husbandry is a business in which a man may learn as long as he lives; and in which, the more the learns, the more he finds to learn.

Suckering Corn.—W. Gatwood, of Strasburgh, asks if the Dutton corn should be succored? We are not in the habit of succoring our corn. We have done it by way of experiment, without apparent improvement in the crop, and at a loss of time and forage. If the suckers are to be taken off, we should prefer cutting them at the surface to tearing them from the stock. The opinion has been given, and we think well sustained, that the succors perform an important office—that the pollen of their tassels impregnates the male blossoms after that of the main stocks, which developes earlier, has been blown or fallen off—so that, although they do not increase the ears, they increase the corn, by causing the ears to fill out to the extremity of the cob.

Beet Sugar.—We possess no data which enable us to answer satisfactorily the queries of J. Tomlinson, of Le Roy, upon this subject. We refer him to our March number, and give him the assurance, that he shall be enlightened further in the matter as soon as it is in our power to gratify him.

ITALIAN WHEAT.

The testimonies in favor of this grain multiply on our hands, although they were before amply sufficient to establish its high reputation.

Levi Hopkins, of Sennet, Cayuga, from six bushels of seed, sown on the 10th April last, on five acres of sandy land, threshed and cleaned up 202 bushels. The sample sent us is beautiful. Mr. H. had sixteen acres in winter wheat adjoining, which was much injured by rust, and produced less than the five acres of Italian.

A. B. Clark, of New-Hartford, Oneida, has raised the Italian wheat three years, twice successively upon the same field, without manure, (bad husbandry,) and obtained the first season twenty-five, and in the latter thirty bushels per acre. Mr. Clark also sowed three acres of Siberian on soil similar to that sown with Italian, and the product was twenty bushels to the acre. These facts are sent us by J. H. of Oneida, who adds, that "a great deal of the wheat lately taken to Albany, and called Italian, is not genuine."

Hams—A correspondent in New-Jersey asks how we keep hams in summer? We have employed various modes, but have not always been successful until we adopted that of covering the ham tight with crash or other coarse cloth, and then covering the cloth a with substantial coat of whitewash. This has always been effectual. Our correspondent notifies us of an error we committed in our directions for making the Knickerbocker pickle, in p. 187, vol. iv.: There should be 9 lbs. salt, and 3 oz. salt patre to *six* gallons of water.

"*A Subscriber*," who dates at New-York, is informed, that it would not be dealing fairly with our old patrons, to republish articles from our back volumes. He will find the information he desires in vols. 1, 2 and 3, which he can procure of our agents in his city.

Our Westboro' correspondent is informed, that "by 50 to 100 bushels of lime to the acre," we mean lime directly from the kiln—unslacked lime.

"Will you be so good as to let me know your opinion of the Indian buckwheat spoken so highly of by Gov. Hill, and to have a bushel forwarded to me, or direct me where it can be had? JOHN H. KING."

This Indian buckwheat we presume to be the same as is known under the names of Indian wheat, Polish buckwheat, and Siberian buckwheat, or properly, according to Loudon, *Beech* wheat, from its resemblance to beech mast, (*Poligonum Tartaricum.*) In some places it has the reputation of being superior to the common variety, but after cultivating it three seasons, we were not aware of its marked superiority. Its habit is rather dwarfish, blossoms green, and seed small. We like the flavor of the cooked flour better than that of common buckwheat. For a green crop, to be ploughed under, we think the old kind is to be preferred. It is out of our power, at present, to send the seed to Mr. K. not knowing where it can be procured. Von Thäer, who tried it repeatedly at the Prussian Agricultural School, found its produce quite insignificant.

Pumpkin seed oil.—N. Carter, of Painesville, O. writes us, that he has extracted five gallons of oil from ten bushels of pumpkin seeds; and he thinks if any plan can be devised to take off the hull, the business may be profitable. Mr. C. asks if there is any machine for effecting this operation? We do not know that there is.

W. Spencer, of Hadlyme, Ct. writes—"The last season I enlarged my turnip yard to half an acre, from which I got 443 bushels. I sowed the 7th July, in drills twenty inches apart one way, and about nine inches the other."

In reply to Mr. Spencer's queries,—what is the value of the ruta baga in comparison with potatoes for fattening animals? and what is the best way to keep them from heating and rotting? From comparative experiments it has been found, that the Swedish turnip is at least equal to the potato in fattening beef. To keep turnips from heating and rotting, they should be dry before they are housed or pitted—should not be stored in large masses—and should have ventilation. They are not liable to heat in cellars, which are capacious, and from which the rarified air can escape. Pits in the field should not exceed three feet in breadth, though they may be of any length. The roots should be raised above the surface in the form of a roof; and after the earth has been thrown upon them, holes should be made in the ridge, at intervals of a yard, to let off the heated air. Wisps of straw may be placed in these holes, that the impure air may escape.

Dextrine.—P. C. Spafford, of Westminster, will find his query in part answered, in regard to dextrine, in p. 78, last vol. of Cultivator.

"FAR WEST."

Within our recollection this term meant Utica, or Pittsburgh—but population has since been travelling west, till "far west" now at least means west of the Mississippi. We have a letter before us, inclosing five dollars for the Cultivator, dated "Far West, Missouri," fifteen hundred miles west of our longitude. We subjoin an extract, which will serve to give some idea of the vast extent of our unimproved territory, and of its inexhaustible recourses. "Far west," will soon mean, the Rocky Mountains—the valley of the Columbia River—the Pacific Ocean.

"The resources of the 'vast ocean of prairies' in the far west," says our correspondent, "are untold, unsung, unwritten, and if we should philosophize a little, or ask the geologist to search for something in these *everlasting fields*, it might bring forth some fresh blessing from the 'treasures hid in the sand.' Our weeds yield rosin; an account of which I have never seen in print. Some of the weeds taste like white pine, and some like pitch pine. When the prairies are on fire, this material greatly increases the flame and the smoke, so that, as the prophet said, 'the land thereof becomes like burning pitch.' When millions of pitchy prairies are rolling up their massy columns of smoke, our eastern friends should be informed, that we are making 'smoky days,' or the 'Indian summer.'

"The prairies have many things peculiar to themselves, which, if published, would be instructive and amusing. The soil, the grass, the flowers, the animals, the fowls, the insects, the climate and the winds, are different from the wilderness, or the cultivated countries of the east. Our bees are wild, but generally rich; and our paroquets may be said to be 'green birds with brass heads.' The robin of the northern states frequently stays in the Missouri bottoms during the winter months, but is never seen in the summer."

☞ Several communications on hand will receive attention in our next.

CORRESPONDENCE.

On the Construction of Barns.

Farmington, Con. February 9th, 1838.

Judge Buel,—Sir,—I am a subscriber to the Cultivator, and think much good will be effected by your labors; already within the circle of its influence is the spirit of inquiry aroused to the subject of improving our worn-out lands; and I think, too, our young men are turning their attention to their farms at home, with a view to render them more productive, rather than abandon them for the El Dorado of the west.

I was particularly gratified to notice your offer of a premium for the best plan of barn and stable adapted to common farmers. There is much and great need for improvement in this particular; the buildings in common use for the storing of hay and grain, and for the shelter of cattle, are any thing but convenient; indeed, convenience seems not to have been thought of in their origin. I have been waiting, in the expectation of seeing a plan presented by some of your correspondents, which would evidently be an improvement; one that might be a pattern barn for future builders; but as yet have none such. The two presented by Mr. Jewett and Mr. Johnson I think are objectionable.

The most expensive part of our buildings, and the least enduring, are the roofs; it is, therefore, a desideratum, to obtain the most space under a given amount of roof; the nearest approximation to that result, which we can obtain in our buildings, will probably be found in the square, with an elevation of the roof as far as is practicable with safety, and convenience of storing away fodder. With this principle for a guide, it has seemed to me that convenience and economy both would be obtained in a barn built on the following plan, viz: Length fifty-six feet; breadth forty-nine feet; heighth and length of posts twenty feet; space for floor through the centre; bays for hay and grain on each side of the floor; stables the whole width of the barn across each end, excepting a space for entrance, at the front end, which space may be a recess for storing the hay cart, or the doors may be placed flush with the outside of the building; the height of the stables to be barely sufficient for a man of ordinary height to stand erect, that all the space above may be obtained which is possible, and have the cattle stand comfortably; the loft over the floor to be so high as barely to admit the largest load under it, for the like reason; and if the floor is larger then necessary for threshing grain, the loft over the floor on the opposite end to the great doors, may be brought down to the level of the loft over the stables, which will leave room for the team hauling loads into the barn to pass under, and bring the front of the load close up to the loft.

The advantages of this plan are, saving the expense of mangers, and also one set of barn doors; greater convenience of feeding cattle; do. of stowing away hay and grain; a greater amount of space and more compact; a greater saving of waste room on and above the floor.

The slight draft of the plan I send you, has only one entrance and one set of barn doors; the cattle are to eat from the floor, consequently only requiring a manger pole, and boarded from them to the floor; the greatest distance to pass to convey food to the stock is eighteen feet from the barn floor; the three feet spaces are for a passway to convey food, and for the cattle to eat from. I think it preferable for cattle to eat from the floor, because it is the natural position; because you can better feed to them the sweepings and seed of the hay-mow; and because it is a saving of hay, in that the cattle will not so readily scatter it under their feet; the space can be more readily cleaned of the refuse than from a manger. The hay and grain can also, with much less labor, be deposited in two bays, the load standing in the centre, than one large one, on one side only. It is also a convenience to have two, one for grain and one for hay; no more waste space for the floor than is absolutely necessary. I have said thirteen feet width of floor; this is not too wide for convenience of threshing and covering of grain; nor is it too wide for the convenience of hauling in loads. The end opposite the entrance may be occupied by a low loft, which could not be done were there an entrance at each end of the floor. The team hauling in loads can be learned to back out the cart with the same facility they would pass out forward; and if they are taken from the load in the barn, they can pass out by the side of the load singly, or pass through the alley, by a door at the end. The space under the low loft will be the proper place for a fanning-mill, cutting box and tub for mixing straw and grain; and under this part of the floor may be placed the cellar for roots, so there will be no loss of room.

The objection to Mr. Jewett's plans, are needless expense in manger, or rather necessary in his arrangement of the stable, but needless in a different location; also in one set of barn doors, and double the length of plan that is needful; also, waste of space consequent on the length of plan, too long for width. The expense of inclosing the yard with buildings, is unnecessary; a yard should always have a southern or eastern exposure for the benefit of the sun.

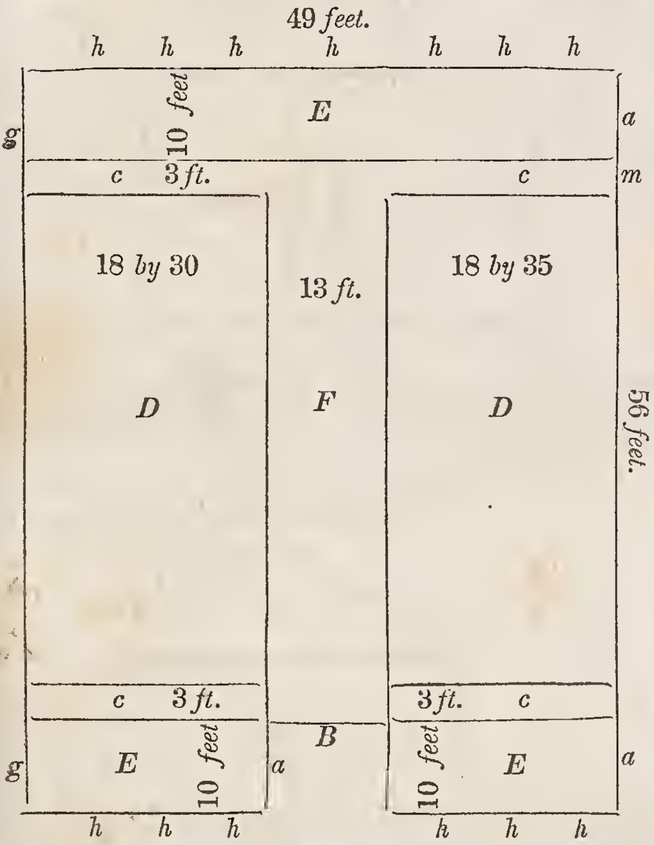
The objection to Mr. Johnson's plan are, that the bay is too large; it will be inconvenient storing away the hay, and a consequent loss of labor; and the remedy he proposes is to unload from the outside; but this is not to be done beyond a certain height, within the reach of the hand unloading, consequently not but a a partial remedy. A greater distance to supply the stock with food in the large barn; distance from floor thirty-six feet, in the adjoining stable or barn forty feet; larger proportion of roof for the same amount of space; large barn too long for width. The expense of sinks I should think unnecessary, (I suppose his object is to save the liquid from the cattle.) I think this is better saved by a liberal supply of litter, and changed daily as its becomes saturated.

The stanchions for securing cattle is a rough way, and perhaps more cattle may be stabled in the same space than in any other way; but they cannot lie as comfortably, and therefore I much prefer securing with a rope tied about the head.

I have thrown out these thoughts, sir, not in the belief that this plan is the best that can be devised, but in the hope that the attention of some one who has bestowed more thought on this subject than I have done, may favor us with his views through the Cultivator, and that the result may be a plan superior to any now in use, both as regards economy in space, utility and convenience.

One word as regards long or unfermented manure; let the advocates of fermented or rotted manure make a careful trial of equal quantities, and mark the result; my belief is, that at least one moiety of the fermented is lost in decomposition above ground.

Respectfully your obedient servant,
E. COWLES.



a, a, a, stable doors; *B,* barn door; *c, c, c, c,* spaces for feeding cattle, and in the place of mangers; *D, D,* bays for hay and grain; *E, E, E,* stables; *F,* barn floor; *g, g,* windows; *h, h, h, h, h, h, h, h, h, h, h, h, h,* ventilations for st[illegible]le and throwing out manure; *m,* door at the entrance of space or alley.

Smut in Wheat.

Judge Buel,—It has long been a desideratum to find a preventive of smut in the wheat crop; this year's experience has, in many instances, proven that *brining* and *liming*, as suggested in the "Cultivator," is not a certain preventive; at least it is certain that several farmers in this neighborhood, who prepared their seed wheat by soaking in brine, and adding as much lime as would adhere to it, found the crop smutty at harvest. It seems to be generally believed, that if wheat is *harrowed in* while it *rains* or *snows*, it will prove a smutty crop; experience has confirmed the fact in several cases this season, that have come to my knowledge. May not the secret after all be, that after duly prepared, the wheat be *dry* when sown and got in? Capt. Daniel Green, of this town, prepared wheat as above; about half of the seed after prepared, was kept till *quite dry*, before sown; the other moiety was sown while *still moist;* the latter when harvested was smutty, the other wholly free of it.

Your obdt. J. HATHAWAY.
Rome, January, 1838.

Remarks.—Notwithstanding these exceptions, the rule, that salt and lime are a preventive of smut, holds good, and can be attested to by thousands. We suspect either that the pickle was weak, the lime effete, or the steep not kept long enough upon the seed. Smut is a parasite. Its seeds adhere to the kernel. Salt and lime destroy their vitality. It is *possible,* that by sowing in wet weather, the salts may be so abstracted, as to render them ineffectual in killing the seed of the smut. But seed should be always harrowed in when neither rain nor snow are falling. The seed of the smut might have been in the soil, or in the bag in which the moist wheat was taken to the field; and if the former, the rain may have contributed to bring it in contact with some of the seed.—*Conductor.*

Poultry House.

Orange co. Va. Willow Grove, Jan. 18th, 1838.

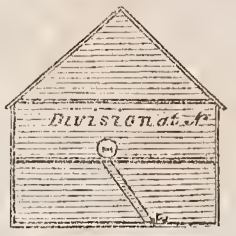
Dear Sir,—I have enclosed you a drawing of a poultry house, and as you justly remarked in your last number of vol. 4, of the Cultivator, although, superficially viewed, of comparative insignificance, it is certainly a branch of rural economy, which may be made to contribute largely to the economy and comfort of every family. And should you think it worth a place in your valuable paper, you may have it inserted.

Many of your subscribers in this section of country would be glad if you would have a drawing of the most approved ox yoke, with directions how to have it made and ironed on the best plan.

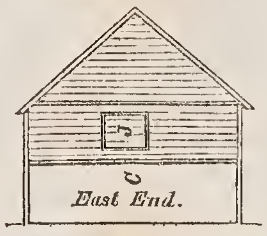
Respectfully yours, &c. W. D. CLARK.

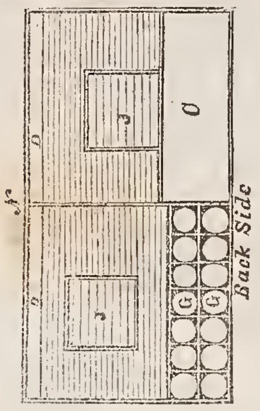
Explanation of the Cuts.

[Fig. No. 21.]



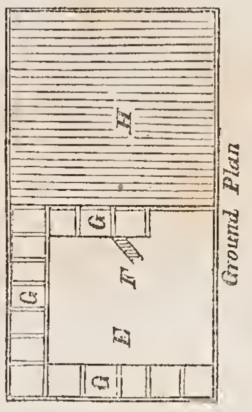
[Fig. No. 22.]



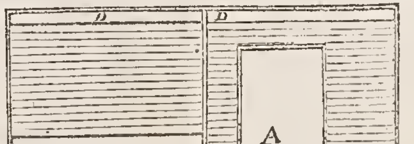


[Fig. No. 23.]

[Fig. No. 24.]



[Fig. No. 25.]



A, the door; B, the entrance for the fowls; C, C, C, the openings underneath the lattice or mitered floor where the fowls roost; D, six inch opening to admit air; E, the ground floor made of dirt, elevated above the surface one foot, with boxes for the poultry to lay and set in, or more properly a room for the poultry to set and lay in, to be increased with tiers as they may be required; F, steps for poultry to go to room to roost; G, G, G, G, G, G, boxes for nest; H, lattice or mitered floor for the litter from poultry to fall through, and room for the poultry to roost in; (i,) à round hole one foot in diamater, for fowls to pass to roost; J, J, J, lattice windows or blinds, three feet wide, three feet six inches deep. I have used the poultry house, of which the above drawing is a representation, for about eight years, and can testify that it is preferable to any known in this section of country, and many of my neighbors have thrown away their old houses, and have built after my plan. The roost for the fowls should be often renewed, and always of sassafras, as the smell of that wood is deleterious to the vermin on poultry. The floor in the setting room should be kept sprinkled with lime, and the litter from under the house taken away weekly.

Weight of Dutton Corn, in Indiana.

Respected Friend,—Having been desirous of ascertaining the best corn for the middle western states, I called last fall on J. M'Donald, of Allen county, Ia. to examine his Buel, or Dutton corn, and saw him shell and weigh a bushel. The weight was 69 pounds, and the product of an acre about 45 bushels. This is decidedly the heaviest grain that I have ever seen.

J. Buel. JUSTUS WRIGHT.
2d Mo. 26, 1838.

Sheep-Husbandry.

Weybridge, Vt. March, 1838.

Sir,—As much labor is bestowed in raising of wool within the circulation of your valuable paper, it is quite proper its patrons and wool-growers should now and then note a hint on sheep husbandry.

I do not expect in this communication to give general information to all interested in the subject, but if I have not learned some of the first rules of a good shepherd, it is not for the want of an opportunity.

I frequently hear it observed that sheep will degenerate where they have for a length of time been bred and kept on the same farm. To my satisfaction I have seen this proved otherwise.

My father was first in obtaining a flock of one of five hundred in this part of the state, and this flock and increase was summered on the same pastures successively forty-five years without shifting the ewes, and no sheep more robust were reared in this section of country; however, there was no breeding in-and-in, bucks were changed every year or two.

No animal is more nice in the selection of its food than sheep, and by giving them a sufficient choice, and free access to water throughout the year, the disorder generally attributed, and so fatal to sheep, called, "grub in the head," would rarely appear in our flocks.

Thin sheep in the month of July and August will take sudden colds, and viscid matter discharge at the nose within two hours after being exposed to rains or cold winds; in this phlegm the grub-fly deposits his eggs, at the same instant the sheep may be seen to cast up its head, and draw the larvae into the nostril, where it becomes a grub. Those in good condition will throw them out in the spring without any material damage. Sheep in good condition also may be killed by the grub, where full feed is not at all times allowed them to form the proper juices, which are secreted for their support; they will immediately gnaw into the brain, which terminates in death.—The shepherd that gives his flock sufficient forage, water, and exercise, will rarely be frequented by any raging distemper, except the scab and a foot rot, which spread by innoculation.

No animal needs water more than sheep; when fed on dry hay, without water, they do not receive a supply of the gastrick juices to promote the digestion in the stomach, soon loose their appetite, and are thrown into a fever.

Those in high condition will do tolerably well on snow, but to oblige ordinary and poor sheep to melt snow would be as proper as for a weakly person to resort to the same restorative to quench thirst. To confine them in small yards through the winter brings on a fever and general debility, which would be obviated by giving them exercise; one very essential point.

If they cannot otherwise be accommodated than in small yards, I would recommend a mound to be raised across the middle of it, so high that when they run over, those on the opposite side cannot be seen, which stimulates them to follow, one after another over this ridge,—when if the yard was level they would scarce move out of their tracks.

Respecting the rearing of lambs, I do fully agree with your correspondent, Mr. Daniel S. Curtis, in his communication in the 2d volume, 7th page.

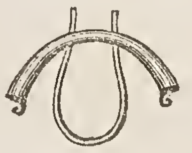
Yours truly, SOLOMON W. JEWETT.
J. Buel.

Yokes for Oxen.

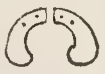
Juliustown, Burlington co, N. J. Jan. 9, 1838.

Sir,—In a retired place, I occasionally come across quotations from your valuable paper, and endeavored to get it; but it is not a month since I succeeded in obtaining the fourth volume of ten numbers by the mail. An article in the last number on "Working of Oxen," put me upon recommending through your paper, a mode of training and working them, which I have practised with unequivocal advantage for many years: it is, to give to each beast a separate yoke, with chains, or traces with a few links at the head, to hitch to a hook, two of which should be hung in an eye at each end of the yoke, as per figure 26.

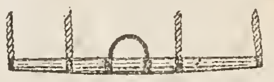
[Fig. No. 26.]



[Fig. No. 28.]



[Fig. No. 27.]



The chains, or traces, hitch to a whiffle-tree on the tongue, the same as for a pair of horses. No back-strap is necessary; and to loose the ox requires only to unhook the traces at the yoke, and throw them back on the tongue or cart.

For sustaining the tongue of the wagon or cart, figure 27, gives the form of a supporter, with four chains of four or five links, which attach to the forward hook on the ends of the yoke. The tongue, and the staple to steady it, must be *on the top* of this supporter, where a good iron plate for it to rest on, and to wear against the hold-back, will add strength and durability. Bits for the mouth, with straps to buckle behind the horns, and a coupling strap, are necessary; but *by no means* put blinds.

Oxen, bulls, or cows, trained to harness of the above description, may be directed in their course with lines, full as well as horses; singly to take a plough, or cart, for which there should be a separate yoke with tugs, and I am of opinion, *founded on experience,* will perform from ten to fifteen per cent more work, than in the old method of a double yoke. This gives them, when vicious, or worried a little, the power of quarrelling, by crowding or hauling; singly yoked, they are accommodated to the road, be it wide or narrow, sandy or irregular; they can straddle a log or hole without confinement to each other; walk freer, and consequently faster, and with less fatigue.

Cattle designed for work should be bridled early, and led about kindly; a small yoke should be put on them at a stage when they can be firmly managed by a rope attached to the bridle bit, which, with its straps, should be always strong; thus they may be rendered exceedingly tractable, much more so than horses are generally.

The *principal* use of oxen, (and bulls, which are stronger and hardier, and by early training are also made more peaceable,) in the heavy labors of agriculture and teaming, instead of horses, would result in very important advantages, both to the farmer and community at large. They should always be shod when worked on the road constantly, or in frosty weather. See figure 28.

I have heard that there are modes of bringing the draft on the head instead of the shoulders, practised in the Spanish provinces, the particulars of which I should gladly become acquainted with.

Your obt. sert. DAVID ALLINSON.

Hints to those who Write for Instruction.

That any information to be valuable, must be based upon experience, needs scarce an argument in its proof; nor is the assertion less in accordance with truth, that the value of any information must mainly depend upon the manner in which such information is conveyed. While facts are to be stated, it is essential that all the facts be brought forward. In treating of subjects connected with agriculture more especially is the above the case; the nature of the soil, the state of the climate, whether humid or dry, the average range of the thermometer, both perhaps in a great measure influenced by the remoteness from or proximity to the ocean or our great inland lakes, should be particularly noted. Thus would each be enabled to cull from the mass of facts presented by "The Cultivator," such as are best adapted to his individual case. How often do we meet with accounts of great crops, the beauty of a particular mode of culture, yet deficient in the essential points we have enumerated? To what possible advantage can they be applied, or rather of what evil may they not be productive, more especially among that class who, adopting agriculture late in life, either for profit or amusement, are deficient in that practical knowledge, which an early devotion to the subject can alone bestow.—On the other hand, had the writers been more particular in their narration, he had been ignorant indeed who had failed, since such failure must suppose an ignorance of the nature of his own soil, and other attendant circumstances, the knowledge of which, though more easily acquired, are by no means less necessary.

That the value of different articles for manure, depends upon the nature of the soil to which they may be applied, is a fact which, though readily conceded, appears to be but little attended to, at least if we may judge from practical essays on husbandry. As a proof of this, let us take the article of gypsum, or plaster as it is usually termed; no article can come more highly recommended, yet where can we find an account of the soils best adapted for its employment, the proper season for spreading the same, or the tests of its quality, (and no substance as a manure, differs more) whether it should be sown immediately after it is ground, or whether it will take no harm from remaining sometime before it is given to the earth. As an article of manure for certain localities its value can scarcely be estimated too highly, while we can imagine others where its employment, if not directly prejudicial, would at least be productive of no benefit; truly he would confer no small benefit on his country who would treat of this subject more at large.*

The article which appeared in a late number of "The Cultivator," on "new method of tillage," deserves serious consideration; it were the height of folly truly, to hold on the old, with no better reason than because it is old, and equally so to adopt, merely for its novelty, the new. There are some lands which require frequent ploughing, on these the rotation of crops is no doubt the proper system to be pursued, but are there not others which will pay better for being undisturbed? I trust the article I have alluded to, may elicit discussion on the subject, and thus give a new value to the pages of "The Cultivator." T.

Horn-ail.

Friend J. Buel,—Thinking the public might be benefitted by the following, I am induced to offer it for insertion in thy columns, viz: A cure for the hollow horn, or hollow head, in cattle. In cases of this disease, I have always resorted to the common practice of boring the horns, until one of my cows, without horns, was so diseased; in which case I took one half pint of good vinegar, two table-spoonsfuls of common salt, one tea-spoonful of pepper, and mixed them well together; the solution so compounded I poured into her ear, holding her head to one side, in order to keep her ear turned up, for the space of one or two minutes; then, after applying the same to the other ear, in the same manner, I turned her loose, and she is my milch cow this winter, it being five or six years since she was so diseased. Others of my neighbors have, in similar cases, resorted to the same method, always proving effectual. JOSEPH COPE.

E. Fairfield, Ohio, 1838.

Pennsylvania Barn, and Out-buildings.

Jesse Buel, Esq.—In No. 1, Vol. IV. of the Cultivator is an invitation for farming information, by the offer of premiums; this I was glad to see, not that I expected to obtain any of them, but that they would elicit information that would be valuable generally, and to me particularly, in planning farm buildings.

I possess a farm of two hundred and fifty acres, about half wood land, the other half cleared and tillable, on which, if all goes well, will be required additional buildings, nearly all that should be on a well improved farm. I have a central situation, with a very suitable slope to the south, such as is desirable and mostly sought by the farmers in this state. I have so far matured my plans as to make drawings, subject, nevertheless, to such improvements as I can make in them from what is yet to come in the Cultivator, and my further observation. With the view of contributing to the Cultivator my mite, (if a mite it be,) I have made the inclosed drawings; they are rough, but perhaps they may be understood.

Fig. 29, is ground plot of the whole concern, farm buildings, cattle yard, stack yard, rail-road, &c. on an extended scale. I purpose beginning with the barn, (Dutchman like; I live among them, and admire their barn economy.) A, barn with shed at one end and in front; B, wagon shed; C, store house for farm tools not in use; D, range of cattle sheds; E, poultry house; F, G, sheep and hog house; I, granary; K, boiling and smoke house, with winter and rainy weather work shop over it; L, dwelling; M, M, additional cattle sheds, or houses and yard in front; N, stack yard; R, R, rail-road through the whole line of buildings, (except the dwelling,) and a branch through the stack yard, when wanted and if the ground suits, (it does with me;) ·.·.·.·.·.·. dotted lines wagon roads for access to the back of all the buildings, and to the threshing floor in the barn.

[Fig. No. 29.]

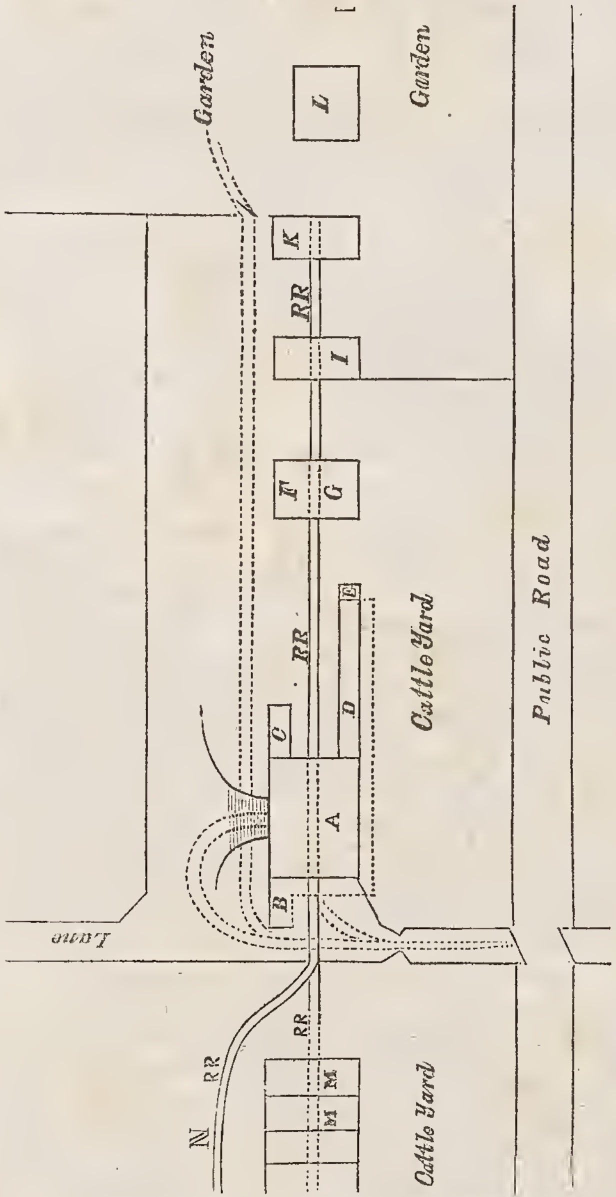


Fig. 30, ground story of stabling, &c. A, stables; A, A, other stables, or they may be dug out for cellars and bins for roots; B, bins and cellars extending under part of the entry within the dotted lines, to represent walls; C, entry with one door large enough to drive a wagon into to unload, or to load a wagon in for the market without risk of freezing in winter; D, doors; W, windows on the back side, with double sash to keep out the frost, and for light in the entry, also to fill bins; P, well with a pump; H, P, horsepower for working of threshing or any other kind of machinery above.

[Fig. No. 30.]

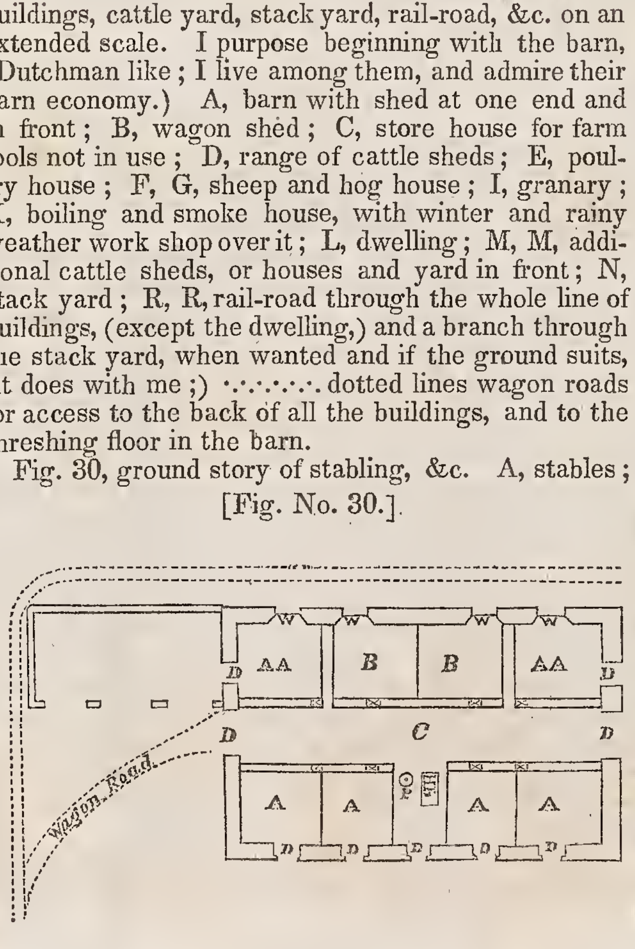


Fig. 31, represents the threshing floor and chaff room under it; access to the latter from the road back of the barn and under the bridge leading to the threshing floor.

[Fig. No. 31.]

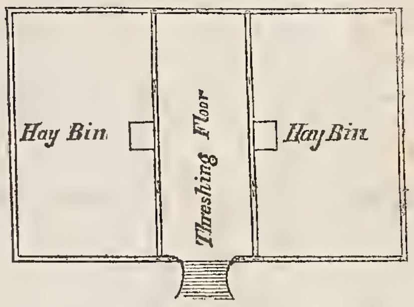
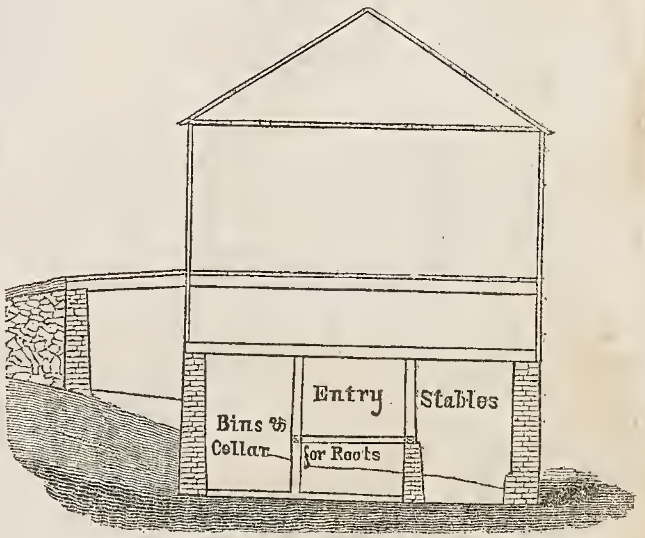


Fig. 32, elevation.

[Fig. No. 32.]



I have endeavored to improve on our German plan of the stable story, believing that the cost of the bridge, to the threshing floor, and the shed outside in front will be more than compensated by the room gained in the stable story for roots. The barn is all that I have undertaken to shew the inside of. All the buildings may be more or less convenient and expensive according to the proprietor's purse and inclination, (perhaps I may hereafter say more about some of them.)

As rail-roads are the order of the day, and as my ground is nearly level on a proper line for the front of the buildings, parallel with the public road, I have introduced one in my drawings through the centre of all the buildings, (except the dwelling,) to make transportation convenient from one to the other; the floor of the barn on which the car will run may be without rails, instead of which give the wheels of the car a face on the flang. I have contemplated constructing the car with a simple platform, so that we can place a steam box on it with the feed to be cooked in it, and take it on the rail-road to the boiling house, introduce a pipe from the boiler to cook by steam; when cooked, take it on the rail-way to any or all the buildings wherever they are to be fed; or, place on the car a light crib-work, (shelvings they are called with us,) for hay or straw from one place to another. One man can conveniently move on the rail-road half a ton weight. (Of the car more hereafter if desirable.)

From the accounts published in the Cultivator and others that I have read, root culture is extending, seemingly very profitable. My drawing embraces a cellar and bins that would hold about four thousand bushels, without obstructing the light, so placed that access can be had to them in freezing weather without danger; our climate at times is very cold and changeable, and we must provide against frost. My farm is about five miles from a good cash market for all my surplus; and if potatoes or other roots are to go to market in the winter, it would be very convenient to back the wagon to the bins to load and secure them out of the frost, to be ready for an early morning start.

Under the stable floor is a space between the front wall and the cellar wall, which may be filled with sand to absorb the urine of the horses or cattle. Some years since I called to see a relation, a good farmer, found him at his barn throwing sand into his stable, to replace what he had taken away. If my recollection is correct, (and I believe it is,) he said that the sand became good manure under the horses, and was well worth the trouble of renewing it at times; I do not recollect how often.

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*Chaptal's remarks on this subject are not without merit, yet I am inclined to the belief that his opinion as to its universal applicability is carried too far, while the quantity recommended by him to the acre, is by one half, at least, too great.

I have found in my various operations, that to have things well done by subordinates, we must make preparations convenient to do them well, and that is a part of my study in planning buildings.

L. S. PENN.

New-Jersey Lands—Ruta Baga.

Long Branch, N. J. March 1*st*, 1838.

Dear Sir,—I would like to call the attention of some of your readers to this section of country. It is a very improving one, and susceptible of the highest state of cultivation; it has a water communication with New-York city; is contiguous to the Atlantic ocean; abounds in marl of excellent quality; and, in my opinion, there are few places in which land could be more easily enriched, and at a cheaper rate. Farms can be bought here as yet very reasonably; and I cordially recommend all who are in search of a desirable place of residence, to come and look at Shrewsbury, Monmouth co. N. J. ere they settle themselves.

For the first time, last season, I tried half an acre in ruta baga turnips; and though the crop bears no comparison to those crops noticed in the February number of the Cultivator, yet I am so well pleased with the result, that the ensuing season I expect to sow one and a half acres, and would put in still more, but for the want of manure.

Yours respectfully, E. H. VANUXEM.

Egyptian Wheat—Morus Multicaulus.

New-Haven, March 1*st*, 1838.

Dear Sir,—I observe in yours and other agricultural papers, the Siberian and the Italian varieties of the Triticum estivum, but nothing said of the Triticum compositum, the Egyptian wheat. Experiments have been made by Mr. Horick, which prove that the fly will not feed on this wheat, though it will feed on every other variety of the estivum. Has this wheat been cultivated to any extent in this country, to ascertain its value for agricultural purposes? In the Gardener's Dictionary, edited by Prof. Martin, it is said that this wheat has been cultivated in several counties in England; but the only objection to it is, that the summers are too cold for it. From this fact, it is concluded, that it will be well adapted to our country. I have a sufficient quantity of the seed of this wheat to make a trial, which, if it should succeed, will be communicated to you.

I have made a series of experiments with the Morus multicaulus since 1832, with a view of determining its specific character. The result of which is, that it is only a variety of the Morus alba, produced by a high state of cultivation. I planted the seeds obtained from the multicaulus in 1833; some of those plants thus obtained, appeared like the common white mulberry; indeed, perfectly so. I then took some multicaulus plants, and put them in very poor sandy land uncultivated. The plants became hardy, of slow growth, and formed wood so as to resist the winter. It appears to me, that the high cultivation has given to the multicaulus the properties of an annual, at least to a certain extent.

Yours with esteem, ELI IVES.

Spring Wheat—Barn Building.

Dear Sir:—Spring wheat, sowed the 15th of May on my farm the past season, has escaped the weevel and proved a good crop, certainly thirty bushels per acre. Sowed April 20th, much injured. Winter wheat, in consequence of the worm, or weevel, was almost a total failure.

Spring wheat seems to require a high situation, perhaps a northern or western aspect on elevated lands will do best. It suffers severely if drought should intervene between the time when it begins to cover the ground, and the time of blossom. I think the 15th of May full early here, if you would escape the weevel; in colder climates, perhaps the insects deposit their eggs later.

Barn-Buildings—That barn suits me best which admits of most scaffolding; my scaffolds are of scantlings laid about six inches apart, and sufficient extension to dry fifteen loads of hay at once. I find it difficult to cure early cut hay on the field,* and not sadly injure it in color and quality, but cured it must be before it is mowed away.

We spread our hay on the scaffolds when but partially cured, and open the doors and windows; if laid lightly on the scaffolds it will soon dry, and then pitch it down, it will invariably come out fine except injured on the field. These remarks are not expected to apply to hay grown on old meadows, of light produce, for it is expected that among those who read the Cultivator and are determined to go ahead, such meadows will be scarce. A second qualification of a good barn, is stables contiguous to the thrashing floor, for horses and cattle, for if those be remote much inconvenience is experienced in feeding. Yard-buildings: Upright racks four or six feet from the backside of the sheds, add to the warmth of the shed if well filled with straw or coarse fodder, and I judge the thrifty husbandman would seldom have them empty. But the greatest modern improvement in the yard, is the straw house surrounded with rack-sticks instead of siding, with projecting roofs to shelter the cattle; around this the cattle can feed without fear of being pent up in a corner. I think we have not carried out one ton of hay on our yards in the old way in two years; our cattle make very little waste and I think feel no pinching want, the cows go to grass in good condition, but I cannot come up to our neighbor Jones, of Jefferson, who sells 200 weight of butter from each cow; I have only made a little over 2,000 lbs. of butter and 400 lbs. of cheese this season from twelve cows, but my pasture is chiefly clover, which perhaps is not so good. With much respect,

Yours, &c., WM. WALKER.

Cobleskill, February 14th, 1838.

*If our correspondent will adopt our mode of *curing his hay in cock*, in the field, instead of curing it upon the scaffold, we are confident he will save labor, and have equally as good hay as he has now. The advantages of his mode are, that the hay, by being cured by the air, and not by the sun, retains more of the leaves and nutrient properties, and has a better color, and more aroma, than it would possess if cured in the sun. The same benefits are secured, and with far less labor, we think, by putting it into grass cocks, and curing it there, as soon as the mown grass is wilted in the swarth and freed from all its external moisture.—*Con. Cult.*

Utility of Agricultural Journals.

Upper Middletown, Ct. Feb. 28, 1838.

J. Buel, Esq.—Dear Sir,—I take the liberty of addressing you a few words in relation to your paper, the Cultivator. It has been, I believe, but a few years since agricultural papers have been successfully established in this country; and I may say, that the amount of information which the farming community are capable of obtaining from them, is really invaluable. The improvement which, by the means of the knowledge farmers gain from these papers, they are capable of making, is worth at least ten times the cost of them; and they can, if they choose, extend it much beyond this. A paper like the Cultivator, at one dollar per annum, is low, and few can find an excuse for not taking it, as they can have it delivered to them at an annual cost of $1.19, to any part of the union. Men do not consider their *interests* when they neglect to take such valuable works, at so inconsiderable cost; if they do, I know of no better way of describing their policy, than by the old adage of "penny-wise and pound-foolish." It is no doubt a fact, that agriculture is capable of great improvement, perhaps beyond what can now be expected. This improvement is to be gained by practice and experiment. But, if every man would practice and experiment, and keep the result to himself, there would be but little gained. It is, then, by the diffusion of each one's experience and knowledge, who has made himself acquainted with any important facts among the whole community, that this result is to be gained. And in what better or cheaper way can this knowledge be diffused, than by cheap periodicals? Evidently none. Therefore I say, that every man who conducts such a paper, and every one who, by subscribing, contributes his aid to support it, is a public benefactor.

It is the duty, and indirectly, the interest of every farmer, to try and extend the circulation of such agricultural periodicals. For if his interests depend on the improvement of the soil, it is evident, that the extention of knowledge is to produce this result, therefore it is his interest. Let every farmer then, try and induce his neighbor, who does not take such a paper, to take one; and by so doing, he will not only benefit himself and his neighbor, but his country and mankind.

Our farmers need only to possess information to value it. If they once see the importance of agricultural periodicals, they will be at once convinced of the value of such information. I believe the time will soon come, when they will see the advantage of it, from the increasing prosperity and thriftiness of their neighbors who, endeavor "to improve the mind as well as the soil." C. P. WILLIAMS.

On sowing grain early and feeding it off.

Schenectady, 6 *March*, 1838.

Dear Sir,—I have considered it important to sow summer wheat, oats, barley and peas, as early as the season will admit in the spring, that they should come forward, shade and protect the ground from becoming too dry by early drought, which often happens in May and June, sufficient to starve and stunt the plants, and render the crop light. If this method should be departed from, I think it should be by feeding the grain by cattle before it spindles up in the spring, with a view to prevent its ripening till autumn.

I believe the reason why our oats and other grains are lighter than the same are in England is, because our seasons are warmer, and ripen the grain too fast.

If I were to engage again in farming, I would sow wheat the 1st August, and when it became too large, feed it down by cattle. It would then acquire large roots, and in the spring would urge forward much larger plants than that sowed in September, and I suppose must produce much a heavier crop. I think this experiment worth a trial: for, I believe it is a fact, that winter wheat and rye will live for years, if fed and not permitted to spindle and seed. As the fly which deposites the egg of the grain-worm flourishes about the ordinary time that wheat is in blow, I would feed it again in April and May, or 1st June, that it should not spindle nor be in blow till about 1st August. It would then escape the fly, and ripen in September, as it does in England. The weather being then colder, it would ripen slower, and the grain be heavier, as it is in England.

It would also escape the injury called *rust*, which is a disease caused in June and July, by means of very wet and very warm weather, which feeds the wheat plants too fast, whereby they become gorged, and the little vessels injured and burst, making sores on the straw, called rust; like as men when they eat and drink too much of good things, become diseased thereby.

I would thus experiment with wheat, oats, &c. to avoid the fly. If the fly can be thus cheated, it would be for our profit, although the worm appears to be a new creation, to chastise us for disobedience.

A field of wheat of the present spring might be fenced into several parcels, and try experiments of feeding till 1st June, leaving a patch, &c.

Most respectfully, D. TOMLINSON.

Remarks.—Wheat and rye sown early in September, generally prosper better than that which is sown later, though the former is more exposed to the Hessian fly; and we have heard of instances of the good effects of sowing in August. It has been stated, with good reasons for its support, that the fly upon early sown wheat may be destroyed by feeding off the crop with sheep in autumn, who bite off that part of the grain in which the nit or maggot is deposited. The suggestion of feeding wheat in spring, to retard the development of the head till the fly of the grain-worm has disappeared, is certainly worthy of attention, and merits trial. It is an undoubted fact, that grain ripening in a cool season, or cool climate, is plumper and heavier than that which ripens in a hot season or hot climate. We have evidence, that Italian wheat sown late in May, did well the last summer.—*Cond. Cult.*

The Wheat Insect.

Doct. De Kay, of the Zoological department of our Geologists, in his report of December 3d, 1836, says: "During the past summer, our farmers, more particularly in the northern parts of the state, had occasion to mourn over their blighted harvest, and witness the devastation of their property, occasioned by an apparently insignificant insect, and to regret their ignorance of its peculiar habits, in order that they might be prepared to suggest some rational remedy for his depredations."

When the labors of this learned entomologist shall have made some progress, and been reported, I know no mode by which their utility will be aided so effectually, extensively and generally, as through the columns of the Cultivator.

This new enemy, the wheat insect, known chiefly by his deeds, has escaped the notice of farmers; accustomed to find the root of the evil from the *larvæ*, or maggot state of most insects, as of the hessian fly, cut-worm, &c., hence this has been called the grain-worm, grey-worm, &c.

Having been absent at the south two summers, I had only the worms to examine,—these were confined with the grain, but of which they never ate. The last summer I sought early for the insect, and before the appearance of the wheat ear, a species of fly began to cluster about the field, and as their numbers increased I secured several of them for future examination, by placing them in colorless spirits. I was happy in bestowing them upon Mr. Mather and his associate geologists, although too late in the season to supply my loss.

The want of my specimens prevents giving the minute specific description to be drawn from the length and situation of the antennæ, &c., and the still more important organs of destruction, its *pointed proboscis*, the *perfect insect*, and not its larvæ, being the cause of the evil. I can only describe them from recollection. About half the size of the horse-fly, of a brassy green color; body and legs light, shoulders large, and wings long, adapted to long flight; altogether different from the Hessian fly, whose compact body and short wings curtail its locomotive powers. This *fly*, and not *its young*, destroys the wheat; it pierces the grain with its proboscis, and sucks out the juice while in a fluid state, and at the same time deposits five or six orange colored young within the glume or husk of the grain; a layer is in all cases interposed between them and the kernel; a spot under and around these worms (which are deposited *viviparous* by the insect) is always observed discolored, as if the juice had oozed through the wounded grain, or had been deposited by the parent for their first nourishment.—These worms having acquired strength and *legs*, of which they were born destitute, emigrate to all parts of the plant and end their march at the root, where they remain until their transformation the next summer.

It may be worthy of remark, that after the hardening of the winter wheat, the flies remaining preyed in a similar manner upon the seeds of the quack grass, and deposit their young among its glumes. I am of opinion that nothing conclusive can be founded upon the experience of the last year's observation. Had not the harvest been delayed an unusual time, say two or three weeks, the winter wheat would have been too forward to be injured by the fly, in the same manner as the *late sown spring* wheat escaped their period of existence—that period being between the early and late blossoming of the wheat.

A speculative opinion founded on the above observations would imply, that should the winter wheat appear in great forwardness the ensuing spring, one might expect immunity from it? But if, from any cause, it should be rendered backward, the case will be hopeless, unless, by feeding it off, it should be delayed so as to blossom with the spring sowing. In my collection of the wheat-fly were two other species. They were not taken in their company. They differ in color, one having a conspicuous black spot near the extremity of the wing; the other having two or three colored bands across the wings. They are about the same size, and equally well armed for destruction; I know not on what they may be destined to prey; they too should be watched. C.

The Least of the bugs.

In an old number of the Genesee Farmer is an article headed "The least of the Bugs." The writer, G., appeals to the observation of his neighbors; alas, this, or his own future investigation, is his only resource for information, a system of entomology of our country remains a desideratum. I believe he is right in considering them clover bugs. Some strollers of this race occasionally deposit their eggs or larvæ on the newly formed ears of rye; the larvæ reaching the grain while yet in a fluid state, disturbs its juice, and prevents its regular organization; this grain not being circumscribed by a hard shell, like clover seed, shoots out into a spur called ergot.

I examined a sample of ergot, procured at or before harvest time, and found in every grain the track of an insect. Following its course I discovered either the larvæ or pupa, the last soon developed the perfect insect, which was a black, glossy and nearly hemispherical bug. Believing this insect was the cause of ergot I enclosed the larvæ, pupa and bugs in object glasses for microscopic observation, and sent them to the Lyceum of Natural History in New-York.

Unfortunately for my theory, the opinion of De Candolle had just been published, "that ergot was not a distempered grain, but a peculiar fungus."—The society, rather than decide against the opinion of the greatest botanist in Europe, I suppose, were forced into the belief that these insects were created to feed upon this peculiar fungus; strange profusion in nature indeed, that a solitary one should have been supplied with food sufficient for a battalion of them.

My specimens however were put in the museum of the society, and my memoir placed among its archives for the month of August, 1818, where G. may find them without further direction, and probably identify them as his "*least of the Bugs.*" My opportunities for examining clover seed have been very limited; sufficient however to see many grains perforated in the same manner as peas from which the bug had escaped. Should any one repeat my experiment, I would recommend the examination of the ergot to be made about harvest time; if too early, from the minuteness of the worm it may elude his vision, and if too late, its traces may be obliterated by the process of drying. I have not found it in the ergot of the shops. My opinion that this, which I consider as the clover bug, is the cause of ergot, has received further corroboration by observing, that a few solitary plants of rye, growing in a lot with some red clover, were loaded with ergot;—again, last summer, in a field of rye, a square rod, adjoining a pasture lot containing clover, produced more spurs than an acre at a distance in the same field. As a proof that insects do not confine their operations to one favorite plant, I have seen ergot on elymus, rye-grass; and the wheat-fly frequently deposits its young amongst the seeds of quack-grass.

From the above it results, that we are called to view this almost microscopic insect with some interest. Let us observe it a short time before sun-set—see, it raises a helmet which has concealed its head, poises its elytra or wing-covers, expands its white wings from their plated and folded position, beneath the wing-covers—its visible dimensions are increased full six-fold; it next takes an aerial execursion to join in a waltz-like circle with countless numbers of its species. But while we contemplate with wonder the perfection of its organization, our pride is humbled to think that nothing is wanted but increased numbers of these insects to destroy entirely, what they now do partially, the staple article, *clover-seed.*

I would further remark, that the aberration of this bug into the rye-field, according to medical opinion, furnishes a potent remedy called ergot, and by the same authority this ergot, when mixed largely in bread, occasions gangrene and death. This has been sufficiently published for the last half century to induce farmers to be careful to separate the ergot from grain before grinding. To recapitulate, *the least of the bugs* is not beneath the attention of the farmer, the physician, the naturalist, and of every one who can say with the Psalmist, "The works of the Lord are wonderful, sought out of all them that have pleasure therein."

Kinderhook, January 7th, 1838. C.

Otsego Leicester Sheep.

Mr. Buel,—Sir,—I most cheerfully comply with your request to furnish for the "Cultivator," some account of the large fat wethers I sold Mr. Kirkpatrick, which were exhibited by him, in the Centre Market, on the 22d of February last.

It has been the practice of our butchers, for several years past, to procure and exhibit, on the birth day of the illustrious Washington, the *best* beef, mutton, veal, and pork that could be procured; and in no instance, in my recollection, has the exhibition equailed the last. And it is no less wonderful than true, that the meats, now furnished in our markets, are, at least, one hundred per cent *better in quality and greater in quantity,* than they were ten years ago.

What stronger argument than this do we want, in favor of an improved state of farming and improvement in our stock?

Albany has long been famous for superior fat mutton. It is now about thirty years since the late Christopher Dunn, Esq. first introduced the famous New Leicester or Bakewell sheep into this region.—Wilkinson and others followed in his track.

About the same period, or a few years earlier, some of the large Teeswater cattle were first introduced in this vicinity by Messrs. Cox and Colden, of Rensselaer county. In 1821, M. Bullock, Esq. of this county, imported two Durham bulls; and in 1823, S. Van Rensselaer, Esq., imported, at great expense, one bull and two heifers of the "improved Durham short horned" cattle.

I give these spirited gentlemen the credit of laying the *foundation* for the improvement of our beef and mutton.

But the improvement of our animals, has been more manifest for the last eight or ten years. The miserable *rickety runts* which formerly disgraced our barn-yards, are giving place to the more square and stately Durham, or smooth, beautiful Devon—to the large lusty Leicester, or the broad, round bodied South Down.

In December last I made a visit to a friend, residing in Butternuts, Otsego county, who was kind enough to introduce me to some of the farmers in his vicinity.

It is about three years since I had visited that section, and I assure you, I was not only highly gratified, but very much surprised at the great improvement in their various stock of *grade* animals. The great improvement in *that part* of the country, I attribute to an Agricultural Society which has been established there some two or three years.

They had met a few evenings previous to my arrival, and when we met them in the course of our tour, I was much pleased to hear the observations made in the course of conversation to my friend—expressing the gratification and satisfaction they experienced at the last meeting of the society. And in a letter now before me, he says:—"Last night I gave my first agricultural *soire*, which was well attended, and I think, gave general satisfaction to all present. I think I never saw more a genuine interest and enjoyment in social intercourse than I witnessed last night. There was a constant interchange of opinions. My friends grouped together in knots of three and four, each engaged in discussing some subject of particular interest to them in their own business.—They were *all practical* farmers, who till the soil with their own hands."

To return to my *sheepish* story. In the course of our perambulations we visited the farms of Messrs. Adcook and Musson, which are situated on the hills, about two miles east of Gilbertsville, Butternuts, Otsego county.

In the yard of Mr. Daniel Adcook, I found the five fat wethers I sold to Mr. Kirkpatrick. Mr. A. had procured scales for the purpose of ascertaining their weights. I was present when they were weighed, and they averaged 203 lbs. One of them reached 230 lbs. Being satisfied they would make *larger* sheep then had ever been seen in our market, I purchased them on the spot.

They were slaughtered and exhibited in the centre market, on the 22d of February last, and their weight was as follows:

No. 1.	Two year	old	weather, ...	151 lbs.
2.	do	do	do	141
3.	Three	do	do	141
4.	do	do	do	161
5.	do	do	do	167

making an average of 152¼ lbs., or 38 lbs. per quarter. The largest saddle, I have been informed, was purchased and sent as a present to the Hon. Henry Clay.

Mr. Adcook, the breeder and feeder of these superior sheep, is an Englishman by birth, and numbers four score years—settled on the farm he now occupies, some thirty or forty years ago, when a wilderness. The mighty forest bowed to the stroke of his axe, and by dint of industry, economy and perseverance, he has secured a competency sufficient to satisfy any reasonable person.

Great credit is certainly due to Mr. Adcook for his long continued exertions and attention to the perfecting of his flock, both by selections and importations from England, of which the five wethers were a specimen. His flock now consists of about eighty head of choice animals, some of which, I presume, he would sell to breeders at fair prices.

His nephew, Mr. Musson, whose farm adjoins, has also a flock of very good sheep of the same breed.—I also found in the yards of these gentlemen some superior cattle, a cross of the Bakewell or Shakespeare breed with the Durham, and some beautiful calves from these cows by an high-bred "improved Durham short horned" bull, now the property of H. D. Grove Esq. of Hoosick, Rensselaer county.

From Mr. Adcook's we passed through the valley of the Butternut creek on to the West hills, about two miles, to the farm of Mr. Jackson, where we were shown some very good *grade* cattle and about sixty head of very good sheep. Mr. Jackson's sheep are more varied in character, (if I may be allowed the expression) than those of Mr. Adcook and Musson. Some partake of the Leicester, some of the Lincoln, some of the Cotswold. This, I presume, is in consequence of his having selected from various flocks.—Among them were some he had obtained of J. Wilkinson of Duanesburg, which could readily be selected by a person that was acquainted with his flock.

There was one thing about these gentlemen's premises, I cannot in justice to them, let pass without notice,—and that is the excellent arrangement of their buildings and sheds for the accommodation and protection of their cattle and sheep; (a consideration, I regret to say, too little regarded by most of our American farmers.) "Comfort and convenience" seems to be their motto.

Cattle and sheep do not claim all their attention, for I found my favorite Berkshire pigs in most of their pens. Ten and fifteen dollars is not an uncommon price there for pigs from eight to ten weeks old.

In the possession of Mr. Thomas Hollis, of Gilbertsville, I found ten very superior sows. Mr. Hollis has also some excellent *grade* sheep, a cross from a South Down buck, which he obtained of F. Rotch, Esq. of Louisville, who first introduced this valuable variety into that vicinity.

I have in a former communication spoken of Mr. Rotch's stock of Durham cattle and South Down sheep, and will now merely say, there has been great improvement in this stock since I saw them—evincing, in an eminent degree, what science, good judgment and attention may accomplish, when properly applied. CALEB N. BEMENT.

Three Hills' Farm, Albany, March 10th, 1838.

Top-Dressing Meadows.

Hamptonburgh, March 6th, 1838.

J. Buel, Esq.—Dear Sir,—I was so much pleased with the results of some experiments made last season and the season previous, in the top-dressing of grass or rather meadow grounds, that with your permission I will communicate them to the agricultural public. The information will not be new to many of your readers, and although others may remain sceptical, yet to all I would say try it, should it only be on one square rood. Soon after haying in the fall of '36 I had collected what manure could be scraped up (it having all been applied the preceding spring to our corn and potatoe crops) and carted on to the poorest part of one of our meadows, and spread at the rate of, say twenty loads, to the acre, and adjoining this, in the same meadow and the same kind of soil, which is a rather thin clay, I had spread thinly all the straw we could find in a perfectly dry state, and for this piece of folly was laughed at by some of my knowing neighbors, but while mowing this part of the meadow I invited some of them to witness the result, at which I was myself astonished; we could discover no difference where the manure was applied, and where the straw had been, but in both cases the quantity of grass was nearly double to that on either side where no manure or straw had been used. This experiment, pardon the frequent use of so ominous a word, was so successful, that I repeated it the past season, spreading all the straw we could muster immediately after haying, and in a few weeks the difference in the growth of the grass where the straw had been spread and that of the adjoining part of the meadow was so manifest that no one could doubt the utility of the practice—in the one case the grass started quick and grew rank and thick, and in the other, the growth at the end of two or three weeks was hardly perceptible, and I am told by a Long Island friend, that the crop will be more enhanced at the second mowing after the application than the first.—What is the rationale of the thing, I pretend not to know; I merely state the facts of the case. And yet, Mr. Editor, how common is it to see great heaps of straw about the barn or in the fields, left there to rot and become a nuisance, instead of adding, if properly applied, from 50 to 100 per cent to the crop.—And this species of manure is so much more easily, and cheaply applied; two loads being sufficient for an acre, whereas from twenty to twenty-five of barnyard manure would be required.

Another experiment, (pity some "experiments" of a more important character should not have resulted more favorably) I made last spring with ashes and plaster, has satisfied me of the great value of the former as a top-dressing for our meadows. I plastered a part of a ridge in a meadow, where the season before we had cut a middling crop of clover and timothy, and on the balance of the ridge I sowed ashes at the rate of twenty-five or thirty bushels to the acre. The crop on the whole ridge was improved, but the part that was ashed, turned off a swarth full one-third heavier than the other. The spot on which this last experiment was made, might perhaps have been ploughed to advantage, but there are numberless acres of what we call natural meadow, that cannot be ploughed without extensive ditching and under-draining, and while I fully coincide with you, Mr. Editor, in your views of the utility and great importance of this branch of agricultural improvement, it must be borne in mind, that comparatively few can afford, except by degrees, the expense which it would involve. All the surplus population of the Emerald Isle, in a quarter of a century or more, and at an expenditure of many millions, would hardly accomplish what would really be beneficial in our country. We must therefore adopt the best expedients within our reach, to add to the fertility and profits of our farms.

Permit me to say that the Dutton corn did not disappoint my best anticipations. Owing to the wet and backward spring last spring, we did not plant it until the last of May or first of June. The Dutton corn ripened to my satisfaction, while nearly one half the common eight rowed kind was soft—so that I am satisfied, that had we planted all of the former it would have been an advantage of more than twenty-five dollars. With much respect,

Yours, W. W. J.

Efficacy of Gypsum sown in Autumn.

Seneca-Falls, March 13th, 1838.

Jesse Buel,—Dear Sir,—I address you now simply to give you the result of an experiment which I made last year with gypsum. In October 1836, I sowed about six bushels per acre upon part of a field sowed to wheat early in September. The land was a mixture of sand, gravel and loam. It had laid several years in timothy. In the spring it was ploughed, and oats, corn and peas put in. Part of the field I applied no plaster to. The difference between that sowed with plaster and that on which no plaster was sowed, was quite one-half in favor of the former.—That which was plastered produced a vigorous growth of straw, while the heads of wheat were much longer and fuller than that which was not plastered. By sowing in the fall, the gypsum becomes, from the action of the fall and winter rains and snow, perfectly dissolved, forms a chemical union with the soil, and affords to the wheat plant its natural food. When sowed in quantities from five to six bushels per acre, the benefit is felt on the subsequent crop of grass.

From experience I am satisfied that gypsum ought to be applied on timothy and other grass meadows, in much greater quantities than are usually put on clover. Gypsum when sowed in large quantities on a clay soil, ameliorates it. Upon a few yards of stiff red clay I spread about half a bushel of plaster last spring; in the course of the summer the color of the soil changed to a dark brown, and the clay pulverized, lost its tenacity and became, when dry, almost as light as ashes. I agree with you in your opinion as to the manner in which plaster benefits different crops.—Of some plants, such as corn and clover, it constitutes the specific food. But others, such as timothy, wheat oats and barley, it benefits by its chemical action on the soil as well as by furnishing lime to those which require it. The wheat crop, as far as I have observed since the snow has left us, looks well.

Your obedient servant,

SAML. J. BAYARD.

REMARKS.

The suggestions in the preceding communication of Mr. Bayard are very important to the farmer. They go to render probable, what before was doubted, that gypsum may be advantageously applied to clays, if applied in larger quantities than usual; that it has a chemical action upon the soil, and is thus in directly and highly beneficial to crops upon which it is believed not to have any direct action. The improvements it suggest are, 1. To sow gypsum in the autumn, or early in the spring; and, 2, to sow it in larger quantities than usual upon clays. We sowed plaster upon our meadows in April, and upon two or three ridges the quantity was doubled, i. e., at the rate of two bushels the acre. The crop upon these ridges was nearly double what it was upon the rest of the field. Soil, clay loam. —*Cond. Cult.*

Smut in wheat.

J. Buel, Esq.—Dear Sir,—It seems that our wheat crop, as bread-stuff, in this country, is considered the most important; it is well known there are many evils befalling this grain, especially of late years.—Many inquiries has been made for warding off those evils. The smutting of this grain may be considered one of the greatest evils, although a remedy is found to allay the matter in some degree; yet the cultivator is not exempt from much trouble and anxiety, that is from the mode of liming, brining, &c. It is ascertained in my neighborhood, that the sowing of old wheat is a complete preventive; a neighbor having spared all his new wheat sowed of his old, observing the product to be perfectly clean from smut, when his neighbors and his former crop was more or less smutty; when this was fully discovered, they flocked to him for clean seed; inquiry was excited, and the circumstance of sowing the old grain was brought in question, and considered to be the only cause.

As we are small wheat growers in this section, but little has been said respecting the discovery. I have laid it up for a valuable truth. Mr. Editor, if you know nothing relative to this statement, I think you will cause it to be published in your paper, soliciting information; if correct, it must be a valuable acquisition to the public when generally known.

If the true cause of smut in wheat be an insect, the period of one year destroys them. If it be seed, the germinating powers must have perished. If buggy peas are kept over one season, there will be no live bugs found among them.

A small portion of fine salt sifted and raked into a bin of corn, or any grain whatever, immediately kills the insects or drives them off; can any quantity of salt sufficient to drive them away from the field be applied and not destroy the grain, at the proper season of their mischief? Respectfully,

ABEDNEGO ROBINSON.

Portsmouth, (N. H.) March 1, 1838.

REMARKS.

The modern opinion is, that smut is a parasitic plant, i. e. a plant which feeds and lives on the wheat plant, and Bauer, in the transactions of the Royal Society, says its seeds are so minute as to pass from the seed grain in the soil, with the ascending sap, to the ear of the grain, where it grows and produces smutty grain. Many of the salts, as marine salt, lime, vitriol, copperas, &c., are found to destroy the germinating principle of this seed, and the supposition is a rational one, that the smut seed loses its vital principle by being kept through one season, which we know to be the case with many seeds. And upon this hypothesis we account for the fact stated by Mr. Robinson. But even if old wheat is put into a bag which has contained smutty wheat, or is in other way brought in contact with smut seed, the infection will take, and the crop will be more or less affected.—*Cond. Cult.*

How to produce new varieties of Corn.

I selected last June from my early garden corn, sachatash kernels, sufficient to plant about thirty hills, continuing the rows a few hills with the original product of the cob. This corn was a bright yellow, and of tolerable size; the kernels picked out of the rows of the ear were also yellow, but not as bright a tinge as the original, but very well matured; those kernels must have originated from white sachatash, as I have never seen any other color of the sachatash, other than dark purple, which is used for coloring frequently; this corn was all planted at the same time, and the attention precisely the same. Its appearance was so uniform, no one acquainted with its growth would pretend to draw a line of distinction; it kept equal pace to maturing. The result of my experiment has far more than remunerated for the set out, and has successfully exceeded my expectations. In harvesting I found one uniform original appearance of the early garden, the sachatash differing only in softness. A few ears were boiled when in a proper state and found to be good sachatash. I have now a handsome little trace of this corn, no more mixed than common, where other varieties are planted neighbors to it; some ears being perfectly clear.

This statement infers, that different varieties of corn as to size, color, and period of maturing, may be chosen as fancy may lead, and planted aside or in the midst of sweet sachatash, which will receive a portion of sachatash in the ear, the product of which planted by itself, will be of the original in all the particulars, except it being soft, sweet sachatash. Mr. Editor, it will be my greatest pleasure to send you one ear of this experimented handsome corn, if any opportunity by sending it by water should occur, and hope it would be accepted. If any rare seed should be in your hands, intended for distribution at the time this may be received, I should think myself highly flattered in receiving a few seed, especially of such as promise a profit. A. ROBINSON.

Portsmouth, (N. H.) March 2d, 1838.

REMARKS.

The idea of improving our corn, by artificial crossing, is novel, yet perfectly philosophical; and we doubt not but in this way improved varieties may be obtained, or at least varieties combining the prolific qualities of one kind, with the early maturity of another. Although when corn is found mixed on the same ear, as white and yellow, the grain appears to resemble exclusively one or the other parent, that resembling the male must partake more or less of the peculiar properties of the female parent, and must of course constitute a new variety. Mr. Knight experimented with the pea, with wheat, and the strawberry, and produced by the artificial cross several esteemed varieties, several of which in consequence bear his name.—*Cond. Cult.*

Steeping and Tarring Seed Corn—Italian Wheat—Farm Accounts.

Sennett, March 8, 1838.

Judge Buel,—Dear Sir,—We planted about 12 acres of corn, most of it 8 rowed, some the large 12 rowed variety, common with us, and about 1 acre of the Dutton. All of it was soaked, tarred and plastered with great care, and planted the 12th to 15th of May. It came up remarkably even and thrifty, maintaining its superiority over all other fields in its vicinity, and has produced about 70 bushels per acre of excellent sound corn. The tarring and plastering, although not a perfect cure for the crows and wire worm, we are fully convinced is better than all other means hitherto employed, and for promoting the growth and ripening of the corn, so valuable, that accidental causes alone, will prevent me from using them hereafter. Their successful application requires much care, both in the preparing and planting, but when well done, will add one-fifth to the product, besides lessening the liability to be destroyed.

I sowed 6½ bushels of Italian spring wheat from Rome, on 5 acres of corn stubble in the best condition, the 15th April, and from it have received 202 bushels of excellent wheat, which I have sold for seed at 2 dollars per bushel. This all fell down, 3 weeks before it was cut, yet it did not rust in any degree, while winter wheat in the same field, was completely spoiled by it.

We sowed 2 acres of roots, ruta baga, carrots, and mangold wurtzel, and gathered about 600 bushels pr. acre from the turnips, but not as many from the carrots, and still less of the beets. We consider the turnip the most valuable for common culture, considering the relative labor, in raising and their value when raised, although the carrot is probably the most nutritious of the three.

The plan of keeping an account of the produce of different crops, and our operations, we have pursued the past year for the first time, and find it very useful; and on the whole have learned much, and we think laid the foundation for learning much more.

Yours very respectfully,

LEVI J. HOPKINS.

The Contrast.

The astonishing power of hereditary opinions, and of impressions received in early education, is attempted to be illustrated, by the following dialogue, supposed to have occurred in an evening conversation, between a farmer of the hereditary school, and his son, on the latter's return from school, where he had studied, with some interest, the principles of scientific farming.

LANSINGBURGH.

Father—Well, John, since you are becoming a scholar, I suppose you have quite outgrown the thoughts of being a farmer?

Son—No, father, the effect is quite the contrary. I have been paying considerable attention to the study of agriculture; and I assure you I have found it a most delightful subject.

Father—From the number of books and foolish newspapers, all about farming, you have brought home, you are in a fair way to run crazy and turn book farmer—why son I would sooner see you engaged in catching grasshoppers.

Son—Then, I suppose father, you consider farming as not susceptible of any improvements.

Father—Improvements, why what improvements do you want, John? Have not I been a farmer all the days of my life—and a good farmer? and were not my father and grandfather good farmers, brought up to it? and now I have been sending you to school, and on your return home, have commenced teaching me how to farm. No—no—John, that wont do—I am too old to begin to learn my trade anew from books, written by a parcel of lazy fellows, who never hoed a hill of corn in their lives.

Son—Then, I suppose you will plant corn on the same old field behind the barn where you have always planted it, and feed the same breed of long snouted, razor backed hogs.

Father—Yes, John, I have hoed corn in that old field many a day, by the side of your grandfather; and it is good enough for me, yet; and the pork of my old breed of hogs brought me over a hundred dollars last winter, and I have no doubt, they will bring me as much this winter coming; and if you intend to be a farmer, and are wise, you will follow my example, and not be led into the wild goose chase of book farming.

Son—Well, father, I am not disposed to question your claim to the title of a good farmer; and I am proud of being descended from ancestors of that most ancient and most honorable calling; but should I arrive at the honor of pursuing it on my own account, I shall feel additional pride in meriting the appellation of a book farmer. If I can succeed in raising sixty bushels of corn from an acre with the same, or less labor than it cost you to raise thirty; and if I can obtain a breed of hogs which are not more than half legs, ears and snout; and which will not, like Pharoah's lean kine, cost more than their value, I shall not consider that I disgrace my worthy ancestors by so doing.

Father—Ah, John, when you are of age you will of course act for yourself, and I hope, by that time, you will have more sense than to believe your sixty bushel stories, and hogs fatted upon moonshine. I have as good corn on the old family corn lot as any of my neighbors, and I think thirty bushels a pretty good crop. For my part, I dont think best to believe half the lies people tell.

Son—I have no wish, father, to believe lies; but I think I could give you most satisfactory proof that more than a hundred bushels of corn have been raised from an acre, in a great number of instances—

Father—Why John—I would not believe so foolish a story, if I told it myself. But I see I have sent you to school to make a fool of you. I hope, however, you will out grow it when you get more discretion.

Son—I hope, Sir, I shall improve in discretion, but I am very sure discretion will never influence me against being a book farmer.

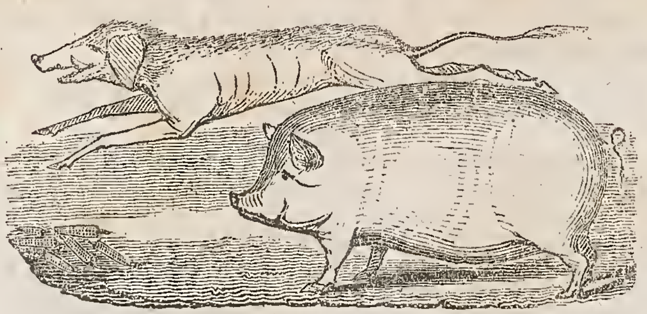
Father—A book farmer!—why my son, I am tired of such folly—have not I always been considered a good respectable farmer? Are not my crops always planted in season and tended and gathered in good order? What better can you do in farming, than to follow my example.

Son—Your example, father, as far as industry and attention to business go, are perfectly satisfactory, and I shall be proud to follow it. But you will excuse me when I tell you that book farming teaches me some improvements in the system of managing which I think are too important to be neglected. It teaches me that plants require food as well as animals; and that the ground which supplies that requires to be replenished from time to time with the means—it teaches me that if the manure which has been accumulating by the side of your barn ever since my remembrance, and is now rotting the covering, were spread upon your corn field, it would, at least, double your crop; that by changing crops the value of your land would be doubled. I have learned, by books, as well as by my own observation, that as great improvements may be made in the breeds of animals as in the choice and cultivation of vegetables, especially in the breed of hogs.

Father—Why, in the name of common sense, what improvement would you have in the breed of hogs?—My hogs last fall weighed from three to four hundred—do you want any thing better than that?

Son—Why, sir, the corn which fatted each of your hogs, to that weight, would have been abundantly sufficient for three of the Berkshire breed, of the same weights, and that which feeds your store hogs, with bodies as lank as grey hounds, and having as if you were breeding them for racing and leaping fences, would keep double the number of any of the improved breeds, with short legs and ears, so fat that their bellies would drag upon the ground.

By the way, father, let me show you a sketch I made at Hoosic falls, the other day—a fat hog, of the Berkshire breed, was turning to get at an ear of corn which lay between it and the fence, when a real racer, of your favorite breed, which was six or seven yards off, seeing the corn, and urged no doubt by his ever craving appetite, making what a Scotchman would call a *hop, step and leap*, jumped clean over him, and got the corn. [Fig. No. 33.]



Moneys received during the last month. Sums under five dollars not noticed.

		No Vols.			No. Vols.
Alfred, Alleg.		40	Easton,	Pa.	22
Amenia, Dutchess,		11	Elberton,	Ga.	6
Asylum,	Pa.	5	Fishkill, Dutchess,		20
Amherst, C. H.,	Va.	11	Fort Ann, Wash.,		11
Abingdon,	Va.	34	Fonda, Mont.		7
Ancaster,	U. C.	6	Fulton, Osw.,		9
Athens,	Ga.	11	Far West,	Mo.	5
Augusta,	N. J.	5	Franklin,	Pa.	5
Black Rock, Erie,		14	Fredericksburgh,	Va.	22
Butternuts, Otsego,		15	Fincastle,	"	22
Ballston, Sara.,		10	Framingham,	Mass.	11
Binghamton, Br.		6	Freehold,	N. J.	29
Buskirk's Bridge, Wash.		15	Franklin Mills,	O.	11
Banbridge, Chen.		11	Friendship,	Md.	33
Bethel,	Ct.	5	Gaines, Ont.,		7
Bridgeport,	"	13	Goshen, Or.,		12
Buckland's Corners,	"	9	Glenn's Falls, War.,		10
Braintree,	Mass.	11	Greensboro,	Vt.	12
Belchertown,	"	12	Granby,	"	5
Boston.	"	88	Great Barrington,	Mass.	8
Barnardston,	"	8	Greenfield,	"	8
Bowman's Mills,	Va.	22	Greenwich,	N. J.	64
Brentsville	"	12	Georgetown X Roads	Md.	11
Brookville,	Md.	11	Great Mills,	"	17
Baltimore,	"	33	Goshen,	Ct.	22
Beaverdam,	"	5	Galesville,	Vt.	5
Bladensburgh,	"	6	Georgetown,	D. C.	22
Burlington,	Vt.	13	Hillsdale, Col.,		12
Bethel,	"	14	Hamptonburgh, Or.,		10
Buck-Grove,	Tenn.	22	Havanna, Chem.,		10
Bethany Church,	N. C.	22	Huntington, Suff.,		21
Brockville,	U. C.	6	Hempstead, Qu.,		9
Brownsville,	Pa.	19	Holland Patent, On.,		9
Bybury,	"	12	Hoosick Falls, Renns.,		5
Bethlem,	Ct.	8	Huntingdon,	Pa.	5
Brooklyn,	"	14	Harrisburgh,	Pa.	11
Bridgeville,	Del.	6	Haverhill,	Mass.	11
Coxsackie, Greene,		28	Harvard,	"	15
Cooperstown, Ots.		16	Huntsville,	Va.	12
Cuddebackville, Ora.,		5	Harris,	Va.	14
Canterbury,	"	11	Harrisonburgh,	"	22
Copenhagen, Jeff.		5	*Hartford,	Ct.	18
Carmel, Put.,		5	Hackensack,	N. J.	11
Canaan 4 Corners, Col.,		11	Hightstown,	"	6
Catskill, Greene,		8	Hagerstown,	Md.	14
Caledonia, Liv.,		11	Hollis,	N. H.	13
Copenhagen, Lewis,		5	Islip, Suff.,		6
Coventry, Chen.		15	Ithica, Tomp.		6
Caseville, Ulster,		5	Ipswich,	Mass.	11
Canton, St. Law.,		5	Johnstown, Mont.		32
Casville,	Mich.	14	Jefferson,	Va.	18
Clarksville,	Ga.	14	Kingston, Ulst.		5
Courtland,	Al.	7	Kinderhook, Col.		10
Conneautville,	Pa.	11	Keeseville, Ess.		15
Concord,	"	11	King George C. H.	Va.	11
Columbia,	S. C.	5	Keene,	N. H.	17
Canton,	Ct.	9	Liverpool, Onon.		11
Colchester,	"	13	Leeds, Greene,		9
Colebrook River,	"	6	Laurens, Ot.		.8
Camden,	Del.	20	Lyons, Wayne,		16
Columbus,	N. J.	13	Loretto,	Va.	16
Cinnaminson,	"	23	Lynchburgh,	"	65
Conrad's Store,	Va.	6	Long Branch,	N. J.	8
Charleston,	"	32	Lawrenceville,	"	26
Church Hill,	Md.	12	Locust Hill,	"	11
Cecilton,	"	11	Lewisburgh,	Pa.	5
Centreville,	"	15	Laurel Factory,	Md.	7
Chestertown,	"	5	Lee,	Mass.	13
Churchville,	"	11	Lexington,	Ky.	7
Charlotte	N. C.	22	Lebanon,	Ct.	11
Crawder's Creek,	"	17	Litchfield,	"	20
Clarendon,	Vt	11	Lisbon,	"	20
Castleton,	"	17	Lebanon,	Tenn.	6
Commons,	R. I.	8	La Grange,	Ga.	11
Chillicothe,	O.	7	Middle Granville, Wash.		13
De Witt, Onon.		5	Mamaroneck, West.		5
Durham, Greene,		5	Minaville, Mont.		20
Delhi, Del.,		16	Milford,	Del.	11
Dixon's Ferry,	Ill.	11	Milton,	"	10
Denton,	Md.	13	Mansfield,	Ct.	5
Dawsonville,	"	17	Monroe,	"	12
Darnestown,	"	12	Marlboro,	"	6
Dayton,	O.	14	Manchester,	"	22
Danville,	Pa.	22	Mount Crawford,	Va.	5
Durham,	Ct.	14	Madison C. H.	"	6
Delaware city,	Del.	5	Mount Solon,	"	16
Deerfield,	Mass.	18	Montreal,	L. C.	11
Dumfries,	Va.	6	Morrisville,	Pa.	13
E. Hampton, Suf.		11	Maunch Chunck,	"	10
E. Greenwich, Wash.		7	Millersburgh,	Ky.	5
E. Bloomfield, Ont.		5	Middleburgh,	"	6
E. Groveland, Liv.,		7	Mansker's Creek,	Tenn.	6
Elmira, Chem.,		23	Mecklinburgh,	"	27
Elgen, Catt.,		6	Manchester,	Ia.	11
Ellsworth,	O.	12	Marksboro,	N. J.	11
Eugene,	In.	7	Montpelier,	Vt.	8
Everetsville,	"	6	Newark,	R. I.	22
Emmetsburgh,	Md.	14	New-York city,		78
Easton,	"	5	Newburgh, Or.		11
Enfield,	Ct.	10	North Sparta, Liv.		9
New Lebanon, Col.		12	St. Inigoes,	"	11
Nassau, Renss.		6	Staunton,	"	18
New Bedford,	Mass.	42	Salisbury,	Md.	11
Northampton,	"	24	St. Michaels,	"	11
New Marlboro,	"	12	Snowhill,	"	11
Newton L. Falls,	"	21	Southport,	Ct.	5
New Albany,	Ia.	20	Sterling,	"	14
Newcastle,	Ky.	11	Sheshequin,	Pa.	5
New Hope,	Pa.	5	Shephardstown,	"	11
Newton Square,	"	5	Springfield,	Mass.	17
Newcastle,	"	6	Southbridge,	"	15
New Bedford,	"	7	South Tyirrngham,	"	9
New Berlin,	"	5	Sheffield,	"	16
New Holland,	"	17	Southbridge,	"	15
North Haven,	Ct.	11	Shelburn,	Vt.	11
New Milford,	"	11	St. Albans,	"	37
New Preston,	"	9	Shoreham,	"	7
Norwalk,	"	13	Smyrna,	Del.	17
New Alstead,	N. H.	5	Scull Shoals,	Ga.	5
New Brunswick,	N. J.	23	Summersville,	N. J.	12
Newton,	"	11	Suckasunny,	"	5
New Germantown,	"	6	Salem,	"	5
Norfolk,	Va.	25	Shrewsbury,	"	12
Newbern,	N. C.	18	Salem,	Ia.	17
Nashville,	Tenn.	22	Shannon's Store,	Ill.	11
North Searsmont,	Me.	11	Troy, Renns..		17
Orangeville, Gen.,		11	Trumansburgh, Tomp.,		11
Oswego, Osw.,		17	Troupsville, Cay.,		5
Ovid, Sen.,		11	Thompsonville,	Va.	16
Owego, Tioga.,		24	Thompson's X Roads	"	7
Oxford, Chen.,		27	Titusville,	N. J.	7
Oak Forrest,	N. C.	11	Torringford,	Ct.	11
*Orange C. H.,	Va.	17	Trappe,	Md.	5
Poughkeepsie, Dutch.		28	Utica, Oneida,		22
Perry Centre, Gen ,		8	Uniontown,	O.	11
Plattsburgh, Clin.,		11	Upper Middletown,	Ct.	10
Pawlings, Dutch.,		6	Vienna, Oneida,		7
Portland, Chaut.		6	Vienna,	Md.	16
Plymouth,	Ill.	7	Vergennes,	Vt.	7
Plymouth,	Ct.	6	Washington Hollow, Dut.		11
Pittsburgh,	Pa.	13	Westfield, Chaut.		5
Pottsville,	"	8	Warwick, Or.		11
*Philadelphia,	"	75	Warsaw, Gen.,		6
Petit Nation,	L. C.	5	Warren, Herk.,		9
Pittsfield,	Mass.	11	Westmoreland, Ont.,		11
Princess Ann,	Md.	39	Williamson, Wayne,		7
Painsville,	O.	14	West Winfield, Herk.,		11
Point Pleasant,	"	7	Waterloo, Sen.		9
Passumpsic,	Vt.	12	Watertown,	Mass.	91
Port Royal,	Va.	6	Warwick,	"	7
Powell's Tavern,	"	11	Westboro,	"	16
Redhook, Dutch,,		13	West Springfield,	"	13
*Rhinebeck. Dutch.,		27	Wilton,	Ct.	11
Richmond, Richmond,		22	Winchester,	"	15
Rome, Oneida,		15	West Hartford,	"	17
Richmond,	Va.	36	Waterbury,	"	6
Rutland,	Vt.	28	Wallingford,	"	5
Royalton,	"	12	Windham,	"	13
Rutland,	O.	6	Westminister West,	Vt.	8
Rahway,	N. J.	13	Wallingsford,	"	7
Rockaway,	"	10	Waterbury	"	22
Rockhall,	Md.	11	West Milton,	"	16
South Westerlo, Alb.,		11	West Rutland,	"	14
South Trenton, Oneida,		19	Woodstock,	"	15
Salem, Wash.,		9	Wellsboro,	Pa.	16
Sing Sing, Westc.,		11	Walkersville,	Md.	14
Stockbridge, Mad.,		11	Winchester,	Tenn.	11
Stokes, Oneida,		6	Walpole,	N. H.	11
Skaneatelas, Onon.,		8	Westmoreland,	"	11
Sherburne, Chen.,		5	Walton,	Del.	11
Smithville, Jeff.,		6	Westport,	Ky.	6
Stony Point Mills,	Va.	16	Wilmington,	Va.	33
Surrey C. H.	"	16	Warren,	"	11
Subblett's Tavern,	"	13	Washington,	D.C.	18
Suffolk,	"	11	Whitesville,	Ala.	5

* Including former payments.

PRICE CURRENT.

ARTICLES.		New-York. March 24.	Boston. March 21.	Philadelphia March 20.	Baltimore. March 20.
Beans, white, ...	per bush.	....	1 12.. 1 30	1 00.. 1 12	1 25..
Beef, ...	cwt..	8 00..12 00	5 75.. 7	....	7 00.. 8 50
Bacon, western, ...	lb....	10½.. 11	....	8 00.. 9	11..
Butter, fresh, ...	lb....	18.. 20	22.. 25	12.. 13	20.. 25
Cheese,.	lb....	7½.. 9	8.. 9	9.. 10	
Cotton, best, ...	lb....	....	....	.. 12	10.. 12
Flour, best, ...	bbl..	8 00.. 8 75	8 37.. 8 50	7 50.. 8 00	9 50..10 50
GRAIN—Wheat, ...	bush.	1 50.. 1 56	....	1 62.. 1 65	1 65.. 1 70
Rye, ...	bush.	.. 1 00	.. 1 10	95.. 97	85.. 90
Oats, ...	bush.	37.. 40	50.. 53	35.. 36	37..
Corn, ...	bush.	70.. 75	74.. 75	66.. 68	70.. 76
Hams, pork, ...	lb....	2 00.. 2 50	12.. 13	10.. 12	13 00..
Pork, in hog, ...	cwt..	8 00..11 00	9 ..10	....	6 75.. 7
SEEDS—Red Clover, ...	bush.	12.. 13	13.. 14	10.. 11	10.. 11
Timothy, ...	bush.	....	2 75.. 3 00	2 ..3 25	3 00.. 3 50
WOOL—Saxony, fleece, ...	lb....	45.. 50	50.. 55	48.. 50	40.. 50
Merino, ...	lb....	45.. 50	45.. 47	46.. 50	30.. 35
1-4 and com......	lb....	37.. 38	33.. 38	55.. 37	25.. 30
Sheep, ...	head,	....	2 75.. 6 00	....	....
Cows and Calves, ...		....	....	....	35 00..45 00

FROM THE STEAM PRESS OF
PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. V. NO. 3, WASHINGTON-ST. ALBANY, N. Y. MAY, 1838. NO. 3.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

The New Husbandry.

IV. ALTERNATION OF CROPS.

Alternation of crops is an essential requisite in good farming, and forms a part of it wherever it is considered to have arrived at any degree of perfection. It is this which gave to Flemish husbandry a pre-eminence over that of every other country, long before the new system had obtained a footing in Great Britain. It is this which has principally converted the county of Norfolk, and other disticts in England, from the poorest and least productive, into the most wealthy and populous portions of that country. It is this alternating system which has contributed, in a great measure, to the astonishing recent improvements in the agriculture of Scotland; and it is this which constitutes the pioneer marks of improved husbandry in our own land.

In the preceding sections, we have suggested the importance and the modes of making our lands rich, and dry, and of subjecting them to good tillage. Let us now inquire under what method of management they are likely to make us the largest returns, without diminishing their intrinsic value.

It is palpable to every observing farmer, that the old mode of permanently dividing our grounds into meadow, plough and pasture lands—is a most wretched system of exhaustion, both to the land and its occupant. The tillage ground deteriorates, with the scanty manuring it gets, till it ceases to make a return for the expense of culture, or till it is thrown into old fields or commons. The meadow grasses run out, mosses and weeds come in, the soil becomes too compact and impervious for the ready admission of the great agents of vegetable decomposition and nutrition, and the free extension of the roots of the finer grasses;—and, as all is carried off, and little or nothing brought back, the soil is annually becoming poorer and less profitable. The pasture is the only portion of such a farm that is improving; and even in this bushes, brambles and noxious weeds are too often permitted to choke and destroy the better herbage.

It is equally apparent, that we cannot take two or more arable crops, of the same kind, from a field, in successive seasons, without a manifest falling off in the product. The reason of this may be found in an immutable law of nature, which has provided for each species of plants a specific food, suited to its organization and its wants. Thus some soils will not grow wheat, or other farm crops, although abounding in the common elements of fertility, and although they will make a profitable return in other farm crops,—in consequence of their being deficient in the specific food required for the perfection of the wheat, or other particular species of crop. One family, or species of plants, requires a different food from that which another family, or species, requires; and it seems to be another law of nature, that what is not essential to one family, or species, shall be left in the soil, or returned to it through the excretory organs of the growing crop. Of course, the specific food for any class, or species, continues to accumulate in the soil, the general fertility being kept up, till the return again to the field of this particular crop. Thus it is supposed to require ten or a dozen years for the specific food of flax, to accumulate sufficiently for a second crop, after one has been taken from a field. Even the specific food of clover becomes exhausted by a too frequent repetition of it in the same field: it being found necessary, in Norfolk husbandry, to substitute for it in every other course of crops, other grass seeds, so that this may not be repeated oftener than once in eight years. There are exceptions to the rules of practice which these laws inculcate. Some soils seem natural to wheat, others to oats, or grass; and successive crops of these are taken without apparent diminution of product. Yet it is better to regulate our practice by general laws, than by casual exceptions. In the cases noted as exceptions, there is probably so great an accumulation of the specific food of the particular crop, that it has not been *exhausted*, though it evidently must have been *diminished*. It is in accordance with the natural laws we have noticed, that the grasses in our meadows change; that the timber trees of the forest alternate—new species springing up as the old ones decay, or are cut down; and it is in accordance with these laws that the alternation of crops has been adopted in all good farming.

To simplify and render the subject more plain, the generality of tillage crops have been grouped into two classes, differing essentially in their character, culture, and exhausting influence upon the soil. These two classes are denominated *culmiferous* crops, and *leguminous* crops. The first is so named from *culm*, the stalk or stem of grains or grasses, usually jointed and hollow, and supporting the leaves and fructification. Our intention here is not to embrace the grasses. Culmiferous crops are termed robbers, or exhausters of the soil. This class includes wheat, barley, oats, rye, indian corn, tobacco, cotton, &c. These are particularly exhausting during the process of maturing their seeds. If cut green, or when in blossom, they are far less so. Leguminous crops, literally, are peas, beans, and other pulse; but here the class is intended to embrace all which are considered as ameliorating or enriching crops, as potatoes, turnips, carrots, beets, cabbages—and clover. These latter are not only less exhausting than the culmiferous class, as most of them do not mature their seeds, and all, on account of their broad system of leaves, draw more or less nourishment from the atmosphere, but they improve the condition of the soil, by dividing and loosening it, with their tap and bulbous roots. For these reasons they are called ameliorating or enriching crops; and as they generally receive manure, and drill culture, they are peculiarly adapted to enrich and fit the soil for the culmiferous class.

Good husbandry enjoins, that culmiferous and leguminous crops should alternate, or follow each other in succession, except when grass is made to intervene; and it matters little which crops are selected from the two classes. The good judgment of the farmer may here be exercised to determine which are likely to be to him the most advantageous. It may be proper to note two exceptions to this rule: Indian corn may, under certain contingencies, be made to precede or follow another grain crop to advantage, and oats may sometimes be profitably sown, as a fallow crop, to supersede a naked fallow, preparatory to a crop of wheat or rye. Some soils, it is true, are more favorable to one kind of crop than another; as for instance, calcareous clays and strong loams are better adapted to wheat, than silicious gravels and sands; while the latter are better fitted to carry Indian corn, turnips and clover, than clays. In other respects, such as the exhaustion of the ground, it is a matter of little interest with the farmer, what crops of each class are chosen to alternate with each other.

Farm stock seems necessarily to be embraced in the system of alternate husbandry. Cattle convert the bulky products of the farm, into meats, butter, cheese, &c. These concentrated products are carried to market at comparatively trifling expense. Cattle also furnish labor, and manufacture into manure the straw, stalks, and other offal and litter of the farm, necessary to keep up its fertility; for without manure, the soil will grow poor, and its products annually diminish. Manures, we repeat, are the main source of fertility to our soils, and the substantial food of our crops. Our supply of these will depend on the amount of stock we feed upon the farm; and the amount of stock we can keep profitably, will again depend upon the fertility of the soil, and the consequent abundance of its products. So that grain and grass husbandry, and cattle husbandry, are reciprocally and highly beneficial to each other. It is maintained, by practical men, that grounds under good tillage, will yield as much cattle food, in roots, straw, &c. as the same grounds would yield in grass, thus leaving the grain as extra profit.

The subject of clover, which we have classed with ameliorating crops, merits a further and distinct notice. We find that clover was cultivated at an early period by the Flemings, and constituted an important item in their excellent system of husbandry. Its introduction into Britian is of comparatively modern date. Forty years ago its culture may be said to have commenced in the United States; but its progress was slow till within the last few years; and even now, large portions of our country are practically ignorant of its improving and enriching qualities. Its benefits have been great wherever it has been introduced, accompanied with the use of gypsum; and the two combined have hitherto been the principal basis of good husbandry. But their benefits are capable of being far more widely extended. We consider the use of clover for cattle food, great as it is, but of secondary importance to the farmer—its most profitable use being to feed crops and ameliorate the soil. No green crop is so serviceable for the latter purposes; and we are satisfied from experience, that the practice of habitually sowing it with small grains, for these purposes, where it is not intended to stock with grass seeds, is an excellent one, on all grounds adapted to its growth. Upon this subject we quote as follows from Chaptal:

> "Artificial grass lands [constituting a part of the alternating system, and in contradistinction to natural and permanent grass lands] ought now to be considered as forming the basis of agriculture. These furnish fodder, the fodder supports cattle, and the cattle furnish manure, labor, and all the means necessary to a thorough system of cultivation."

V. ROOT CULTURE.

The advantage of root culture to the soil, in the alternating system, has already been briefly alluded to; but this culture possesses higher claims to our notice than the bare influence it has in ameliorating the soil: It constitutes otherwise a valuable source of fertility to the farm, and of profit to the farmer. It trebles the amount of cattle food, and doubles the quantity of manure. Potatoes constitute a great portion of the bread and meat of the Irish peasantry, feed their cows, fatten their pigs and poultry, and form an article of foreign commerce. The turnip has long been made an important crop in German husbandry. The beet has become so important in France, as to engage the attention of her scientific men, and of the government, in extending its culture. The field culture of the carrot has long been profitably pursued among the Flemings. And as it regards Great Britain, whose example in husbandry is deservedly held up for our imitation, her best writers on rural matters, and her best practical farmers, all concur in saying, that her pre-eminent success in modern husbandry, has been in a great measure owing to the introduction of turnips as a field crop in that island. We will here quote a passage from the New Edinburgh Encyclopædia, in corroboration of what we say:

> "The introduction of turnips into the husbandry of Britain, occasioned one of those revolutions in rural art which are constantly occurring among husbandmen, and, though the revolution came on with slow and gradual steps, yet it may now be viewed as completely and thoroughly established. Before the introduction of this root, it was impossible to cultivate light soils successfully, or to devise suitable rotations for cropping them with advantage. It was likewise a difficult task to support live stock through the winter and spring months; and as for feeding and preparing cattle and sheep for market, during these inclement seasons, the practice was hardly thought of, and still more rarely attempted, unless where a full stock of hay was provided, which only happened in a very few instances. The benefits derived from turnip husbandry are, therefore, of great magnitude: light soils are now cultivated with profit and facility; abundance of food is provided for man and beast; the earth is turned to its uses for which it is physically calculated; and, by being suitably cleaned with this preparatory crop, a bed is provided for grass seeds, wherein they flourish and prosper with greater vigor than after any other preparation."

Few of our readers are probably apprised of the fact, that English beef, so highly extolled, and of which John Bull so vauntingly boasts—and perhaps no people have better beef—is mostly winter fattened upon turnips and straw—very little hay being used. This will account for the high value which the turnip culture has obtained in Great Britain.

All the above named roots are well adapted to our soils and climate; and where their culture has been undertaken with spirit, and managed with judgment, success has been certain. The great objection to this culture has been, the labor which is required to secure these roots from the frosts of winter; and yet the labor and expense required for this purpose are perhaps no greater than we expend in securing our grain and forage—if they are as great. Where cellars are not at command, or not adequate, these roots may all be securely preserved in pits, in dry situations, due precaution being had to covering and ventilation. It is the novelty of the labor, rather than the amount, and a want of practical knowledge and confidence of success, which intimidates and deters us. We *do* save our potatoes, and we *can* save other roots in like manner. Assuming the average product of hay at a ton and a half to two tons per acre, and of beets and ruta baga at 600 bushels—and allowing a bushel and a half of the latter, (90 lbs.) to be equal, for farm stock, to twenty pounds of hay, an acre of the roots will go as far in the economy of feeding as nearly three acres of meadow, to say nothing of the tops, which will go far to pay the extra expense of cultivating the roots—while the ground in one case is ameliorated and improved, and in the other impoverished. These roots, besides, may be used as a substitute for grain, for working cattle, and for pigs. The three acres of grass gives less than 9,000 pounds to the manure yard, while the one acre of ruta baga, or beets, gives 36,000, or four times as much as three acres of grass land.

VI. SUBSTITUTION OF FALLOW CROPS FOR NAKED FALLOWS.

Fallowing is the mode of preparing land, generally green sward, by ploughing it a considerable time before it is ploughed for wheat and rye, to be sown in autumn. A naked fallow is such as receives no intermediate crop between the first ploughing and seeding for the main crop: a fallow crop is one that intervenes between these two processes. In England, fallows are generally broken up in autumn, receive repeated ploughings during the ensuing summer, and are sown in autumn, or cropped with turnips, and sown the third year with barley. In the United States, naked fallows are more often broken up in June or July, receive repeated ploughings, and are sown in September. For fallow crops, old swards are broken up in autumn, and clover lays in the spring; the first receives one or more ploughings in the spring, and immediately after the seeds which are to constitute the fallow crop. Clover lays receive the fallow crop upon the first furrow, or with but one ploughing. Naked fallows, in England, occupy the ground a year; and if they are sown with winter tares or rye, as they often are, to be fed off in the spring, they are termed bastard fallows. With us fallow grounds lay idle but part of a season.

There is no agricultural writer of note, and very few good farmers, who now contend for the propriety of naked fallows, except on stiff clays, or wet grounds, which can only be worked in the summer, and this for the purpose only of being able to clean such soils from root weeds. We subjoin two or three quotations in corroboration of this fact:

> "Fallowing was necessary as long as grains only, all of which exhaust the soil, were cultivated; during the intervals of tilling the fields, a variety of herbs grew on them, which offered food for animals, and the roots of which, buried in the soil by the plough, furnished a great part of the necessary manure. But at this day, when we have succeeded in establishing the cultivation of a great variety of roots, and artificial grasses, the system of fallowing can be no longer supported by the shadow of a good reason. The ease with which fodder may be cultivated, furnishes the means of supporting an increased number of animals; these in their turn supply manure and labor; and the farmer is no longer under the necessity of allowing his lands to be fallow."—*Chaptal.*
>
> "It is already acknowledged, that it is only upon wet soils, or, in other words, upon lands unfit for the turnip husbandry, that a plain summer fallow is necessary."—*New Edin. Ency.*
>
> "As there is only one good reason for fallowing, namely, to destroy weeds,—and as this can be done full as well by fallow crops, that is, by crops that require frequent hoeing and cleaning, during their growth, no fallows ought to be permitted in a good system of agriculture."—*T. Cooper.*

We have quoted in the last number of our fourth volume, the practical example of the late Chancellor Livingston, showing an increased profit, of nearly two hundred per cent, resulting from substituting fallow crops for naked fallows, besides an increase of cattle food, upon one hundred acres of arable land, of sixty-five tons, and the manure from sixty-five cattle, which this extra food would keep. In pages 88 and 104 of the same volume, we have given Greig and Beatson's systems of managing clay farms, in which naked fallows are dispensed with, and the profits doubled, by substituting fallow crops. These evidences might be greatly multiplied were it necessary; but we have so many examples and illustrations in every quarter of our country, that he who will may profit by his own observation and inquiry. The expense of the summer fallows may be saved, and a very valuable extra crop obtained, by the new mode of practice.

In regard to what are the best fallow crops? This will depend much upon the soil. Upon stiff clays, oats and peas are recommended, which although not cleansing crops, succeed well upon an undecomposed sod. Potatoes also answer well; and if they do not ripen early enough for winter grain, they prepare the ground remarkably well for spring wheat. Clays should be broken up in autumn, if intended for a fallow crop, that the frost may break down and pulverize the soil, and that the decomposition of the sod may commence earlier in the spring. The late John Lorrain, of Pennsylvania, who was an excellent practical farmer, as well as a gentleman of science, recommended, that in ploughing for grain, after a fallow crop, the furrow be supreficial, so as not to turn up the vegetable matter of the sod, but to leave it where the roots of the ensuing crop will most need it. Upon light soils, Indian corn, beans, peas, potatoes, turnips, or other roots, constitute good fallow crops, particularly preparatory to spring wheat and barley.

CONCLUSION.

We have gone over the ground we proposed to examine. We have endeavored to explain what we mean by the *New System of Husbandry*—to develope its principles, and to show WHY, and WHEREFORE, it is superior to the old or common system. We have, we think, demonstrated,—

1. That the *fertility* of the farm may be kept up, and augmented, by the manures it can be made to furnish;
2. That the *condition* of the farm may be much improved, by thorough draining;
3. That the *capacities* of the farm, can be fully developed only by good tillage;
4. That the *profits* of the farm, are materially augmented by alternating crops, and a system of mixed husbandry;
5. That the *cattle food* and *manures* of the farm, the main sources of fertility and profit, may be greatly increased by the cultivation of roots;
6. That the *labors* of the farm, may be economised, and its products further increased, by substituting fallow crops for naked fallows.

And finally, that were these several improvements generally introduced into our agricultural practice, they would render our farmers more independent, bring industry into better repute, and essentially promote the prosperity and happiness of all classes of society.

There is no doubt that most of our impoverished farms may, under the system of management we have been describing, and with the auxiliary and available aid of lime, marl, gypsum, swamp earth, ashes, &c. be progressively improved in fertility, and rendered productive and profitable. We have the strongest grounds for this belief. The like has been done in Great Britain, in the Netherlands, in Germany, in France. Worn-out lands have there been renovated and rendered very valuable. They have been so in the United States. They are now undergoing this improvement in the valley of the Hudson. The partial introduction of the New Husbandry, has, within a few years, doubled the surplus agricultural products of most of the counties between Albany and New-York; and yet the improvement has there been but begun.

The same management which our subject suggests for the renovation of old lands, will perpetuate the fertility of those which have been newly brought under culture. Although the soils of the great secondary formation of the west will not so soon become impoverished as those of primitive and transition formations; and though fertility may be more readily restored to them, when it has become exhausted—yet the same general laws govern in all. Deterioration will progress in all soils which are cropped, unless there is returned to them, in the form of manure, some equivalent for what is being constantly carried off.

The Conductor of the Cultivator will make it his business to continue to collect and publish practical instructions in rural affairs, and particularly in the improvements which it has been our object in this article to describe and recommend; in the performance of which, he respectfully invites the co-operation of practical farmers, in the various departments of husbandry, and in the different sections of our country.

Like Produces Like.

This is true, whether applied to animals or vegetables. It is a law of nature, and therefore immutable. If we would multiply a choice breed of animals, a valuable variety of plants, or an elegant flower, we must take care to breed from the individuals in greatest esteem. Although we may be considered trespassing upon hallowed ground, we will venture to remark, that these truths are not unworthy of consideration in matrimonial alliances. Constitutional defects, intellectual as well as physical, are often hereditary in man; and an alliance between two persons disposed to pulmonary affections, for instance, will almost certainly entail this class of diseases upon their offspring. We will not enlarge upon this branch of the subject, but apply our remarks more particularly to the improvement of farm stock and farm crops.

But we may be asked, in the outset, why, if our position be true, do not the seeds of our apples, pears, plums, &c. produce the same fruits as the parent tree? Because, we answer, these fruits, like animals, have two parents, a male and a female parent, which seldom belong to the same variety; and having a parent of two varieties, or breeds, it necessarily follows, that the offspring will not exactly resemble either, but partake, more or less, of the qualities of both. In most of our orchard and garden fruits, the sexual organs exist in the same flower; yet, from the varieties that are associated in the same ground, the female organ is liable to be impregnated with the pollen of the male organs of half a dozen other kinds. We have seen this strikingly illustrated in an experiment with the Siberian crab. Seeds of this fruit, which grew in an orchard of other apple trees, produced more than twenty new varieties, all partaking, in some measure, of the peculiar properties of the female parent, and yet none of them exactly resembling it. Yet there is no doubt but the seeds of the Siberian crab, or of any other variety of fruit, completely isolated, during the season of blooming, from all other trees of a like genus, would produce fruits resembling precisely the parent.

The practice of crossing breeds of animals has led to the great improvement of our farm stock. The new varieties of wheat, oats, barley, potatoes, Indian corn, &c. spring from th accidental crossing of two or more old varieties. They arrest the attention of some observing individual, are preserved, propagated, and come into repute for their prolific or other remarkable properties. We have had a field of China beans adulterated by growing in contiguity with the small white and pole beans. Although every bean planted the second year, was to appearance a pure China bean, in their growth many of them sent up runners, and when gathered, a fifth part of the crop was either white or pole beans, with the pollen of which latter the blossoms of the China beans of the preceding year had become impregnated. The artificial crossing of fruits was first practised by Knight about the beginning of the present century. He began with the pea, with wheat, and the strawberry, and has extended his experiments successfully to the apple, pear, peach, &c. The varieties of our Indian corn have been greatly multiplied by incidental fecundation; and we heard a naturalist insist, the other day, that all the varieties of this grain had sprung from two species. It is to this natural tendency to mixture, in the cabbage, turnip and radish families, and the heedlessness of American gardeners in seeding different species and varieties in the same ground, that foreign seeds of these plants are in higher repute than our own—the practice in Europe being to seed each kind by itself, remote from any other species of the family.

From the preceding considerations it must be apparent, that if a farmer would have good stock, he should breed from only the best individuals; and that if he has not good individuals he should procure them, at any reasonable price; that he should select and breed from those which are best adapted to his grounds and his business—whether it be for the market, for the dairy, for labor, or for wool.

That if he would have good crops, he must select his seed with care; and having obtained that which is good, he should keep it pure, by not permitting it to become fecundated and deteriorated by growing along side of inferior kinds, and by carefully preserving the best samples to breed from.

We beg to refer to the communication of Gideon B. Smith, for an illustration of the crossing process, in vegetables, which came to hand after this article was written.

Hints for the Orchard.

The slopes of hills are better for the apple orchard than flat or level surfaces—because the trees are not so liable to be injured by stagnant waters, upon the soil or subsoil. Upon a northern aspect, the fruit is not so liable to be injured by late vernal frosts, as upon a southern aspect—because, the blossoms are later in developing. A rich soil will give the largest and fairest fruit; a dry and warm one the richest, and bring it to the earliest maturity. The soil should be sufficiently rich to encourage a moderate growth, but not so rich as to stimulate the plant to premature exertion. It is better to have trees obtain a fair size before they fruit much, as fruit exhausts the nutriment of the plant, and prevents growth; and a precocious tree is generally a short lived one. The distance between apple trees should vary from 25 to 40 feet, according to the habits of the tree—whether spreading much or growing upright, the quality of the soil, and the other uses for which the ground is required. The distance may be lessened between the rows, by planting in the quincunx form, or planting the second row in the intervals between the trees in the first row—thus, $^{\,*\,*\,*}_{*\,*\,*\,*}$ Ground may be still further saved, by planting in clumps, of five trees, the centres of which to be sixty feet apart, and four trees at ten feet from the centre, on each side, thus, $*\overset{*}{\underset{*}{*}}*$. This leaves large intervals unobstructed by shade; the fruit is gathered more readily, and the trees mutually protect each other from the wind. Hogs and other farm stock are like men, in relishing acid as well as sweet apples. The nutrient properties of the apple are not diminished by the presence of the acid. The roots of a tree conform to the shape of the branches, and generally extend under, as the branches do horizontally over the ground.

Children belong to the Republic.

Thus taught the Spartans, and thus we should teach. As the twig is bent, so will the tree incline. If we sow tares, we cannot expect to reap wheat. Children are the materials—the wood, brick and mortar, if we may so express ourselves—which are to compose our temple of freedom; and if these materials are bad, or unsound, dilapidation will ensue, and the beautiful fabric will ere long fall to the ground. If children are brought up in idleness, they are too often useless to themselves, and become a tax upon society. If they are not taught to do good, they will learn to do evil. If they are brought up in ignorance, they are in a manner unfitted to discharge the high duties which devolve upon freemen. If the mental soil is not cultivated, weeds, and brambles, and thorns, will spring up spontaneously, to the great annoyance of the community. As every man's vote weighs alike in the political scale, it were well for all that every man had enough of good sense and independence to cast his vote honestly. And the best way to insure this, is, to lay a good foundation of usefulness in youth—to teach the hands to work, and the mind to think. "Reading," says lord Bacon, "makes a full man, and thinking a correct man." Every citizen is in a measure dependent, for the preservation of the great blessings of freedom—security for his person and property,—upon the suitable education of the rising generation.

Children in our Factories.

It has ever been urged against large manufacturing establishments, that they tend to impair the health and deprave the minds, of the numerous children who are usually employed in their manipulations. The evil became so apparent and alarming in Great Britain, a few years since, as to call for official investigation; and on inquiry it was ascertained to be worse than was apprehended. Thousands of miserable victims of oppression, were found growing up in ignorance and vice, alike disgraceful to themselves, and dangerous to the community. And from being compelled to labor twelve to sixteen hours in twenty-four, in confined apartments, and fed on coarse and scanty food, they were generally in a sickly condition, and many had died from hardship and want. Parliament applied a prompt, though in the opinion of some, not a sufficient corrective. It excluded children under a certain age from these establishments; restricted the labor to ten hours in a day of the younger class to be employed, and we believe made some provision for their being educated.

This evil has also produced a legislative investigation in Pennsylvania; and the committee appointed to examine into the matter, we are sorry to say, have reported a state of facts disreputable to our country, and have proposed suitable correctives. The report is accompanied by the testimony, on oath, of a large number of operatives and employers. It states, among other things, that no particular attention is paid to the education of the children employed in the manufacturing establishments; that of all under eighteen years of age, not more than one-third can read or write; that the long hours of labor, (generally twelve hours per day,) close confinement, and vitiated air, have proved extremely injurious to the health of the children employed, those under twelve comprising one-fifth of all the operatives in these establishments.

The report recommends, that hereafter, no child under ten years of age shall be employed in these factories; that children in factories not able to read, write and keep accounts, shall be sent to school at least three months in every year; and that children under sixteen shall not be allowed to labor more than ten hours a day. "The destitution of education," says the Commercial Herald, "and moral culture, among the factory children, is astonishing. In the majority of instances children enter and grow up in our factories, without being able to spell, read or write. With broken constitutions, from excessive labor in youth, harassed with disease, and brutalized with savage ignorance, they reach manhood fit instruments for the purposes of demagogues, and ripe for every sort of crime and violence." "Where children are thus raised in ignorance," says Mr. Heastings, one of the witnesses examined, "and so totally devoid of the necessary improvement of their mental faculties, it is not to be wondered at that mobs and murders are so common in our large towns and manufacturing districts, where the people are kept in ignorance, and regarded but a little superior to the beasts that perish."

We have referred to this subject, in the hope of turning the public attention to the matter in our own state, where, if the like evil exists, it becomes the interest and the duty of all good citizens to see it promptly corrected.

Smut.—The fact is well authenticated, that after the seed of smut has been destroyed by steeping the seed in pickle, the *virus* may be again communicated to the seed grain, so as to affect the crop. Bauer took some kernels of wheat, which had been purified with salt and lime, and inoculated them, as it may be termed, with the dust of smut brand, that is, by pressing some of this dust into the suture or crease of the grain, and the product was smutty. This dust, or seed of smut, may adhere to a bag, to a barn floor, or indeed may be left in the soil, and, as we believe was the case with Capt. Greene, noticed in our last, brought in contact with the sown seed by water in the soil.

Salt Petre.—Great efficacy has been ascribed to this salt, applied in steeps for seed corn. We cited a case in our last, from Senator Johnson, of its great efficacy in the steep for seed wheat. In our March number we stated the experiment of Hart Massy, Esq. where the nitre seemed to have added vastly to the product, and served as a complete protection against the worm. A correspondent, whose favor is now before us, says—"Seed corn soaked in a strong brine of *salt petre* was found a certain preventive against the ravages of the grain worm [wire worm, or grub, we suppose] last year. Have you tried it?" In our noviciate in farming, being desirous of making some experiments with salt petre, we desired a mercantile friend, going to New-York, to buy us a small parcel of crude, cheap salt petre. He bought us a bag of 200 lbs! We placed it in our garret, and we have used of it for fifteen years, at the rate of a pint for half a bushel of seed, in the steep of our seed corn. So far as our recollection serves us, when nitre has been used, for we think it has been partially omitted in two or three instances, we have been very little troubled with the wire or grub worm. We have ascribed great potency to tar, in protecting the seed from birds and insects; but we have now our doubts whether our exemption from their ravages should not be imputed, at least in part, to the nitre employed in the steep. We particularly refer to this subject now, in the hope of inducing satisfactory experiments in the current month. The oxygen, of which the nitre is principally composed, has a salutary and powerful influence on the germination of seeds; the impregnation of the grain with this salt may render it offensive to the worm, while it cannot fail to impart some fertility to the soil. We hope that experiments may be made in this matter, and that we may be favored with the results.

The Grain Worm.—We beg to call the attention of the reader to the communication of C. in our last number. It asserts two facts in regard to the grain-worm, at variance with received opinions. 1. That the insect is *viviparous*—not *oviparous*—that is, that it does not produce eggs, but brings forth its young in a living state; and 2, that it is not the offspring, or maggot, but the parent, or fly, which causes the mischief. From the high character of our correspondent, as an entomologist, we are disposed to pay a respectful deference to his opinion. We hope the matter will receive further elucidation the coming season.

The least of the bugs.—We would also ask the attention of the reader to another communication from "C." under the above head. It involves matters of deep interest to the farmer. The insects of which it treats are supposed to produce the ergot in rye, quack grass and spear grass (poa pratensis.) The alarming epidemic which prevailed in New-England in 1811–12, has been imputed to the deleterious effects of the ergot in rye of the preceding season. And at this time a great mortality pervades the west, among cattle, which is believed to be caused by the ergot of the grasses we have named. There is not the shadow of doubt but that ergot is poisonous to men and brutes; that it abounds upon the plants we have named, much more in some years than in others, and that without special care, it enters into the food of man and beast. Threshing and thoroughly cleaning rye, divests the grain of most of the poison; but means are seldom taken to separate it from the food of the brute. We have seen fields of spear grass, which is wont to crowd out and take the place of other grasses, as meadows and pastures increase in age, seemingly covered with ergot. The best preventive we know of in this case, is to alternate crops where it can be done, and to give such high culture as will ensure the growth of what are termed the cultivated grasses; and where this cannot be done—or where the lands are doomed to perpetual meadow and pasture, to top-dress them with dung and compost—to seed and scarify them, that the healthful grasses may be maintained and perpetuated.

Morus Multicaulis.—We would also invite the attention of silk growers to the communication of Professor Ives, in our last. His experiments go to show, that the morus multicaulis, which has made no little noise, and induced some extravagant speculations, is not a distinct species, but merely a variety of the common white mulberry. It is a peculiar trait in the American character, to believe, without examination, and upon the slightest authority, whatever promises to administer to our cupidity. We have stood alone in admonishing the public, that the multicaulis, and even the white mulberry, was too tender for our northern winters, and in advising to cultivate them in stools, so that if the tops were killed, a surer dependence might be had upon the new annual growth which might spring from the roots. And we very much fear, that unless the Brussa proves more hardy than the multicaulis, or even the alba, and we have reason to believe that it will, we must, in the north, either resort to our indigenous hardy species, the M. rubra, or come short of our expectations in being able to produce our own silk.

The Brussa Mulberry.

Six thousand plants of this species, or variety, of the mulberry, belonging to the estate of the late David Ruggles, Esq. of Newburgh, were sold at auction on the 7th April. The sale was well attended, and the plants, though many of them small, went off at an average price of about thirty cents. There were samples of cocoons and of manufactured silk, fabricated from this mulberry, both of which were highly admired. The wood of this plant, although the trees were closely planted in nursery, appeared perfectly ripened and fresh, even to the terminal points, and wholly uninjured by the cold of winter; and the impression seemed to prevail, that it is hardy enough to withstand our northern winters. Brussa, from which this mulberry derives its name, is in Asia Minor, at the foot of Mount Olympus, which mountain is capped with snow during most of the year. Brussa silks are distinguished in the bazaar of Constantinople as pre-eminent for beauty and excellence. We anticipate great national benefits from the introduction of this valuable plant.

When attending the above sale, we were presented with one hundred plants of the mulberry, by Mr. Nicholas Haight, of New-York, which were imported late in the spring of 1837, from Smyrna, as the Brussa. On comparison they seem to be identical in variety with those sold. Mr. Haight has 10,000 on hand for sale. See his communication.

Mr. Whitmarsh, of Northampton, presented us, at the same time, a bundle of plants of his Canton mulberry. They are evidently different from the Brussa, and we should think not so hardy. We have planted the two kinds presented to us, and those we purchased at the sale, along side of each other, and hope, another year, to speak more satisfactorily of their hardiness and relative properties.

Cattle Husbandry.

Although we have been in the habit of appropriating a large portion of our paper to tillage husbandry, and have particularly urged the alternation of crops, and the cultivation of roots—yet we are aware, that, in many portions of our country, and even of New-York, which has been denominated the grain-growing state, cattle and sheep husbandry must ever constitute the most important and profitable business of the farm—that meat, wool, and the products of the dairy must form the great staples of trade. The lands denominated pine lands, comprising sands and sandy loams, are particularly adapted to alternate husbandry; and even upon these, it is desirable to rear as many cattle as can be well fed, as the best means of preserving or improving their fertility. Our valleys, particularly of the larger streams, as the Hudson, Mohawk, Susquehannah, Chemung, Genesee, &c. are adapted, generally, to the culture of grain, as is also the northern section of West New-York. In these, at least, for the present, cattle seem to be but a secondary object. But the hilly district lying west of the valley of the Hudson, south of that of the Mohawk, and the basins of the small lakes, and north of the New-Jersey and Pennsylvania lines, is peculiarly adapted to cattle and sheep husbandry, as is also much of that north of the Mohawk valley, and east of the Seneca river. These districts may be made to furnish the bread-stuffs necessary for the subsistence of their population; but the great staples of trade must be farm stock and their products. Nor does this augur bad for the future prosperity of these districts. While the demands for meat, butter, cheese and wool, are likely to increase, the fertility of the soil, under judicious management, is likely to improve, and with it the condition of the population. We may confidently predict, that, at no distant day, the best portion of our population, that is, the most intelligent, the most independent, and the most republican in their principles and habits, will be found in these districts. Though there may not be so many that possess great wealth, there will be a larger portion who possess competent wealth—though not so much ostentation and extravagance, there will be less want and more substantial comfort, more equality and social enjoyment—in the cattle, than in the grain growing districts. It is worthy of remark, that in those districts where attention has been given particularly to the dairy, the condition of the husbandman has been rapidly improving. This remark applies to Orange, the northern part of Delaware, portions of Herkimer, Oneida, Otsego, &c. &c.

We gave, in our March number, some directions for renovating and improving old meadows and pastures. We now proceed to give some suggestions

ON CONVERTING ARABLE, OR PLOUGH-LAND, INTO PERMANENT MEADOW OR PASTURE.

The first obstacle to encounter, is the practice, yet too prevalent, of throwing plough-land into old field, or pasture, without stocking it with grass seeds. We lay it down as an unerring rule in good husbandry, that ploughed fields, intended to be converted in pasture or meadow, should be well stocked with grass seeds; and as next in importance, that as many species of grass seeds be sown as can be procured, or are adapted to the soil; and that, if possible, there be included the seeds of those grasses which are either indigenous to, or which are found to thrive well in, the immediate neighborhood, and in similar soils. The reasons for recommending several species are these: Each kind has its particular season of growth, and exhausts a particular food in the soil; and by multiplying the number, we are more apt to obtain a constant growth of herbage, and a far more abundant supply of feed. Thus, for instance, say a square foot of surface will support but six stocks of timothy,—this grass, growing neither very early, nor very late, the herbage would neither be abundant nor permanent. But the same square foot which would support but six plants of timothy, would support, at the same time, because every kind requires its specific food, six plants of five other species, say meadow fox-tail, red clover, white clover, orchard and tall oat grass, or species of the agrostis or fescue families. Of these six kinds, some one would be in luxuriant growth at all seasons, and the herbage would be increased from three to four fold, if the soil be good, by the admixture of the different seeds.

We cannot too often repeat, that pastures and meadows are almost as much benefitted by a rich soil, and a soil moist, not wet, as arable husbandry. The food of the grass, as well as of the grain crop, must come mainly from the soil; and if this food is scanty, the crop will, in like manner, be scanty. And again, the more nutritious grasses will not grow on soils habitually wet.

"The products of natural meadows," says Armstrong, "have been carefully and skilfully analyzed in Germany, in Italy, in England and in France, and the result shows, that wet meadows contain the smaller number of the different species of plants, but the greater number of those which are either useless or injurious; and, on the other hand, that *moist* meadows contain the greater number of the former, and the smaller number of the latter. The following simple table exhibits, at a glance, the present state of knowledge on this important part of our subject:

	No. of plants.	*Useful.*	*Useless or bad.*
In wet meadows,	30	4	26
In dry "	38	8	30
In moist "	42	17	25

"The agricultural labors suggested by these facts, are of two kinds,—the eradicating of useless, pernicious plants, and the continuance and multiplication of those which are good. The first of these objects is promoted by mowing the meadows before the seeds of noxious plants ripen, by pasturing them once in three years, by sheep, horses and cattle, in succession; by harrowing them in the spring and fall; by destroying by hand perennial weeds, and lastly, by sufficiently draining those that are wet.

"Many pernicious plants are annuals, and are killed by the first of these operations. A similar effect is produced by the second; the harrow or scarifier will destroy mosses or other weeds, whose roots are fibrous and superficial; the hand hoe will extirpate such taprooted plants as resist the harrow, and are refused by cattle, and draining will expel all worthless aquatics."*

In order to obtain seeds of indigenous kinds, which are not to be had in the shops, it is common, in Europe, to have the seeds carefully gathered by children, which being sown on a well prepared piece of ground, and taken care of, will soon yield seeds for farm culture. It is easier to accommodate the plant to the soil, than to adapt the soil to the plant.

In laying down lands to permanent meadow or pasture, it is all important to have the soil perfectly broken and pulverized; as the future value of the crop will depend upon the perfect germination of the seeds, and this cannot be expected without a thorough pulverization and preparation of the soil. It is also important to sow plenty of seed. The ground, to be sure, will sustain and nourish only a certain number of plants; yet it is better to go to an extra expense for seed, than to have a deficiency of plants. It is usual, in Britain, to sow from ten to sixteen pecks of grass seed to the acre on lands intended for permanent grass, and embracing from six to a dozen species. Another practice there, entitled to our notice, in laying down lands permanently to grass, is to sow grass seeds exclusively, that is, unaccompanied with any sort of grain. A good turf is the main object; and if grain is sown with the grass seeds, it robs the soil of much of the food which is necessary to nurture the young grass; and permanent value is thereby sacrificed to temporary and comparatively trifling profit.

The best time for sowing, for permanent grass lands, is said to be the early part of autumn, say in August or the first of September, in order that the plants may become well established before winter. Or, the more hardy kinds may be sown then, and the tenderer kinds sown upon the same field in the spring, as we sow clover upon the winter grain. As the seeds of grasses are generally small, the use of the roller, to pulverize and press the earth upon them, and to smooth the surface, is almost indispensable in good husbandry. It is considered of great advantage to give a light dressing of compost, or rotted dung, to young grass; and to avoid feeding it with heavy animals the first year, before the turf has thickened and become firm.

If the grounds laid down in grass are intended for permanent meadow, reference should be had to the grasses which are fit for the scythe at nearly the same time. For information on this point, we refer to p. 30, vol. IV, and to pages 11, 33, 47 and 63, vol. III. of Cultivator.

Should pasture and meadow be made to alternate, or should fields be kept exclusively for each? The American practice is not to alternate; and yet there seems to be substantial reasons for a contrary course. The object in both cases is to obtain the greatest quantity, and best quality of food for farm stock; and this object is promoted, in both cases, by scarifying, draining, top-dressing. Labor is as profitably laid out in improving our pasture, as our meadow grounds. But feeding and mowing have different effects upon the soil. In one case the crop is annually carried off, and in the other consumed upon the ground: Meadows, therefore, diminish in fertility; pasturing increases the fertility of the soil. Is it not proper, for this reason alone, to alternate, in order to keep up fertility? But there is another argument: Pastures soon abound with biennial and perennial plants, as thistles, mulleins, &c. which, as cattle do not consume them, mature and shed their seed, and multiply rapidly. Whereas, if occasionally converted to meadows, these plants would be cut down, before the seeds matured, and at least the biennials would be soon extirpated. These weeds are as prejudicial in pastures, in diminishing the quantity of herbage, as they are in meadows, and the same good management requires their extirpation in both.

Something depends *on the size of enclosures*. Small enclosures, say ten acres, are believed to be better than large ones. Grass grows better when there is no stock upon it, than when it is subjected to the constant tread of heavy animals; hence it is deemed economical to shift cattle occasionally from one enclosure to another. Another advantage of small enclosures is, it enables the farmer to keep different classes of stock separate, and thereby prevent injuries which often occur to weaker animals from running with stronger ones.

"Respecting the *stocking of enclosures*—(we quote from Br. Husbandry,)—it is the opinion of the most intelligent graziers, that the cattle fed upon them should be divided in the following manner. Supposing four fields, each containing a nearly equal quantity of land, one of them should be kept entirely free from stock until the grass has got up to its full growth, when the prime or fattening cattle, [or the cows, where the dairy is the prominent business] should be put into it, that they may get the best of the food; the second best should then follow; and after them, either the working or store stock, with lean sheep to eat the pastures close down: thus making the whole of the stock eat over the four enclosures in this succession:—

No. 1. Clear of stock, and reserved for the fattening beasts or cows.
No. 2. For the fatting beasts, till sent to No. 1.
No. 3. For the second best cattle, until forwarded successively to Nos. 2 and 1.
No. 4. For stores and sheep to follow other cattle, then to be shut up until the grass is again ready, as at No. 1, for the fattening beasts." p. 482.

"*Land that is constantly mown, must also be frequently manured*, or it will be thrown out of heart." There is no doubt on this point. If the crop is annually carried off, and nothing in the shape of vegetable matter returned to the soil, the land must and will deteriorate, till the crop will not pay the labor of gathering it. Those, therefore, who will have *good* permanent meadows, must, once at least in four years, give it a bountiful top-dressing of dung.

Agriculture of Massachusetts.

First Report of the Agriculture of Massachusetts, by HENRY COLMAN, *Commissioner for the Agricultural Survey of the State.*—Boston, pp. 140—8vo. 1838.

The distinguished gentlemen to whose politeness we are indebted for copies of this report, will please accept our thanks. It is the first report of a strictly agricultural survey ever made, we believe, on the new continent, and embraces barely the county of Essex. As we consider it the pioneer of many which are ere long to follow, in that and other states, of a like nature, we will endeavor in our next number to notice so many of the good practices in husbandry which it exhibits, and to point out such of the bad ones, as our restricted limits will permit, and the interests of our patrons demand.

Massachusetts Statistics.

The legislature of Massachusetts, in 1837, required the assessors of each town to make returns to the secretary of the commonwealth, before the first of October, of certain statistical facts in regard to the industrial resources of the state. These returns have been published in a pamphlet of 200 8vo. pages, accompanied by an abstract in tabular form, and a copy has been sent to us by some unknown friend. The plan of thus collecting and concentrating these data, so important to all classes, must be apparent to every one who examines the publication, and we cannot but indulge the hope, that our legislature will see the expediency of adopting the example of a sister state, as well in this, as in the liberal encouragement which she extends to her agriculture. The abstract contains the aggregates of each county. We make the following extract from the general summary, the footing of which shows, that the capital invested in the branches of industry noted, principally manufactures, amounts to $54,851,643; that the value of the annual product is $91,765,215; and that these branches of labor give employment to 117,352 of her population. We have selected but a small portion of the items.

Articles manufactured or produced.	Value.	Hands emplo'd.	Capital.
Axes, scythes, snaiths, &c.	325,956	387	196,938
Bonnets (straw) and palm leaf hats,	1,902,803		
Boots and shoes,	14,642,520	39,068	
Brushes, brooms & baskets,	289,512	350	103,095
Buttons of all kinds,	246,000	358	147,200
Cotton goods, (cloths,)	13,056,659	19,754	14,369,719
Cotton batting, thread, warp and wicking,	169,221	151	78,000
Cotton printing,	4,183,121	1,660	1,539,000
Fishery, whale, cod & mackerel,	7,592,290	20,126	12,484,078
Glass,	831,076	647	759,400
Hats,	698,086	869	
Leather, including morocco,	3,254,416	1,798	2,033,423
Nails, brads and tacks,	2,527,095	1,095	1,974,000
Oil, (refined whale & other,)	2,030,321	145	1,133,500
Paper,	1,544,230	1,173	1,167,700
Silk,	56,150	125	137,000
Stone, (granite, marble, slate and soap,)	680,782	1,177	209,950
Wool,	539,689		2,842,778
Woollen goods,	10,399,807	7,097	5,770,750

The Aim and Fruits of Philosophy,

According to the Baconian creed, should be "the multiplying of human enjoyments, and the mitigating of human sufferings;" "the relief of man's estate;" "the comfort of mankind;" "to enrich the human race with new discoveries and possessions;" "to endow mankind continually with new powers and works." Two words, says Bacon's biographer, form the key of the Baconian doctrine—utility and progress.

The odium cast upon philosophy by the events of the French revolution, excited, in the minds of many, an undue prejudice towards it, and probably deterred thousands from those studies and investigations which are most eminently promotive of human happiness. We have often heard the term *philosophy* employed, by the ignorant or prejudiced, as denoting something repulsive to our moral feelings; and yet we are indebted to it for most of the comforts and enjoyments of civilized life. It not only multiplies our enjoyments, but it teaches us how to avert the ills of life, and, when they do overtake us, how to mitigate their rigor. It calls into action those powers which distinguish man from the brute, and which are given him, with the implied promise, that the harvest shall be in the ratio of the culture which he bestows upon his mind. We make these remarks, because we have hardly yet become divested of the prejudice excited in our younger days, against whatever bore the semblance of modern philosophy; while at the same time we have sedulously studied it, under various names, and believe we have derived a profit from it, which in some measure, we hope to impart to others; and because we would excite the young reader to investigate its principles, and to profit from its precepts.

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* Treatise on Agriculture, p. 126-7.

The writings of Sir Francis Bacon form an era in philosophy, as well as in social improvements. The following enumeration, from the Edinburgh Review, of the benefits which his philosophy has conferred on society, may tend to excite a taste, even in the farmer, for the higher and nobler studies.

"Ask a follower of Bacon," says the Review, "what the new philosophy, as it was called in the time of Charles the second, has effected for mankind, and his answer is ready—'It has lengthened life; it has mitigated pain; it has extinguished disease; it has increased the fertility of the soil; it has given new securities to the mariner; it has furnished new arms to the warrior; it has spanned great rivers and estuaries with bridges of form unknown to our fathers; it has guided the thunder-bolt innocuously from heaven to earth; it has lighted up the night with the splendor of day; it has extended the range of the human vision; it has multiplied the power of the human muscles; it has accelerated motion; it has annihilated distance; it has facilitated intercourse, correspondence, all friendly offices and dispatch of business; it has enabled man to descend to the depths of the sea, to soar into the air, to penetrate securely into the noxious recesses of the earth, to travel the land on cars which whirl along without horses, and the ocean in ships which sail against the wind.' These are but a part of its fruits. For it is a philosophy which never rests, which has never attained it, which is never perfect. Its law is progress. A point which was yesterday invisible, becomes its goal to-day, and will be its starting-post to-morrow."

$100 premium for American Silk.

An association of gentlemen have obligated themselves to pay to the treasurer of the American Institute, New-York, the sum of one hundred dollars, to be awarded in October to the person "who shall raise, and cause to be manufactured, the greatest quantity of sewing silk, on not less than one-sixteenth of an acre of land, by a succession of crops in a single season, and exhibit satisfactory evidence of the same to the committee of the said institute, on or before their next annual exhibition at New-York, together with the weight of the mulberry leaves consumed, the weight and number of cocoons produced, and the weight of waste silk and floss, and the number and quality of the trees set on the land. The amount of land, and also the weight of leaves which may from necessity be borrowed from any other source to complete the experiment, together with all the material facts, to be certified to the committee on oath or affirmation. To this statement will also to be subjoined the number and condition of the trees which are produced on the land at the end of the season." The gentlemen who sign the notice are an ample guarantee that the premium will be paid.

Operation of Marl.

Marls are held to be valuable, for spreading on land, in proportion to the quantity of calcareous matter which they contain.

Clay-marl, as it is termed, is composed of carbonate of lime, silica and alumina, with a portion of the oxide of iron or manganese. It occurs in beds, and is extensively diffused. It assumes a considerable diversity of aspect and character, as it is more or less indurated, or as the calcareous or aluminous matters prevail. When very indurated, it is frequently termed rock-marl.

The operation of marls is more slow than that of lime, and they require to be applied in comparatively larger quantity. They should be laid upon the surface, and generally well exposed to the influence of the atmosphere, before being mixed with the soil. Some marls have been found to be very deleterious, unless they have undergone this previous exposure to the air. The kinds of soils to which clay marls are most beneficially applied, are the sandy, gravelly and peaty. In this case they supply calcareous matter to the soil, and improve its texture by the addition of alumina.

The quantity of this substance applied is exceedingly various, being dependent upon the nature of the soil, and the proportion of calcareous matter in the marl. Where the purpose has been to change entirely the constitution of a defective soil, it has been applied even at the rate of from 300 to 400 cart-loads to the acre. But where the purpose is to give merely a common manuring, it is supplied in the quantity sufficient to afford an ordinary proportion of calcareous matter. It may be laid upon the surface of land when in grass, where it remains till the land is brought under tillage; and this is the best method of applying it.

Shell marl is an entirely different substance. It is chiefly a deposite of marine, and sometimes of land shells, found under a bed of peat. It may be used at the rate of twenty-five to thirty cart-loads to the acre. It can be applied to the land when in various states, as when it is in stubble, in summer fallow, or in grass. The latter is a good practice; for, as in the case of all calcareous matter, the application improves the herbage; and the mineral, sinking into the soil, prepares it well for producing crops of corn when it is broken up for tillage. Its operation is not so quick as that of calcined limestone, but its effects are more lasting. The same consequence is produced by excessive cropping after the application of this substance, as after the application of calcined limestone. The soil which has been stimulated by the action of the mineral becomes more barren than before, and it is for the most part only to be restored by rest and the action of animal and vegetable manures.—*Low.*

Experiment in Harvesting Corn.

Andrew Nicol has given in the March No. of the Farmers' Register, a statement of some experiments he made last year with his corn crop, the pith of which we abstract.

1. He took 32 loads of pine leaves on to a piece of corn, planted very close for the climate of Virginia, and spread these leaves so closely, as to give an average thickness of four inches. The corn received no after culture. The product was 75 bushels per acre, considered there a very large return. The pine leaves counteracted the effects of drought; and Mr. N. thinks, that had the covering been thicker, the product would have been greater.

2. The second experiment was made to ascertain the effect of topping, cutting up, and leaving the grain to ripen upon the standing stalk. Eighteen rows of 150 yards in length, were stripped of the fodder, that is, all the leaves, except two above the ears, were taken off on the 11th Sept.; the tops were cut from six of these rows on the 20th Sept.; six other rows of the 18 were cut by the ground the same day; and the third six rows were left to stand, together with the first six, until the corn ripened; the fourth and last six rows, from which neither fodder was pulled nor tops cut, was, on the same 20th Sept. cut off by the ground, and set up in small stooks. "The corn from each was gathered on the 2d Dec. and on the 7th Feb. shelled and accurately weighed. The following are the results, in measure and in weight:

1st 6	rows	measured	8 bu.	weight per bushel	58 lbs.
2d 6	"	"	7¾ "	"	57 "
3d 6	"	"	7⅝ "	"	56¾ "
4th 6	"	"	8½ "	"	59¾ "

These results go to show,

1. That leaves are essential, even after corn is cut off at the ground, in increasing the quantity and weight of the crop. And

2. That the mode of cutting up the whole, grain, tops and leaves, gives the *most* corn, and *heaviest* corn, and certainly improves the quality, and increases the quantity, of cattle fodder. The difference between No. 2 and No. 4, will be seen to be nearly 10 per cent in quantity, and in weight nearly as much more.

The third experiment was in succoring corn. Mr. N. considered the result decidedly in favor of the practice. Where the corn was not succored, the ears were diminutive, and the succors produced little or no sound grain. There is no doubt but succors abstract food from the plants, and if taken off (we should prefer to *cut* them off) and well cured, furnish excellent forage; yet we have hitherto doubted if the gain would repay the labor of succoring. But we do not profess to be infallible in our opinions.

A sentiment of Franklin.—"I think agriculture the most honorable of all employments, being the most independent. The farmer has no need of popular favor, nor of the favor of the great: the success of his crops depending only on the blessing of God upon his honest industry."

Knight's Mode of Grafting in July.

It is thus described in Loudon: "The head of the stock is taken off by a single stroke of the knife obliquely, so that the incision commences about a diameter below the point where the medulla (pith) appears in the section of the stock, and ends as much above it on the opposite side. The scion, which should not exceed in diameter half that of the stock, is then to be divided longitudinally, about two inches upwards from its lower end, into two unequal divisions, by passing the knife upwards just in contact with one side of the medulla. The strongest division of the scion is then to be pared thin at its lowest extremity, and introduced, as in crown grafting, between the bark and the wood of the stock, and the more slender division is fitted to the stock upon the opposite side. The scion consequently stands astride the stock, to which it attaches itself firmly on each side, and which it covers completely in a single season. Grafts of the apple and pear rarely ever fail in this method of grafting, which may be practised with equal success, with young wood in July, as soon as that has become moderately firm and mature."

The grafting clay of the French and Dutch, is unguent de St. Fiacre (St. Fiacre being the patron saint of gardening,) and is composed of half cow dung, free from litter, and half fresh loam, intimately incorporated. They prefer this to all other for excluding the external air from wounds of every description, and ridicule the idea of complex compositions. We know from experience, that cow-dung alone is an efficacious application to the fresh wounds of trees, barked or bruised accidentally, and we have saved trees by its prompt application, where the bark had been entirely removed from a foot of the stock. The common grafting wax used in this vicinity is composed of one part of tallow, two parts of bees-wax, and four of rosin, melted and well incorporated. It should be thrown into tepid or warm water, when about to be used. A larger proportion of tallow will render it softer, and more easily managed. The wax or clay checks the extravasation of sap from the wounds; prevents the too sudden drying of the wood, and excludes the rain water from the wound or cleft.

A new mode of fertilizing land,

Has been announced in France, discovered by M. Jauffet, and tested by him and others. Several French societies have endorsed the inventor's claim to merit, and a learned committee has been raised in England to test its value to agriculture. It purports to be "*a process for obtaining cheap and valuable manure, without the aid of cattle.*" The old mode of converting vegetable matters into food for farm crops, has been that of first feeding cattle with them, and of then applying the dung and offal to the soil. The inventor of this new process proposes, if we understand his project, to convert vegetable matters into food for vegetables by a summary and speedy process, without the aid of the digestive organs of farm stock. We do not see that it adds any thing to the *materials* of fertility, but merely *cooks them,* if we may use the expression, and thereby expedites their conversion into new vegetable matter. The process consists in steeping straw, or other vegetable matters, in water, in which a certain proportion of lime, cinders and soot have been mixed. Fermentation ensues, and in three weeks the manure is fit for use. The *Journal des Comices Agricoles* gives the following proportions: 700 pounds of cut straw, or other vegetable substance, five hogsheads of common water, one and one-fourth hectolitres of quick-lime, three-fourths hectolitre of cinders, and one-fourth hectolitre of soot; this mixture to be well brewed for a couple of hours: and the vegetable substances, after having thoroughly imbibed the liquid, are to be heaped together, battened down, and covered with something to compress them well together; the heap is to be watered every five or six days, or as often as the heat of the fermenting mass diminishes. The hectolitre is equivalent to about 22⅛ gallons. The straw or other vegetable matter is first cut in a machine; three men and a horse, with a machine, costing about $66, will prepare seven tons a day; and ten quintals of straw will produce 40 quintals of manure, either by the addition of the ley, or by the fermentation dilating the materials operated upon. We are afraid the discovery is not likely to prove of great benefit to this country, in many parts of which manure is not yet enough regarded to arrest the farmer's attention.

Hints in Husbandry.

[*From Loudon's Statistics of Agriculture.*]

NORFOLK.

Buildings.—Lime-wash is used as a preservative of boards. It is composed of lime, *fresh from the kiln,* and clean sharp sand, mixed with *hot* water, and *laid on hot,* stirring it up so as always to lay on sand mixed with lime. At Holkham, a brick manufactory, where bricks of all forms are made, and common bricks are cut, five parts in six, through in various directions, so as to give half and quarter bricks, angles, &c. without breaking and waste. This is one of the most complete manufactories in the kingdom. Sharp clean sand dashed on new paint is found to answer the end of imitating stone. Front edge of cattle manger rollers covered with tin, at Holkham; mangers themselves plated with iron, bottoms slate.

Improvements.—A good deal of draining done of late years; very little irrigation; among the manures are reckoned marl, lime, gypsum, oyster shells, sea ouse, sea weed, pond weeds, burnt earth, sticklebacks, oil cake, ashes, soot, malt dust, ploughing in growing buckwheat, yard dung, leaves, burning stubbles, river mud, and town manure. Marling, or claying, as it is called, [the soil being principally sandy,] has been much used for an unknown length of time, and is found of great use on the sands; laid on at all seasons, but chiefly on the clover leys in autumn, and spread to eighty loads an acre; duration twenty to fifty years. Sea ouse, a calcareous mud, forty loads per acre.

Grass.—Very little natural turf in the county, [the alternating system being generally adopted.]

BERKSHIRE.

Peat ashes, as a manure. almost peculiar to Berkshire, though they might be obtained by the same process wherever peat of the same quality abounds, as they are in Holland. An acre of peat land, at Newbery, now sells at 300 to 500*l.* though it formerly sold at 35*l.* The ashes are generally applied in March and April, from twelve to fifteen bushels the acre. The benefit two years.

Hogs.—The native breed are the best in Britain—improved by a cross on the China.

Poultry.—Near Oakingham, many are crammed for the market; they are put up in a dark place, and crammed with a paste made of barley-meal, mutton suet, and some treacle, (molasses,) or coarse sugar, and are found to be completely ripe in a fortnight. If kept longer, the fever that is induced by this continued state of repletion, renders them red and unsaleable, and frequently kills them.

YORKSHIRE.

Orchards and gardens.—A particular species of plum grows at Sherburn, and in its neighborhood, called the *Wine-sour*. It grows well in gravels and limestone, is hardy, and a good bearer. The fruit sells from 21*s.* =to $4.60 per peck, when sound and good, to 4*s.* 6*d.* when cracked and damaged. They are easily hurt by rain. [This plum is superior for preserves—may be had at the Albany Nursery.]

Live stock.—Near Leeds, where milk tastes of turnips, a tea-spoonful of dissolved nitre (salt petre) is put into eight gallons of milk, which entirely removes the flavor.

EAST LOTHIAN.

Grass.—Natural meadows or pastures are not admitted into the East Lothian system of husbandry, as they are found only where nature, or certain local circumstances render them, in some measure, unavoidable, and are never kept voluntarily, or from an idea of profit. Many farmers fallow land to lie a few years in grass, especially where it has been exhausted by long and imperfect tillage; but fields of this description are not be ranked as permanent pastures, for the object is to restore them, as soon as possible, to a state capable of bearing corn crops to advantage.

SCOTLAND.

Though Scotland was far behind England, in cultivation, till the middle of the last century, it has greatly now outstripped that country, especially in arable husbandry.

Economy of Health.

We renew our notice of this sterling work of Dr. Johnson, because it exhibits a profound knowledge of the human frame, and of the human passions and propensities, and abounds in wholesome instructions for the promotion of health and the enjoyment of rational happiness.

We have reached, in order, the fifth and sixth septenniads of life, extending from the 28th to the 42d years of man's age, which the Doctor denominates the Golden Era—the double key-stone of the arch of human life, in which our physical and mental powers are most successfully developed.

"This is the epoch," says our author, "of man's existence—provided he has not grossly violated the laws of nature and of temperance, or carried into the world with him some hereditary taint—in which all the functions of the body are so nicely balanced, that no one interferes with another. The circulation in the heart does not disturb the respiration in the lungs—digestion is performed without the slightest consciousness—sleep is a temporary death without dying—and man springs from his couch with keen appetite for food, and inextinguishable energies for mental or corporeal exertion. The organs of supply are now more than able to compensate for the waste occasioned by the ordinary wear and tear of life; because the machine has ceased to make demands for additional growth. Hence it is that we are capable, during the fifth and sixth septenniads, of undergoing fatigues of body, and excitations of mind, that would be ruinous to health either before or after these epochs of existence."

After discussing the subject of phrenology, in which the Doctor is a staunch believer, with some limitations, he proceeds as follows:

"I have hinted, a few pages back, that although the mental and corporeal *powers* attain their acme in the fifth and sixth septenniads, the intellect may yet display greater prodigies *after* the completion of that period, than it could have done *during* the golden era of moral and physical perfection. The reason of this is obvious. The mind continues to acquire knowledge long after the body has ceased to gain strength. And although certain powers of the intellect, as memory, imagination, or even perception, may be on the decline, yet the accumulated materials in the granary of the mind may, and often do, enable it to construct edifices of noble dimensions, and more durable architecture, than at earlier and more vigorous epochs of life."

This proposition is illustrated by the example of Shakspeare, Scott, Byron, Milton, Johnson, Bacon, Newton, Locke, Linnæus, &c. whose finest productions were written after they had passed the golden era, or the age of 42. These successful efforts of the mind, however, are ascribed to the "accumulated stores in the emporium of the soul, which have been laid up in earlier life." "If we hope to send forth corruscations of mind, says our author, in advanced age, we must charge the electric battery, (the minds material organ) in the prime of life. He who attempts, in the vale of years, he continues, to astonish the world with the elaboration of knowlede acquired after the completion of his sixth septenniad (42) and with energies of mind *not* exerted strenuously *before* that epoch, will find himself lamentably disappointed."

Emulation and Ambition.—"It is in the fifth septenniad that the *emulation* of youth gradually slides into the *ambition* of manhood. The change is so gradual as to be scarcely perceptible—like the mutations of figures in the magic lantern, or the transformations which fancy loves to trace in the moving panorama of clouds on a summer's eve. That which was in early life only a laudable desire to excel in literature, arts, science, or manly exercise, becomes in manhood a passion for outstripping and eclipsing our neighbors in rank, wealth, estimation, power, and all the thousand objects, paths and pursuits of AMBITION."

"What is *ostentation* in either sex, but the ambition of surpassing our neighbors, or equalling our superiors, in pomp and show? *Pride* itself is oftener nothing else than ambition, gratified and elated by the supposition, whether well or ill founded, that the individual is superior in personal importance, rank, riches, attainments, or other circumstance, to the generality of mankind."

Our author illustrates his position, that *emulation* in the school is the germ of *ambition* in manhood, by citing the cases of Napoleon and Byron among the dead, and of Peel and Brougham among the living, and continues,—

"These four illustrations might be multiplied ad infinitum, and easily made to prove several propositions, but especially the following, viz:—*First*. That the emulation of youth becomes the ambition of of age. *Secondly*. That talent is not developed at any period of life, unless it has *existed* from the beginning—in other words, that it is congenital, and not acquired; consequently that men are *not* born equal. *Thirdly*. That if any thing be entitled to the denomination of 'UNIVERSAL PASSION,' it is ambition taken in its extended sense." **

"As common economy is most advantageously practised in the season of prosperity, so the ECONOMY OF HEALTH is most beneficially cultivated when we are in the fullest enjoyment of that blessing. The stings of unmerited penury are blunted by habits of previous moderation, and so the dangers and sufferings of accidental disease are obviated or mitigated by previous attention and temperance. It is in these two meredian epochs, however, that the seeds of various diseases, sown at much earlier periods, now take an activity of growth, and bring forth their bitter fruits. But, independently of these, the germs of many new afflictions, hitherto unknown to the constitution, are firmly planted, and soon fructify with disastrous fertility. The dry-rot of the frame, CONSUMPTION, which may have lain dormant for so many years, is frequently called into action about the beginning of the fifth or sixth septenniads, by causes which had not previously operated. But the great evil—the root of innumerable evils—the proleiform malady—DYSPEPSIA—the hydra-headed monster of countless brood and Medusa mien, is the progeny of civilization—and is much more indebted for its existence and diffusion to intellectual refinement, than to bodily intemperance—in other words, its causes, multifareous as they are, may be traced far more frequently to anxieties, cares, and tribulations of mind, than to improper indulgence of the palate or senses. This *nova pestis* was unknown to, or so rare as to be underrated by, our ancestors. This assertion need not stagger us. All diseases are the creatures, or rather the creations, of circumstances. Numerous maladies of antiquity have disappeared from the tablet of nosology, and others have taken their place. It may be proper to advert to syphilis and cholera, no authentic types of which can be found among the records of Greek and Roman medicine. To come nearer home, the diseases of the heart, one of the protean forms of the malady under consideration, were so little attended to before the French revolution, as to be scarcely noticed by medical writers. The portentious scenes of that eventful period called forth such a multitude of examples of this fatal disease, that a volume was soon written on the subject by Cervisart—and the mental excitation that has ever since continued, has kept up the tendency to affections of the heart, which are now among the most prominent and dreadful of human afflictions."

* * "To prevent the corporeal malady, and to diminish, as much as possible, the mental affliction itself, the individual must tread in the steps—haud passibus æquis—of Xenophon and Byron. He must "KEEP THE BODY ACTIVE, and the STOMACH EMPTY." I can answer for the value of this precept. It prevents not the individual from throwing into the prescription as much philosophy, and even theology, as he pleases. Of the *last* ingredient it becomes not me to speak, even comparatively; but of the two other items, I can conscientiously own, that they are as 'dust in the balance,' when weighed against the Græco-Byronian receipts which I have so strongly recommended. The poor man has not far to cast about in quest of the means for putting this principle into practice. Generally speaking, he adopts it, *nolens volens;* and hence it is that the most indigent suffer less from moral ills and misfortunes, than those who are far removed from want. As a man rises in rank and riches, he becomes deprived—or rather he deprives himself—not of the means, but of the inclination, to embrace the protection which this principle holds out. Among the inferior order of society, indolence and inebriety give a fearful impetus to the shock of misfortune, and soon induce a variety of corporeal disorders, that curtail the range of life, and destroy the springs of happiness. And even in the higher quarters, where we might expect better things, the mental afflictions, or the moral adversity, appears to paralyze the energies of the soul, prostrate all firmness of resolve, and place in complete abeyance all fortitude and power of resistance against the overwhelming evil! In such condition it is no wonder that temporary solace is sought in wine and other deleterious stimulants, which only smother the flame, like coals heaped on a fire, to make the combustion more fierce and destructive afterwards. From these sources are derived many of those hypochondriacal miseries, dyspeptic torments, and even intellectual aberrations, which we every day observe.—The application of the counteracting principle in question must be left to individual ingenuity. Women have less facilities for putting in practice than men, for obvious reasons; but fortunately they bear dispensations and vicissitudes with much more fortitude than their boasted superiors—the stronger sex."

Dr. Johnson then proceeds to show, that man is punished in this world—that he has a foretaste here of his final punishment hereafter—for the wanton violations which he commits of the laws of God and man. He then proceeds:

"The same reasoning may apply to rewards as to punishments. Because virtue, and merit, and talent, are not *apparently* rewarded on this globe, it does not follow that they are not *really* so. If the wicked man carries a hell in his bosom, the virtuous may and does maintain a heaven in his breast. Of all rewards, here or hereafter, HAPPINESS must be the greatest—and we have the authority of the great Ethic Bard, as well as daily experience, that

"Virtue alone is happiness below."

Even the HOPE of REWARD in another world, based on conscientious rectitude of conduct and religious feeling, is in itself a reward beyond all estimation. It is an anchor in the storms of adversity."

Correspondence condensed.

THE GRAIN-WORM.

James Cooke, of Johnsonsburgh, N. J. professes to have adopted a successful mode of preventing the ravages of the grain-worm. The preventive consists in steeping the seed in a brine made of one pound of saltpetre, one pail of water, and two double handfulls of rye flour; and after the seed is drawn from the liquid, to put to it as much plaster as will adhere to it. It prevents injury from the worm, by causing a luxuriant growth. Mr. Cooke undoubtedly alludes to the Hessian fly, and not to what *we* call the grain-worm, as this latter has not yet reached that state. Whatever induces vigorous growth, tends to lessen the evils of the fly; but no steep, we are persuaded, will prevent the attack of the grain-worm.

QUANTITY OF GYPSUM PER ACRE.

A correspondent at Kingsville, Md. is anxious to know what would be the effect of applying a ton of plaster to the acre? And why not as beneficial in this quantity as lime or bone? Gypsum has been tried in various quantities upon land, at the rates of from one to twenty bushels per acre. In no case has any quantity above six bushels to the acre proved beneficial; and generally those who made the experiments have come to the conclusion, that no more than one to two bushels can be profitably applied to the acre. The reason why it differs from lime and bone, applied in large quantities, we apprehend to be this: It is the specific food of certain plants, not in its simple, but compound form; it combines with the other elements of these plants in a certain definite proportion; this definite proportion never exceeds say two bushels on an acre; and all that is applied beyond this is useless, otherwise than by improving the texture of a too stiff or too open a soil. Lime and bone benefit upon different principles.

CULTURE OF ONIONS.

The onion grows to full size in the northern states in *one* season; but in Pennsylvania and south, it requires *two* seasons to perfect its growth. There, the tops generally die the first season, when the bulb has attained the size of a filbert or walnut; these are planted out the second season, and come to maturity. J. H. King, of Georgetown, D. C. asks the cause of this difference, and wishes our directions for the culture of the onion.

The cause of the difference, we believe, is to be imputed wholly to climate: the warm weather of the south impairing the elaborating organs—the leaves—and consequently checking the growth, before the bulb has time to acquire the full size. We remember seeing, in the garden of Col. McAllister, near Harrisburgh, Pa. a bed of full grown onions, which the owner seemed proud in assuring us, had grown from the seed that year, and which he stated as a remarkable circumstance. We made no inquiry when they were sown, but conjecture that the seed was sown the previous autumn, a practice which, according to Loudon, is common in Portugal, and is often practised in Britain. The onion in this case attains its full size by the first of August, before the intense heats of summer. Although the onion is said to be a native of Spain, it probably is indigenous to the mountainous regions, for it seems adapted to the temperature of this latitude. It withstands our winters, especially if protected by straw or litter. The onion planted for seed is often put out in autumn, or left in the ground for a second, after the first crop of seed has been gathered; it is often sown in September, and particularly the tree or bulb bearing variety. We recommend to Mr. King to sow in autumn, say in September or October, and at mid-winter, if the state of the ground will permit.

Onions are sown in this neighborhood from the 1st to the 25th April, on rich, well prepared ground, in drills 12 inches apart, and are afterwards thinned to a proper distance. The earlier they are sown, the sooner they come to maturity; and, well managed, are a sure and profitable crop.

The tree onion is said to come from a high latitude, where the climate being too cold for them to flower and seed, the flower becomes viviparous, and bears bulbs instead of flowers.

CORN AND COB CRUSHER AND GRINDER.

M. M .McFeer, writes us from Marysville, Ten. that an excellent machine for crushing corn and cob has been invented and put in operation by Mr. William Gault, of that place. Our correspondent assures us he has seen it in operation, and that it will crush and grind from 20 to 30 bushels of corn and cob in an hour, propelled by water or horse power. Such a machine is much wanted, and will meet with a ready sale, at a fair price, in every part of the country.

MACHINE FOR SOWING LIME.

William Wells, of Plainfield, N. J. notifies us, that he has patented a machine for sowing lime, which will spread any required quantity, from two to five hundred bushels on an acre, of lime, ashes or marl. A boy large enough to shovel, will; he says, with a horse, spread 700 bushels in a day, perfectly even. The machine will hold 20 bushels for one horse, or 40 bushels for two horses.

N. B. We must inform Mr. Wells, as well as others who like him are disposed to transgress our rules, that letters for their exclusive benefit, addressed to us, will not hereafter be noticed in the Cultivator—*unless the postage is paid.*

Italian vs. *Siberian Wheat.*—We must be excused from prolonging the controversy as to the relative merits of Italian and Siberian wheat, which we apprehend would neither profit the parties, nor enlighten the public. We have given our opinion, judging from an analysis of the grain, that the two species of wheat are identically the same. When they are ascertained to be different, it will be time enough to say which is the best.

Dutton Corn.—H. H. Eastman, of Marshall, Oneida, complains, that corn which he obtained as Dutton corn, at Albany, proved an entire failure; that the stalks grew strong, and six or eight feet high; but that the corn did not ripen, while other kinds came to maturity. Mr. E. we venture to say, did not plant the Dutton corn; as this is of rather dwarfish growth, and with us has never been injured with frosts. Mr. Thorburn has informed us, that in the spring of 1837, he sold a quantity of seed corn as Dutton, which he believes was not such, as in every instance that he has heard of it has proved a large growing late corn.

Hessian Fly.—Timothy S. Olmsted, of Croton, Westchester, sends us the following directions for preventing injury by the Hessian fly. Mr. O. is informed, that this fly and the grain-worm *are not* the same.

"As soon as wheat shows two blades after sowing in the fall, sow two bushels of good wood ashes per acre. Repeat the same the first and last weeks in April, and as late in the month of May as the sower can pass over it without injury. As the first and second times are past, (that is, fall and first week in April,) I would recommend the sowing of three bushels per acre any time in April, and three in May."

An extraordinary calf has been raised by Austin Harmon, jun. of Bennington, Vt. which, on the 29th March, the day he was one your old, weighed *one thousand and three pounds!* He is of the Short Horned Durham breed. This calf, Mr. Harmon writes us, sucked the dam ten days, was then fed with new milk twenty days, and after that with skimmed milk and a little oat-meal, till he was six months old; since which he has had neither grain nor milk, but has been kept upon hay and raw potatoes.

Value of Gypsum.—Barnabas Miller, of Catharine, Chemung, has sent us the result of some experiments with plaster. A row of potatoes not plastered yielded 49½ pounds of tubers, while a row along side, which he plastered, gave 90 pounds—a difference of nearly one-half in favor of the plastered row. Mr. Miller says the difference upon his corn was nearly the same, a table-spoonful being applied to each hill, after the first hoeing. The soil a gravelly loam. Mr. M. recommends the sowing a bushel an acre on grass grounds, about the first of May, and he thinks its benefits are manifest the second season. We join Mr. M. in begging farmers who do not use plaster to *try it*—on their meadows and pastures, on their corn, potatoes, &c.

Hog manure, D. Gillet is informed, in answer to his queries, cannot be applied amiss. Hot manures, as hog and horse dung, are best applied to cold moist land, cow and fermented manures to dry or warm land. Much, however, depends upon the degree of fermentation they have undergone, and reference should be had to crops, rather than soils. If unfermented, they should be applied to an autumn-ripening crop. Mr. G. thinks the best mode of applying manures for his corn is to spread it, and then gather his land in one bout ridges. This brings the manure spread upon three furrows into the space of one furrow. There is no doubt of the superior benefit of this mode of dressing to the first crop, yet it may be doubted if it is ultimately most beneficial to the crops which follow, or to the soil.

Threshing Machines.—J. G. M. Ramsay, of Macklenburgh, Ten. asks our opinion of the relative merits of threshing machines. We have no better data to judge from, than is afforded by our columns. We repeat, the threshing machine and horse-power are distinct; and that generally more depends upon the latter, as to the points of inquiry,—if portable, cheap, simple, and requiring but one horse—than on the thresher. Most of the threshers we have seen and described, do their work thoroughly; but in relation to the horse-power, we feel wholly incompetent to decide as to the relative merits of the different ones in use.

Acknowledgments.—Among many acknowledgments that are due to correspondents, we record the receipt of twenty-four kinds of prairie flowers from Mrs. Hamilton, gathered by her on the prairies of Wisconsin, geological and agricultural reports from Gov. Everett, Rev. Mr. Coleman, Prof. Mather, Dr. Perine, and several members of congress; red blaze corn from H. Luce, &c.

CORRESPONDENCE.

Importance of the Ruta Baga Crop.

Whalen's Store, 29th March, 1838.

Dear Sir,—So much has been said and written on root culture of late, that I feel a diffidence in attempting any thing new or profitable on the subject; should you, however, find a crumb in the following worth notice, you may use it as you think proper.

I commenced raising the ruta baga five years since, and can truly say, the more I know of them, the better I like them. Last season I raised 700 bushels on ground that would measure not to exceed three-fourths of an acre, after making a deduction for fifty pine stumps on the same. I sowed the 20th June, at the rate of two pounds of seed per acre, on ground which had ruta baga the season previous, ploughed once, harrowed down, laid off into furrows two and a half feet apart, two-thirds filled with long manure; a two bout ridge thrown back on the same, and the seed sown on top; hoed twice, passing the cultivator each time, and thinned down to one foot apart in the rows. A frequent mistake is crowding the plants too much; they must have room, air and light; all they are crowded nearer than rows two and a half feet apart, and a foot in the row, will surely diminish the amount of crop.

Two pounds of seed to the acre will give generally four times the number of plants necessary; but I find the extra expense of seed and trouble in thinning out amply repaid by the saving of time in transplanting and filling up vacant places; besides the transplanted ones never do as well as those left undisturbed.

As an experiment, I commenced the 1st September last, depriving every second row of all except the crown leaves, feeding them morning and evening to my milch cows. The result was, the milk increased nearly fifty per cent; the crop, when gathered, showed no difference in the rows. I pulled, topped, bottomed and put into the cellar with ease, at the rate of 100 bushels per day to each hand. I calculate the cost in the cellar at four cent per bushel. My store pigs have been wintered on them raw, with no addition, save the wash from the house and a little buckwheat and rye bran; they look well, and when I undertook a few days since to substitute raw potatoes, they would hardly deign to touch them.

I have tried mangold wurtzel each year of ruta baga, and were I to give any instruction as to its culture, would say, like Cobbett in his Cottage Economy, "wherever you see ruta baga, read mangold wurtzel," only sow early in May, and soak your seed at least twenty-fours hours in tepid water. I consider ruta baga much the most certain crop, and the difficulty in preserving through winter much less.

My drill-barrow sows most kinds of seeds; is pretty much of my own inventing two years since; cost in making about $2.50. Can all be made by a common carpenter, except the tin barrel; sows as much and as well as those costing $10 or $12. It is a great labor saving machine, every person engaged in root culture should have one. I am sanguine in the belief that the root culture will continue to increase here in the same ratio it has done in Great Britain, and that eventually the revolution in our agriculture from that source will be equally great with theirs; and whilst we see two blades of grass growing where but one grew before, we shall soon find ten bushels of roots growing where a short time since not one was thought of.

Respectfully yours,
J. Buel, Esq. SETH WHALEN.

Improvement of Grass grounds.

Cedar Brook, Plainfield, N. J. 22d Mar. 1838.

Jesse Buel, Esq.—Dear Sir,—I am a general convert to the *new system* of husbandry, but not without some important exceptions. Nothing is more common, than while we are endeavoring to avoid one error, to run into another in a contrary direction. I remember a remark of an elderly man many years since, who observed, that he had been endeavoring for a long time to understand and follow the *true* line, but he had come to the conclusion, that he was never *on* the line, except when he was crossing it.

I believe in the propriety of a rotation of crops on a large proportion of our lands; but I am acquainted with many pieces of meadow and pasture lands in New-England, the former of which are more valuable than any lands in that part of the country, which have never been ploughed within the memory of the present generation, which, in favorable seasons, produce two good crops of hay, and yield much after feed, with only a top-dressing of manure once in two or three years; and if not fed *too close* in the fall, do not deteriorate; while the pasture lands, without top-dressing, are a perennial green. Some of these lands, within the last twenty years, have been ploughed to make them *better* by a rotation of crops. They generally produced abundantly for two or three years, and after seeding with grass, yielded heavy crops of hay for about two years, and would then, notwithstanding top-dressing, begin to run out, as it is termed in New-England, so as to make it necessary in a few years to plough again, and when ploughed again, did not produce half the amount that followed the first ploughing. I am aware that the lands might have been preserved in good heart by *expensive* manuring; still I am of an opinion, that they were *essentially injured* by destroying the native rich sward.

I had charge and was a proprietor of a large manufacturing establishment in Connecticut, erected during the late war, connected with a firm of about ninety acres. A piece of ground of about four acres, near the river, above high water, but where the bed of the stream, probably at some former period, had run, had never been ploughed to the knowledge of any of the neighbors, but had been for years pastured and mowed. Indeed, it was so full of large stones as to discourage the use of the plough, besides it was considered leachy land, that was almost useless to manure. I examined the soil, and found it from two to four feet, sand, coarse gravel, stones of all sizes, to four feet diameter, interspersed with alluvial deposite. As it was convenient to irrigate it from the pond, I determined to make an experiment upon it. The native grass was principally white clover and spear grass, but was intermingled with brakes, small bushes, vines and weeds, and did not usually yield more than half to three-quarters of a ton of second quality of hay to the acre. By blasting and digging, all the stones from the surface were removed and placed in heavy walls, the holes were filled with decayed chips and wash from the roads; the ground cleared on the surface, without breaking the old sward more than was necessary. I was then advised to plough, as the only way to subdue it and get it into good grass. I determined not to disturb any more of the native sward, though quite thin and broken. We had prepared about 200 loads of good compost, which was carted and spread upon it; then sowed white and red clover and timothy seed freely, had it raked over, and all the little stones and sticks removed. The water was turned on the next spring when needed; a very large crop of grass, intermingled with some weeds, was ready to cut by the last of June. By the 1st September a great crop of rowen was produced. The following year it produced principally spear grass, mingled with clover and timothy, of superior quality and a great burden, estimated at more than three tons per acre, and the second crop full one and a half. By the middle of October, the grass was six inches in height and very thick; no creature was allowed to graze in the field. The next season it was top-dressed with about twenty loads of compost to the acre: the crops were equal, or superior, to the previous year; the ground was covered with a firm sward, and had a rich appearance. We reclaimed about four acres more in the same manner, on a moist and richer soil, and with *equal success,* without the advantage of irrigation, part of which had been considered so worthless, that it was not fenced, but left in commons. From about eight acres we calculated annually to obtain more than thirty tons of first quality of hay at two crops, and one year the estimation was as high as thirty-four tons. These meadows did not depreciate with a top-dressing biennially, but they were never fed, as I have been long satisfied that it is difficult to have good meadow and pasture on the same land annually. From the accounts of the expenses, estimating the value of the land before it was improved, preparing the ground, including the walls, about four feet wide at the bottom, five and a half feet high, capped with flat stones thirty inches wide, value of manure, seeds, cultivation, &c. the product netted more than twelve per cent per annum on the whole investment, the hay being mostly sold to inhabitants attached to the manufactory. When we sold the premises in 1824, these meadows were considered equal, if not superior, to any in the county.

Some other experiments I made, which perhaps I may hereafter communicate, should you judge this worth a place in the Cultivator.

I was more successful in farming in Connecticut than I have been *thus far* in New-Jersey.

I am, with much esteem, yours respectfully,

D. L. DODGE.

The Importance of Manufactures to Agriculture.

There is probably no branch of science of more importance to a nation, than political economy, inasmuch as "the physical well-being of a community is an indispensable basis for every thing else. Without it all the rest is fearfully insecure." The causes affecting the welfare and prosperity of a people, are as immutable as are those controlling the planetary system. We have, it is true, the power of violating the causes which contribute to the well-being of nations, but never with impunity; for so sure as we are found transgressing them, so sure shall we be punished for our temerity.

There are three sources of wealth, agriculture, manufactures and commerce. Agriculture is the most important, as it employs a much greater amount of labor than both the others, and as it is the foundation on which the others are supported. Manufactures is the second greatest source of wealth, and commerce is the lowest on the scale; yet on commercial enterprise both the others are sustained and made profitable.

Our farmers appear to be generally uninformed as to the causes affecting their prosperity. It may appear presumptuous in an obscure individual, to pretend to superior knowledge on this subject, yet, if my positions shall carry conviction to all who will attentively consider them, I shall not have presented them in vain.

The farmer makes his returns annually, and on the prices of his products his profits must depend. He can sustain himself under moderate profits; but the prices at which he sells his products must be sufficient to sustain his family, and keep his tools and cattle in good order, or he sinks. To understand, therefore, the causes affecting the prices of agricultural products, must be to him all-important. The object of this short essay is to make this clear to the commonest understanding.

We will suppose our country to contain three millions of families; that two millions are employed in agriculture, and one million in the other two branches of industry. It is not pretended that this division is statistically correct, nor is it necessary it should be, as the reasoning from it will be found equally conclusive, whatever may be the relative proportions. We have then two millions of producers to one million of consumers. We will take it for granted also, that the two millions of producers can at all times furnish sufficient surplus products to supply all the wants of the one million of consumers; and that this relative proportion of consumers to producers, is necessary to sustain agricultural products at remunerating prices. Now, it is self-evident, that we cannot change the relative proportion of consumers and producers, without causing a change in the price of agricultural products. If the proportion of consumers be increased, the price of products will necessarily rise; on the other hand, if the proportion of producers be increased, prices must as surely be lowered.

We can now understand, why the agricultural products of this country have been gradually increasing in value for the last five or six years. Our manufactures were in so flourishing a condition, that new ones were starting up in every direction, and our commerce had increased with equal rapidity. These extensions drew off from agriculture a portion of her producers, and greatly increased the proportion of consumers. Add to this, the tens of thousands that were employed on canals, rail-roads, public buildings, &c. and it will be easily estimated, that our consumers had increased until they were almost too great for the means of supply, thereby increasing rapidly the prices of every article of agricultural consumption.

Within a year past a radical change has passed over the face of our country, and the result must necessarily so lower the value of agricultural products, as to bring ruin home to thousands of our farmers. I wish I could predict better results, but as things are now progressing, I can see no opening by which our farmers can escape from more depressing prices than they have experienced since we have been an independent people. Manufactures and commerce are so prostrated, that hundreds of thousands of workmen have been driven from those employments, and are fast settling on land as farmers, or employed as workmen in tilling the soil. The producers will so outnumber the consumers, that ruinous prices must necessarily follow.

It is not my province to show by what mismanagement this state of things has been produced. I wish merely to register the prediction, that our farmers will suffer severely in the end, and to show them, that manufactures and commerce can never be much depressed, without bringing ruin home to the agriculturist. They are usually the last to suffer from bad times, but their sufferings are generally more protracted when they come. I see no remedy for the evil, so long as the majority of our citizens can be gulled into believing, that the vital interests of our country are mere foot-balls for designing demagogues to kick about at their pleasure. Sudden changes are as deleterious to the political system as they are to the physical, and our citizens will have to learn by sore experience, for nothing short of personal suffering will open their eyes, that prating demagogues, however great their gift of gab, are totally incapable of wielding successfully the complicated affairs of a nation.

Commerce will soon revive from the fatal blow that has prostrated it, but our manufactures cannot be so easily resuscitated. The whole civilized world is interested in sustaining our commerce, and great efforts will be made by the manufacturers and capitalists of Europe to supply this, their best market, with their manufactures and raw material. If our own merchants cannot sustain themselves, foreign agents, with foreign capital, will fill our marts of commerce, and the profits our merchants have heretofore made, will go into the pockets of foreigners, to add to their already overgrown capital. The same foreign influence that will be employed to resuscitate our commerce, will be exerted to keep down our manufactures. It is the well known policy of Great Britain to prevent the manufactures of any other country from succeeding. It is her interest, and her policy and interest have never been opposed to each other. Our commercial cities are already crowded with foreign agents, and the late prostration of commerce will add greatly to their number. It is well known, that every foreign agent is openly opposed to our manufactures, and it is to be expected they will continue, as they always have done, to lend their whole force and interest to break them down. They consider that every article manufactured in America, prevents their selling just so much of English manufacture.

The interest of our agriculturists is deeply involved in the question: shall our manufactures be prostrated to please foreign agents, and for the benefit of foreign capitalists, or not? The time has arrived when this question has to be decided by the voice of our citizens. Our marts of commerce may answer in the affirmative; our cotton planters, from every appearannce, will lend their assistance to prostrate them; but what are the feelings of the farmers of the free states towards our factories!! will they support them, or will they look coolly on and permit them to be destroyed? W. P.

Beet Sugar.

In the introduction of new branches of industry, which promise to realize a large profit, we are prone to catch at every suggestion, however extravagant, which promises to administer to our cupidity; while those who are interested in deceiving us, take care to keep up the deception till their own turns have been served. These remarks have a particular reference to the silk and beet sugar business. The excitement in relation to both has been great—we think unreasonably so. The following criticism upon the letters of Mr. Glass, which are from a gentleman who spent the year 1836 in France and Germany, and who professes to be familiar with the process—the best process, of producing beet sugar, cannot but have a salutary effect in correcting any extravagant notions which the letters of Mr. Glass may have produced.

CRITICISM ON MR. GLASS'S LETTERS.

Sir,—Having paid particular attention to the manufacture of sugar from the beet in France, I think it proper to mention to the public some errors which appear in the account of cost and profit, given by Mr. J. W. Glass, of Clapton, London, in his correspondence with Mr. Dey, of New-York, and by Mr. Dey communicated to you.

The cost of manufacturing in France is stated to be *just equal* to the cost of material, or rather that proportion of expense for manufacturing is set down as a very *liberal* allowance. Now in fact, the cost of manufacturing on any French plan is *twice* as much as that of the material. Thus, adopting Mr. Glass's estimate of the value of a ton of beets, viz. 15s. ($3.33,) it will result that the expense of converting the same into sugar will be, not 30s. ($6.66,) as he states, but 45s. ($9.99.)

Again: Mr. Glass says that the molasses of the beet is worth 2d. (1 cent and 8½ mills,) per pound.

The highest market price of the beet molasses in France is about 5 mills a pound, but the more common price is only 2½ to 3 mills, or 2 to 3 cents a gallon.

I do not mean to express any opinion of the merits of the new method of extracting the saccharine from beets, which is the subject of Mr. Glass's correspondence. This would be rash in the absence of all information touching the apparatus and processes by which this is effected. I merely wish to show by the above examples of error, that the evidence which Mr. Glass gives to show the excellence and advantages of the new method, is not to be relied upon. It is one thing to make an array of figures, and it is another thing to have them based on facts, and on a diligent and faithful induction from facts. And here I may observe, that no evidence of impartial, practical and scientific men is adduced, to show that any such advantageous result as Mr. Glass speaks of. In a matter of so much importance as an improvement for which the inventor demands half a million of dollars, we naturally expect other proof than mere assertion, either of the supposed inventor, or of those who recommend his improvement, or negotiate for the sale of his patent.

A new illustration of the remarkable looseness of the information may be perceived in Mr. Glass's last letter, dated Dec. 8, 1837. He quotes the price of sugar in New-Orleans at 8½ to 9 cents. That price is in fact only 4¾ to 6 cents.

My object, sir, is not at all to prejudice the public against the alleged improvement; on the contrary, I would welcome it with pleasure. I only wish that the public may be on their guard against error or deception in this matter, because I am persuaded, that nothing will tend so much to retard the introduction of this new and interesting industry, as a hasty entertainment of unsound theories on the subject. Lately in France, a man of the name of Stolle, belonging to Strasburg, announced that he had discovered a method, by which, in eight hours, good white crystallized sugar could be obtained from the beet. The news flew with rapidity over France, Germany, Great Britain and the United States. If you look at the files of any paper for 1837, you will see the proof of what I say. But what was the amount of this affair? The pretended inventor was called upon to verify his pretensions in the presence of impartial persons. He appeared before them, and exhibited a quantity of liquor, which he called syrup of the beet root; he then retired, and when the time, which he had assigned for the operation, was expired, he reappeared with a specimen of fine sugar, which he *asserted* that he had made from the said liquor. This exploded Mr. Stolle's pretensions, and he passed away. Such may not be the fate of this English discoverer; I certainly hope that it may not, but for one I wait for proof. Yours,

VIATOR.

A Proposition, to facilitate agricultural improvement.

Lake C. H. Ia. 4th March, 1838.

J. Buel,—Dear Sir,—What can, what must, what SHALL we do, to elevate the standing of the cultivators of the soil? There is "something rotten in Denmark," that needs all the energy of all the friends of agriculture, to eradicate from the community. A false pride pervades the land, and a false estimate is placed upon the value of that class of community, who are the very creators of, not only all wealth, but are the very basis and only foundation of all real wealth. What shall we do to bring about that happy state of society, that once pervaded the Roman empire, when he who cultivated the soil took the first rank among all trades and occupations? One of the very best things that the friends of this whole country can do, is to make the science of agriculture take that rank that shall induce merchants and professional men to seek to make *their* sons farmers, instead of that worst of all manias that now pervades the farming community, and which induces the annual ruin of thousands of young men, by seeking to be what nature never intended them for.

"Willie is so weakly we must make a doctor of him." "And John has such a *faculty* for trade, that his father intends to set him up. Besides you know, since he came home from school, he can't bear to go to work on the farm; and you know it 'ant so genteel as a merchant." These expressions and sentiments must be weeded out of every farmer's family. And he who can devise how it shall be done, how to change the public sentiment, so as to make the farmer and the farmer's wife and sons and daughters proud of being such, will be more deserving of the thanks of his country, than he who discovers how to destroy the grain-worm; for of a truth, this is a worm that is eating out the very vitals of community. It is the very cause of all the importations of wheat into the United States, and which have blotted our fair name as an industrious, agricultural nation. The commercial and professional part of society is overburthened with useless drones. The agricultural community are borne down with a consciousness that they are neglected by legislatures, and despised by the butterflies who flutter over them in British broadcloth, consuming the fruits of the sweat of their brows. And the mania that induces farmers to seek to ruin their offspring by seeking to make them *genteel*, unless soon counteracted, will do more to dissolve this Union, than high tariff and abolition united. An indolent mode of life, or a false pride, that makes a man ashamed to earn his own living with his own hands, is a fountain that will spread more seeds of corruption through the body politic, than all others.

What then shall we do? For do we can—Do we must, and let you and I say, do we will. Every thing must have a beginning. Suppose then that we begin with an endeavor to form an

AMERICAN SOCIETY OF AGRICULTURE,

The leading principle of which shall be to elevate the character and standing of the cultivators of the American soil; and whose members shall be pledged to the promotion of domestic industry, and particularly the growth of American wool and silk, by wearing manufactures of such; and to the promotion of agricultural schools, and the establishment and gratuitous circulation of agricultural papers.

And now, you being agreed with me, that a great good may be accomplished by such a society, the branches of which shall extend into every county of the Union, will you take it upon yourself to effect the first organization? Will you draft a constitution and nominate some gentleman who will act as the first president? (I suggest the Hon. H. L. Ellsworth, Washington.) Make every editor of an agricultural paper, and such others as you think proper, vice-presidents. A treasurer should be appointed to receive *voluntary* contributions towards forming a fund to defray necessary expenses of printing, &c. and sending abroad agricultural publications, and printing a splendid certificate of membership, which fathers would exultingly show their children as a mark of honor. A corresponding secretary should be appointed in every county and principal town, who would be active in enlisting members, and communicating a mass of information to the principal secretary, &c. The grand object would be, to enlist such a mass of influential men in the society, that farming would become popular and fashionable, so that parents would no longer seek to get their children into a more fashionable or "more genteel employment."

A great good could also be accomplished by annual meetings of such a society. The delegates from every state, not only bringing together a vast amount of useful information, but rare and valuable seeds from every part of the Union for mutual exchange, and also curious specimens of vegetable and mineral products, which in time would form a most curious and unique cabinet of natural curiosities.

If the project is not visionary—if it can be carried into effect, do not let it rest. Your standing and influence will give a weight to the matter, that I, an individual but little known, cannot command. But my humble exertions and small means will be freely given to roll the ball ahead, when once started.

I think you can associate twenty gentlemen at least, with you in Albany, who will be willing to lend the influence of their names and form a nucleus, around which to form this great national bond of union and usefulness.

And if nothing else can be done, you can publish this communication, with an earnest request, that every patron of the Cultivator would say to himself, something can, something must, something shall be done, to raise the character and standing of the whole agricultural community, and I will begin in my own family. I will teach my children that no other occupation is so profitable, so honorable, or so "genteel," as that of a farmer.

I do not often write so lengthy, but the manner in which you have honored my several communications, has led me to hope that I may still be useful, and I humbly hope withal, interesting to some of my agricultural friends.

I remain, most respectfully, your friend,
SOLON ROBINSON.

REMARK.—Mr. Robinson's proposition meets our hearty approbation; and should it be favorably responded to by our cotemporaries who conduct agricultural journals, and whose opinions upon the subject we respectfully solicit,—we shall give it our cordial support,—and devise some means, if others do not do it, to organize an association, "TO ELEVATE THE CHARACTER AND STANDING OF THE CULTIVATORS OF THE AMERICAN SOIL."—*Cond. Cult.*

Conversion of Starch into Sugar.

Easton, Pa. March 20th, 1838.

Mr. J. BUEL,—Dear Sir,—If not too late to reply to the query made by Mr. Edwards, concerning the conversion of starch into sugar, you may publish the following answer:

Starch of wheat is converted into sugar by boiling it for several hours in a dilute solution of sulphuric acid, (oil of vitriol.) The acid should be diluted with twelve times its weight of water, and starch added in the proportion of 1-40th of the weight of the solution employed. Potato starch, concerning which the information was particularly desired, yields sugar much sooner, even in two or three hours. The proportions are 1 to 2 parts of acid, 400 water, and 100 potato starch. The part performed by the acid is not precisely understood, as it suffers no diminution, and causes no evolution of gas. The only necessary change, however, seems to be the addition of the elements of water to starch, in order to make the conversion, as will be seen by referring to the analysis of the two substances; and this is produced by the sulphuric acid in some unknown away.

Saussure stated, that more sugar was procured than the starch employed, in the proportion of 110.14 to 100, though this has since been denied.

As the acid remains in the liquid unchanged, it is removed by adding powdered chalk, the whole filtered, and the sugar then obtained by evaporation.

In both cases referred to above, the sugar obtained is crystallizable, and resembles the saccharine matter obtained from the grape.

Starch is converted into sugar spontaneously in the germination of grain in malting, and likewise by frost; hence the sweetness of a frozen potato, apple and some other substances.

Respectfully yours,
TRAILL GREEN,
Prof. of Chemistry, La Fayette College, Easton, Pa.

Isabella Grape Vines—Wine, &c.

SIR,—The cultivation of grape vines and making of wine is getting to be so well understood throughout the United States, through the medium of our excellent agricultural periodicals, that what I am about to write, is probably already known to some of your readers; yet the repetition of interesting facts is often of much benefit, and the results of experience in these matters can scarcely be too often repeated.

The very numerous attempts to raise grapes from foreign vines in the *open air*, have resulted in disappointment. The late Mr. Parmentier, of Brooklyn, Long-Island, devoted much labor and expense on foreign vines, to very little purpose. Mr. Loubat, also near Brooklyn, planted a large vineyard, and for some years flattered himself with *hopes*, which resulted in loss or disappointment. In some few instances in Brooklyn and New-York, where the vines were protected by surrounding buildings, the Chasselas and other foreign varieties yielded well, thereby only demonstrating that such fruit *can be* obtained, if cultivators will be at the trouble of erecting proper houses for the purpose.

The Isabella grape vine is supposed to be a native of North Carolina. It first obtained its well-deserved notoriety at Brooklyn, in the garden of George Gibbs, Esq. now of St. Augustine, Florida; and derived its new name from his lady, Mrs. Isabella Gibbs, who was instrumental in obtaining it from the south for her garden. The original parent of all the Isabella vines is now to be seen in the garden of Zachariah Lewis, Esq. on Brooklyn Heights. This favorite vine has spread itself throughout the northern states of the Union, in Canada, and has been imported into France, and drawn forth the favorable notice of the French cultivators. Almost every garden and door-yard in Brooklyn and New-York can boast of its prolific vine, always yielding abundance to the careful cultivator.

In the year 1827, I set out, at a small place near Brooklyn, the cuttings for about 300 Isabella vines, and 50 foreign vines from France and Germany. By reason of careless cultivation from bad tenants, they did not come into bearing until 1831, in which year I was able to exhibit five kinds of very fine grapes at the horticultural exhibition in New-York. I also sent large quantities to the market, and made about fifty gallons of wine, merely as an experiment, as I supposed myself to be the first who had attempted to make wine of this grape. This wine was of two kinds, made in October, 1831, and in the April following was put into bottles, and one bottle of each kind sent to about fifty persons in different parts, who were supposed to feel an interest in the matter. One kind was made of pure juice, to which two pounds of sugar to each gallon was added. The other kind was composed of one-third water to two-thirds juice—three pounds of sugar to each gallon—one gallon of brandy to a cask of nineteen gallons. Some of this wine attained five years, and was pronounced very excellent.

In the year 1832, my little vineyard bore very abundantly, and I made, in October of that year, eight barrels of wine. It was made in a variety of modes, to test the quality of the grape, and did not all prove good; but far the greater part was very excellent, and improved with age.

I will now proceed to describe my mode of planting and cultivating the vine, and of making wine.

The cuttings intended for propagation are of any well ripened wood of the *last year's* growth, embracing three or more joints or buds. It is preferred that it should be connected at the lower joint with some small part of the old wood of the previous year. These cuttings are taken from the parent vine at any time between the first of November and first of March, and immediately buried in the earth, or put under earth in the cellar; or sometimes the ends are put in a box or basket with earth, and set in a green-house, and water occasionally sprinkled on them. In the spring, if they are not placed in their permanent locations, they may be carefully set out in the garden, at one foot apart every way, the upper bud being just even with the surface of the earth. If the season is dry, they will require to be watered several times to insure their growth. They will grow a foot or more in length the first season. In the following spring they may be transplanted to their permanent places, around buildings, fences, trees, and arbors. I trim the new sprout down to three or four buds, intending that *two only* shall be allowed to grow, and these to be trained off from the root in different directions, according to the circumstances of your trellis, or supporter. My vineyard was planted in rows, eight feet apart, and vines eight feet in the rows; but after a few years the trellis became so burdened, that I took up and removed one-half the vines, and left them sixteen feet apart in the rows. Each vine, therefore, had sixteen feet of trellis, being eight feet on each side of the root. The two main branches were tied to the lower rail of the trellis, and the lateral branches tied to the rails above.

My trellis was composed of four lath, open at the top, as I supposed it was necessary that the sun and air should have a good circulation among the vines; but I am now convinced that a top surface, as afforded by an arbor, is necessary. The great exuberance of the vine causes the new shoots to run up into the air above the trellis, and the wind will prostrate and break them, unless they have a flat arbor to rest upon. The fruit hangs with great weight on the branches, which are often broken unless they can rest on an arbor, or are well tied to the upright supporters.

As there are *four* distinct *prunings*, or trimmings, required in properly cultivating the Isabella vine, I will now describe them; merely remarking, that although the vine will give fruit when some of these trimmings are neglected, yet no cultivator has a right to expect *good fruit* without bestowing the requisite time and attention to these prunings.

First, the winter pruning. This is best done in February or March, provided the vines are not frozen; but may be done at any time between October and April. It consists in reducing the old wood according to the extent of your trellis, and the age of the vine, and strength of the root. All unripe wood is cleared off—old wood thinned out, and ripe wood of the *last* year's growth shortened down to two or three buds, *except* such runners as shall be selected to cover the trellis. Much depends on judgment in this trimming. It is difficult to describe precise rules. Those who love the grape should *cut boldly*, and acquire knowledge by experience and close observation. Every branch should at this pruning be strongly tied to the trellis.

The *second* prunning, or budding, takes place about the 10th of May. The buds have then thrown out their branches an inch or two, and generally two or three branches at every bud, or joint. These must all be reduced to one shoot, or branch, always leaving the stoutest or best shoot. They are disengaged with a slight touch, and a short time would suffice for many vines.

The *third* pruning takes place about the middle of June, and sometimes earlier, and is best performed with a pair of shears, or scissors. At this time I cut off what are called *laterals*—a branch growing out of the green wood on the side *opposite* to the fruit. These laterals may be broken or cut off quite down to the main branch at any time during the season; but it is better to remove them early, before they have acquired size and strength at the expense of the rest of the vine.

The *fourth* and last pruning is called *stopping*, or *shortening*, and is done with a shears or a knife. It should be done about the middle of July, when the fruit has attained about half its growth. I then shorten all the branches having fruit on them, (except those retained for permanent runners,) by cutting them at two or three joints forward of the fruit. This is a heavy and essential pruning, and divests the vine of much green wood and leaves, and is considered important to the development and ripening of the fruit. I would, however, particularly caution the operator against at any time removing the *leaves* of the vine, except such as are attached to the laterals and shortenings, and come away with them. The leaves are vitally important to the ripening of the fruit, which is always the best in the deepest shade. Such fruit as by accident becomes exposed to the sun, is sure to be very inferior and sour.

About the 8th of June, while the vine is in flower, and throwing its peculiar and delicious perfume all around, its great enemy, the *rose-bug*, makes its appearance, and feeds with voracity on the sweet and delicate blossom. In a few days after their first appearance, thousands are seen, carrying destruction throughout the vineyard. The best remedy I could ever devise, is to go among the vines early in the morning, before the sun has warmed them into activity, and they are then easily made to fall into the hand or on the ground, and may be crushed and destroyed. A few mornings spent in this way will clear the vineyard, as they are a short-lived enemy.

In the latter part of July, the *blight* or *rot* takes place where the Isabella vines are cultivated in fields, but it is seldom seen among those cultivated in cities. Great quantities of fruit will become brown, and sometimes black, and fall off. It is not easy to account for this destruction, which is seen as much on the high as on the low vines, and no less on fruit exposed to the sun, than on that in the shade. As an experiment, I discharged with a syringe, lime-water, sulphur-water, and soap-suds upon them, and also sifted dry sulphur on the fruit, but without any sensible effect. I feared I should lose all my grapes, but, to my surprise, I had a great crop, notwithstanding the rot. I have since supposed it might arise from the exuberance of the vine, which, like the peach and apple tree, may perhaps thus disburden itself of a portion of its fruit; but even on this principle it is difficult to account for its non-appearance in cities, where the quantities of pure fruit are quite astonishing.

I have observed in the cities, that spiders and caterpillars are in some degree destructive to the green fruit. Spiders will get to the centre of the cluster, and cause the fruit to fall in single grapes, but the caterpillar attacks *the stem*, and the whole green cluster falls to the ground.

I have in a few instances trained the vines upon large apple trees, and the grapes were abundant among the apples; but I do not think this mode is to be recommended where other supports can be had. The fruit was inferior.

In the city of Brooklyn, and among high buildings, my vines have not failed to produce abundantly *every season*, during the last fourteen year. This is an interesting fact to all who cultivate the grape. At my vineyard in the country, they have declined very much, which I attribute to the neglect and ignorance of the tenants on the place. Even in the country they are much better around the buildings than in the open fields. There are from three to five clusters on every fruit-bearing branch. I have in a few instances seen six. The extremities of the vine generally produce the best fruit, and there is often much difference in the quality of the fruit on the same vine. They may be trained a great distance over large arbors, and on the roofs and around the upper windows of our high houses. New branches will sometimes grow from twenty to thirty feet in one season.

The vine is sometimes propagated by *layers*, which consists in bending down the branch into a channel dug in the earth, and burying it at a proper depth, in a curving line, with the end above the earth. Roots will start plentifully from the part in the earth, and when it is well rooted may be cut from the parent vine and transplanted. If proper care is taken, the cuttings as well as roots may be sent a great distance. I sent a quantity of cuttings, packed in moist sods in a box, via New-Orleans to Arkansas, and had the satisfaction to learn that they were all alive on their arrival, and had been successfully planted out.

In March, 1832, I sold ten thousand cuttings to William Underhill, of Teller's Point, near Sing-Sing, N. Y. I have never visited his vineyard, but understand he is a successful cultivator.

Nothing is lost in a vineyard, as the green trimmings in summer are good food for cattle, and winter trimmings, when not required for propagation, make good fuel.

OF WINE.

Although I was successful in making some good wine, yet a portion was spoiled, and I do not flatter myself that I know much about it. An excellent little book, published by Mr. Adlum, of Georgetown, who was a great cultivator of grapes and manufacturer of wine, was my best guide in wine-making. I would respectfully advise such as wish information on this subject, to obtain it, and follow the rules there laid down. My experience, however, may be of some service, and I cheerfully give it.

The grapes were gathered and thrown into tubs, without breaking the clusters, or separating the ripe from the unripe. They were broken by a common pounder, and merely cracking the skin is sufficient, and care should be taken that the seeds be not broken. The *murk* or *pomace* is thrown into a *vat*, which is covered with one or more blankets, to confine the heat and hasten fermentation. A portion is sometimes warmed and added to the mass, to give it a start. The pomace rises on the top, and the whole will continue to rise and ferment upwards for four or five days. When it begins to sink, the fine liquor, as clear as oil, may be drawn by a tap from near the bottom off the vat, as long as it will run clear. This makes the *best wine*. The pomace is then pressed in any convenient mode, and all the juice extracted. The liquor is then called *must*, and in this state it is when any addition may be made, such as sugar or brandy. Nothing will incorporate well unless added before fermentation. I added in different casks from one to three pounds of sugar per gallon; but I would advise the adding of three pounds per gallon in all cases, and I am not certain that a less quantity will preserve the wine from running into the acetous fermentation. If properly made the wine does not require brandy, nor any other spirit, and is much better without it.

After the sugar is added in due proportion to the must, it is put into casks in a moderately cool place, and just filled to the open bung, and allowed while fermenting to overflow. It will work briskly for a month or more, and when it sinks in the cask, must be filled up, so as to continue the overflow. It is best to *stop the fermentation* before it quite subsides, in order to preserve the fine aroma of the wine; and this is done by repeated *rackings*, or drawing off into casks previously smoked with sulphur, by burning in them rags dipped in melted brimstone. If any particular flavor is desired to be communicated *artificially*, it must be done while the must is in the early stages of fermentation. It will probably continue to ferment after this first sulphuring and racking; and it may then be fined, or clarified. Many substances may be employed in this. Whites of eggs—milk and sand—fish-glue, sometimes called isinglass, may be stirred into the wine, which may be racked off in a week or ten days afterwards. At every racking a quantity of sediment is removed from the bottoms of the casks, and these rackings and finings must be continued until the wine is perfectly pure. I commenced my wine-making in October, and considered it fit for bottling in the March following, when it was put into bottles, demijohns, and tight casks.

Even when *new*, the wine is exceedingly good and palatable, and diffuses an inward glow, grateful, cheering and healthful. The taste and aroma are different from any wine I have ever known, and I cannot compare it with any.

I ascertained that a measured bushel of grapes, as they came from the vines in clusters, weighed thirty-eight pounds. I also weighed 100 pounds of grapes and crushed them, and obtained a little more than nine gallons of juice; it thus requires eleven or twelve pounds of grapes for each gallon of wine.

The location of my vineyard being considered unhealthy, I have given it no personal attention since 1832; but many persons in and about Brooklyn have made good wine from the Isabella grape since that time; and I do not doubt that others will follow their example, until the Isabella wine shall become a favorite at the tables of our best connoisseurs.

There is much to be learned concerning the cultivation of the vine, and I look to the correspondents of your excellent agricultural journal, for information on this as well as other branches of these interesting pursuits. In this town last season the Isabella grapes did not come to perfection, and were sour and worthless; yet I had excellent grapes from the fine vineyard of my friend, Josiah Dow, Esq. of Brooklyn, which is twenty miles west of this place. I should like to know whether manuring is desirable? what kinds, and to what extent? what protection is best? and whether my mode of trimming is, or is not, well adapted to perpetuate the vine?

In conclusion, I would remark, that the Isabella grapes are *eatable*, and often in the market long before they are *ripe;* and consequently many people are ignorant of their excellence when in *perfection*. I give it the preference to any grape I have ever tasted, and the vine is the greatest bearer I have ever known.

I am, sir, very respectfully, your friend,
ALDEN SPOONER.
Hempstead, Long-Island, Feb. 15, 1838.

Sir,—Will some of your valuable correspondents please to give your readers information respecting those sprouts from the roots of fruit trees, commonly called *suckers?* Should they in all cases be removed? Are they proper for transplanting, and future grafting?

Many years ago one of my young peach trees was injured by mice at the surface of the ground, and was sawed off; but the roots sent up a very thick bushy tree, which was allowed to grow, and has always been the best tree on the place.

Will quince trees bear best as single standards, or in a bushy form? S.

Hempstead, L. I. Feb. 15, 1838.

Remarks of the Conductor.—The sprouts of fruit trees should be carefully extirpated, except one is wanted, as in the case of the peach above noted, to supply the place of a diseased or decayed parent,—or except, from necessity, they are wanted for stocks, to be worked; yet seedlings are decidedly preferable to sprouts for stocks, though the graft and bud will readily take upon the latter. We may make another exception. Choice plums, and sometimes other fruits, grow on their own stocks, i. e. have neither been budded nor grafted. We have the green and yellow gages, St. Catharines, and other plums growing in this way. The sprouts of these are worth preserving, as they produce fruit like the parent. Such trees are produced artificially by layers from worked trees, and also by grafting in the ground, and when the graft has produced its own roots, separating it, with its roots, from the old stock, and replanting it. Every succor takes from the nourishment of the parent. Heading down the peach, at two years old, is recommended as a means of ensuring long life to the tree, and of protecting it from the worm. The quince bears best as a standard.

Bees and Bee House.

Dear Sir,—If you think the following experiments, "the why and wherefore," would give any information on the management of bees, as a disinterested endeavor to benefit those who are inclined to embark in that branch of rural economy, you are at liberty to publish them.

In the spring of 1834 I had erected on a rock that lay near the surface in my garden, a brick house, six feet square on the base, and six and a half feet high, covered with a conical roof; a hollow column stands perpendicular from the chamber and roof, of a conical form, fifteen feet in length, and fourteen inches at the base, which is not only ornamental, but serves as a good ventilator for the colony; a door and entrance on the south side, eighteen by twenty-four inches, secured by a lock. After being ceiled on the sides and above with matched boards, shelves were made on three sides, and a good hive of bees set thereon. When the door was closed, their egress in and out was through a space made by the omission of seven or eight bricks, on the east and south sides. This stock had filled the hive with comb, but did not work on the outside and shelves as I expected; but in the course of the summer sent out two new swarms. As this contrivance did not correspond with their views, they soon made safe their retreat to the woods. Being a little chagrined, but not willing "to give up the ship," so long as there was a prospect of gaining any good, I placed the hive, the following spring, on the outside of the apiary; another swarm came forth in June; no time was lost in putting within the house the new swarm and bush on which they had collected. They made choice of the north-east corner; from the ceiling worked layers of comb down to the first shelves. I soon discovered that these shelves were on the same plan of the bottom board of common hives, securing the bee-moth a good retreat. I therefore had occasion to take down these shelves, and for a substitute put in cross sticks to bear up the comb, which left no chance for an attack by the moth; since then no appearances of their larvæ and web has been discovered.

In the course of the two preceding winters they have spared to me more than fifty pounds of honey in the comb, as white and delicious as any I ever saw, without apparently crossing them in the least.

The advantage gained by this mode of raising honey over the usual practice is, that a large swarm does better than a small one; they gather more honey, and eat less in the winter in proportion to their numbers. Instead of clustering on the outside of the hive in warm weather, they have plenty of room, fresh air, and a cool place to labor. No inconvenience is realized by comb melting down. They can also raise a more powerful defence against their enemies, and are not liable to winter kill, as in common hives. The perspiration of the bees, which congeals on the sides in moderate weather, with the addition of their heat, the ice will melt, and run to the bottom of the hive, and the bees thereby suffocate. Many a valuable swarm is destroyed in this manner. A hive that is exposed to snow, the door is oft times filled, which prevents the admittance of fresh air sufficient to preserve the life of the swarm.

The bee-moth does not often attack a large swarm; and if any, when disengaged from the comb, they drop to the floor and perish. Mice are secluded. Cattle cannot upset them. And finally, as they do not emigrate, no anxiety attends that disagreeable task of hiving them.

The usual practice of destroying the stock in order to obtain their goodly treasure, has been a matter of regret. No branch of rural economy excites the admiration of all classes of people, more than the industrious and instinctive habits of this instructive little insect, connected with the ingenuity it displays in the accurate construction of its domicil, adds to the proof of an *All-wise Power* in the works of animal creation.

I remain, dear sir, yours,
SOLOMON W. JEWETT.

Jesse Buel.
Weybridge, Vt. April, 1838.

Wheat on a Clover Ley—Peas.

New-Stockbridge, March 12, 1838.

Mr. Buel:—Sir,—Now, as I have leisure, I will write a few lines, which may be useful to some of your readers. The first is an experiment in ploughing in clover to prepare the ground for a wheat crop.

In 1834, I ploughed a piece of ground for wheat, which had grown corn and buckwheat the previous year. The piece contained three acres and one hundred and forty rods of ground, which was much exhausted, and covered with Canada thistles. I ploughed it three times, and then sowed the wheat, and ploughed in the seed and harrowed it down. The next spring I seeded it with clover, and sowed on plaster. The wheat was plump, and yielded sixteen bushels to the acre. The next spring I gave it another dressing of plaster; the clover grew very luxuriant; I ploughed it in just as it was beginning to blossom. I worked the ground the same as I did the naked fallow, except that I passed the roller over the last crop in the fall and again in the spring. The last crop I harvested the past season; it was very much injured by the rust. I am confident that it destroyed one-third of the crop, notwithstanding I got one hundred and fourteen bushels of wheat, which is about twenty-nine bushels to the acre, by weight. I can assign no reason for this extraordinary difference, but the plaster and clover.

Now a few words with respect to the pea crop. I am fully convinced, by close observation and experiment, that farmers generally sow them too thick.

In 1835, I sowed eight bushels of peas on four and one half acres of ground, and raised one hundred and seventy-three bushels.

In 1836, I sowed two bushels to the acre, with the exception of one half acre, which I was induced to sow at the rate of three bushels to the acre, to see if the result would confirm my previous experience. I found when I came to harvest them, that those which were sown thin were remarkably well podded and a very abundant crop, and that the half acre which was sown thick had only a few small pods on the ends of the vines, and were still in blossom. A neighbor of mine has been in the practice of sowing about four bushels to the acre, and has commonly got from ten to fourteen bushels. The last season, I persuaded him to try two bushels; he accordingly sowed four bushels on two acres, and he has told me that he raised over eighty bushels from the two acres. From these circumstances, it is obvions to me, that where the ground is in good condition and well pulverized, they should not be sown more than two bushels to the acre; and if the ground is very rich a less quantity would be preferable. When sown thick they obstruct the circulation of the air, and exclude the heat from the ground, and become rotten or mildewed at the bottom. They should be harvested while the end of the vine is green, as they are valuable for fodder. All kinds of farm stock eat them greedily; sheep and colts are particularly fond of them.

SIDNEY SPRING.

To prevent the ravages of the Cut-worm.

Dutchess county, March, 1838.

Mr. J. Buel,—Dear Sir,—Many things have been prescribed to prevent the grub or cut-worm from destroying Indian corn in its infancy; most, if not all of them, I believe to be ineffectual or inert, and some of them pernicious to the growth of corn. And as the season when the grub commits its ravages is near at hand, an effectual means to prevent its mischief I believe might be of vast importance to the agricultural part of community.

Believing myself to be in possession of a knowledge of means that will completely prevent the cut-worm from destroying young corn, I shall endeavor to communicate the same to you, and shall consider myself fully compensated, without any reward from church or state, if they shall prove serviceable to the farming interest.

The remedy consists simply in feeding the grub. Many farmers are in the habit of badly ploughing their corn ground for this purpose; for bad ploughing leaves much grass for the grub to live on. But the practice of bad ploughing vastly increases the labor, and consequently the expense of raising Indian corn. The better practice is to plough well at first, and afterwards to apply the remedy.

The grub is not a dainty feeder, and will eat almost any green herbage. The best I have found to be the following: young elder sprouts and their leaves, milk weed, clover, mullein, and almost any green vegetable that happens to be at hand. My time and mode of applying them, is to apply them two or three days before the young corn makes its appearance through the ground, in compact handfulls in every fifth row, between every fifth and sixth hill, pressing the handfulls, when dropped to the ground, with a tread of the foot. The grubs, if numerous, will soon collect under these handfulls, in dozens, scores, and hundreds, and there remain for shelter and food as long as they find good accommodations, which will last for ten days or more. In the mean time it will be an easy matter to destroy them with a sharp instrument, going from handfull to handfull, along the rows in which they are deposited. I have in this way killed more than two hundred under a handfull, and thus saved my corn. Handfulls of fresh herbage must be reapplied if necessary.

The remedy may appear to many at first notice almost as bad as the evil; but I believe that a smart man will gather and apply the remedy to more than five acres in a day, and to destroy the grubs when collected is an easy matter. At all events, I believe, after a fair trial, that the remedy is the cheapest and most effectual that can be applied; and depend upon it, the remedy is no quack prescription, for it has its foundation in the animal appetite and disposition, that animal nature can be more readily coaxed than driven.

Many farmers in this county have procured spring wheat to sow; and those that I have talked with, intend sowing it as early as possible. I tell them, as the grain-worm made its appearance in our county last season, there is good reason to believe that sowing about the 20th of May would be worthy of trial, so as to prevent the fly from depositing its eggs in the soft grain, as spring wheat, when sown about the 20th of May, does not come in head until after the disappearance of the fly.*

I bought some spring wheat of a man that procured it in Oneida county, and he told me that the fairest and best spring wheat he saw there, was sown as late as the 4th of June. Can this be? What are the advantages and disadvantages of late sowing spring wheat, and how late will it do to sow it in Dutchess county?

I tried your method of steeping seed corn in water near the boiling point; but I found that was cooking it too soon, for not more than one-fourth of it came up, and being under the necessity of replanting, I found the same kind of seed came up to a grain, when planted dry. Yours, &c.

A SUBSCRIBER.

Steaming apparatus—Apple Butter, &c.

New-Bedford, Merc. Co. Pa., March 1, 1838.

Dear Sir,—I am pleased to have it in my power to communicate to you something at the commencement of each volume of your exceedingly interesting and highly useful periodical. I consider agricultural knowledge (in connection with the sciences which develope its resources) as the basis upon which rests both individual and national prosperity. Whatever some may say in relation to agriculture, that the study of it is menial drudgery, I am bold to assert, that as a science, in all its affinities and relations, it is better calculated to expand the mind and generalize the ideas than any other science that ever engaged the attention of mankind. I might here expatiate, and attempt to show its vast importance to the human family—how from it necessarily flow all our temporal enjoyments and comforts, all our national strength, and whatever elevates the present state of society above the savage condition of mankind; but in the compass of a letter there is not room. Mankind have hitherto been asleep in relation to the immense importance of this subject—but are now, we hope, about to arouse from their torpor, and elevate their standard in agricultural pursuits.

In the September number, volume 2d, we have a cut and picture of an improved hog-pen and steaming apparatus. They are both perhaps very good—they may be excellent—but they are not adapted to the generality of your readers, on account of the expense of their erection. You apprised us of your intention of giving the above cuts and description in a previous number. At the moment of the receipt of the note I was in an advanced state in the construction of a steaming apparatus and hog-pen. I instantly postponed the completion, till I should discover what new ideas and suggestions the communication would contain, that I might avail myself of them, in order to make every thing as perfect as possible; the communication came. I perused it with great interest, and was surprised at finding a remarkable coincidence and similitude between that you describe and the plan I was pursuing. The steaming apparatus, however, cut me short, and caused me to defer the finishing of it one whole year; however well it may be adapted to men of capital, to a large proportion of your subscribers, and in some particular locations, the thing is nearly impossible. After deferring it as above stated, I recommenced work in order to finish it. On the resumption of the work, I was puzzling myself in thinking whether this plan or that would succeed best, when fortunately a number of the Cultivator arrived, containing an account of precisely such an one as I was erecting, by Mr. Loonis. Here I will mention the great advantage individuals receive from publications which have for their object the promotion of interests compatible with their own, when the mind and genius of thousands are at work for the furtherance of objects of great importance, and the result of their experience made known in these publications. Improvements must progress in their line, because they mutually stimulate and assist each other, confirm kindred associations of mind, prevent experimental blunders, and retrieve from oblivion discoveries which had all but attained their climax, and which, but for the aid of a kindred spirit arriving opportunely, had been lost forever. Well, the communication of Mr. Loomis arrived; was read with great interest, and gave me confidence. The introduction of the false bottom and the setting the box right over the kettle, were the suggestions I availed myself of, as I had turned the steam by an elbow clear of the furnace: my boiler is a twenty gallon kettle, first set according to your direction, the present position of which is the result of three several experiments, and answers very well. My kettle lid is made in the first place with inch oak, ploughed and grooved, and covered transversely with two inch plank, well nailed; the tube enters the centre of the lid, and is a little over four inches square inside, and enters the box near one side, which leaves one side of the lid uncovered by the box, for the purpose of introducing water through a large plug hole, by a funnel; one end of the box is a little elevated, making a small angle with the plane of the horizon, that the condensed steam and vapour may run out at the draw end; a close lid covers the box which, in the operation of steaming, is covered with a carpet, an essential requisite. On steaming my second box full, which was apples, I applied my hand to the end of the box, where the condensed steam ran out, in applying it to the tongue, it tasted very sweet; as the process of cooking progressed, the sacharine matter accumulated. I directly constructed a trough, placed the one end in a tub and the other under the box, and collected in the tub a very rich cider; by continuing the fire, I could discharge the whole of the saccharine matter, by leaving nothing but the core and vegetable fibre. We immediately commenced making apple butter and preserves of every kind, and have set apart a barrel for vinegar, which we believe is better than cider from the press; two or three buckets of water thrown over them in the finishing process, washes out the residue of the sugar. This process saves housewives immense trouble in boiling their sweet apples over the fire, and straining and pressing out the juice. The juice runs from the box toward the last of the process as thick as molasses. I prefer this for domestic use above all the other processes ever made.

WM. JOHNSTON.

Evergreens for Shelter and Hedges—Their price, &c.

Judge Buel,—Dear Sir,—I am desirous of hedging in with a good wide belt of evergreens, the front of one of our farms, lying on the Niagara river. The land was cleared up, previous to my purchasing it, à la Americana, which is to say, every thing living was remorselessly cut down along the whole front, thus leaving the fields completely naked and exposed. My object, therefore, in growing this belt, would be two-fold, viz. a fence *impervious* to both *man* and *beast*, and a shelter from the rude winds, that come sweeping down the river, and across from the Canada shore. The belt would require some two or three thousand trees, and I should wish it as complete a representative of the different kinds of evergreens as this latitude would produce, and as could be obtained at a moderate price, delivered on the bank of the Erie canal, six miles below Buffalo.

As to the hedge, I must confess myself in very great doubt in the selection of material. I had thought of the red cedar, but if the objections to this tree, are as likely to be as great in this latitude, as mentioned by Mr. Garnett in the March number of the Cultivator, as taking place in Maryland and Virginia, it would be totally useless to attempt it. Of this, however, in conjunction with your good self, I have great reason to doubt. Evergreens, locust, and thorns grow in this vicinity in very considerable variety, and I have as yet neither seen or heard, of any attack of worms or insects, and particularly solicit information on this point from any of your correspondents, who may lately have visited the cedar forests on the small islands of Lake Erie, or that grow near Toronto, and other parts of Upper Canada.

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* So says Mr. J. Buel.

Mr. Garnett speaks of the Holley, as "sui-generis in regard to its exemption from disease." Does he mean the Ilex Opaca of Brown's Sylva Americana, and if so, would it flourish well here? The close branches and spinous leaves would make an admirable fence, and there is no doubt, with attention, in our fertile soil, the rapidity of its growth would be greatly accelerated, and its foliage at all seasons retain the brightest green. Yet I have thought of another tree still more beautiful: the flowering rhododendron, (Rhododron maximum,) and known at the south as dwarf Rose Bay, and at the north as dwarf Laurel. As it seeks moisture and shade, I should suppose our climate more congenial to it than any other in the United States, for the thermometer rarely sinks with us to zero, or rises above 75°; and besides, the air is more moist, though less foggy, than the same parallels on the Atlantic. I see no objection, therefore, to first placing a triple row of intermixed evergreens, hemlock, spruce, fir, cedar, &c. then a small space for the line of rhododendrons, then mixed evergreens again, till a sufficient breadth of trees for shelter were planted. Here then would be obtained the great desideratum, fence and shelter, for I know of no other evergreen that will flourish as a thicket in the shade of larger trees.

If no one has yet attempted this rhododendron, I should be pleased to, as also the holley, and as neither grow in our immediate neighborhood, supposing plants out of the question, I would like to know where I could obtain seed, with any directions for sowing and growth. I am told they flourish from the hills of Massachusetts, along the highlands of the Hudson, to the mountains of Carolina; and that autumn is the proper time for gathering.

And while upon the subject of trees, would that my voice might reach and have an influence with those clearing up new lands. No matter how exposed the situation may be to the rude blasts of winter, or the scorching rays of summer, in goes the ruthless axe on the front line, and never ceases its remorseless swing, till the whole land is denuded; not even a shrub being left to weep over the mournful fall of the majestic forest; but stumps, black, naked, and deformed, like so many Stygian ghosts, by the deep shades of Erebus, and as offensive to the eye of true taste, as to every principle of feeling, alone ruling over and marking the sad scene of desolation. Just such havoc has been committed all along the beautiful banks of the Niagara, and for one I would give a handsome sum to have back a belt of a few rods wide on our front, of the magnificent decidious and evergreen trees, that originally hung in soft and graceful foliage over the land.

It is objected, that if trees are left in clearing up, that they quickly die or blow down. So they will if *single*, but not if in *masses*. They then lend shade and shelter to each other; and if one occasionally decays or is uprooted, a sufficient number is still left to supply the place of those destroyed, and these daily become stronger, spreading in roots and branches, and in a few years are proof against wind and sun, and form a magnificent mass of forest verdure, that it is rapturous to behold, and that English gentlemen would give thousands of pounds could they but shew them on their estates. Sir Walter Scott pronounced our gigantic old forests as the *true antiquities* of the land, and added that he would preserve them with the same care and veneration that he would old feudal castles.

Very sincerely, A. B. ALLEN.
Buffalo, 19*th March*, 1838.

Remark.—We can assure Mr. Allen, that any attempt to cultivate a holley, or rhododendron, or indeed an evergreen *hedge* of any plant that we know of, by plants or seeds, upon the bleak bank of the Niagara river, will be but money and labor lost. The holley will hardly stand the latitude of 40°. and the rhododendron is too tender, difficult to transplant, and unfit for a fence if it would grow. We volunteer our advice to Mr. A. that he plant a thick belt, broader or narrower—as he pleases, of indigenous trees, embracing evergreens, on his Niagara exposure, to afford shelter to his buildings and his grounds; and that he add to this shelter a substantial turf fence, at least five feet broad at the base, and of corresponding height.—*Cond. Cult.*

A hint worthy of notice.

Schenectady, 2*d April*, 1838.

Dear Sir,—Since I wrote you, on the subject of feeding down wheat and rye in the spring till June, to keep it back from blossoming a month later than usual, till the fly of the grain-worm had spent his allotted time for depositing his eggs in the blossoms, I have conversed with a Mr. Smith, of Schuyler, nine miles below Utica, and advised him to feed his wheat for the experiment, which he promised to do. After a little reflection, he said that he had often mowed down *oats* after they had grown six or eight inches high, on stony and rich ground, which put them back, and caused the stalks to thicken and become strong, which prevented them from falling, or lodging, which they were apt to do on rich ground. I advised him to try the experiment on strips of his wheat, through his field, and after harvest, to give you the result. He promised to do so. Most respectfully,

Jesse Buel. D. TOMLINSON.

We think, with our correspondent, that both mowing and feeding, are worthy of an experiment, as a preservation from the worm. There is another consideration: Grain that ripens in cool weather, say late in August or September, will be heavier, ordinarily, than that which is hastened to maturity by hot weather.—*Cond. Cult.*

"To avoid the Bee-moth."

Let your bee-house and hives be kept well whitewashed, also the short boards on which each hive stands, particularly the underside; on each, place two or three quarts of fine earth, one part salt, mixed, for the hive to rest upon. Change once or twice during summer. I found good cause to abandon placing bees on the ground, as had been recommended twenty years ago. C. WHITNEY.

English Berkshire Pigs.

Mr. Buel,—Sir,—Circumstances have transpired, rendering it incumbent on me to *caution* the public against certain impositions practised in regard to the Berkshire pigs. Persons in this vicinity, either through ignorance, or regardless of their honor, are constantly palming off, as full bred, half and three-fourths of Berkshire, crossed with the hogs common in and about Albany.

They make good individuals, and would very much improve the common hog of the country; those approximating nearest to the *pure blood*, resembling them so much in appearance and colour, that a person, not well acquainted with the true breed, would be very easily deceived. I would not wish to be understood as derogating in the least, from the good qualities of this cross, but *I do protest* against the imposition of palming them off as the genuine Berkshire breed. Let them be sold for *grade* animals—for what they really are—half, three-fourths, &c. &c. of Berkshire, crossed with the "China," "Mocho," "Grass-breed" or common hog of the country.

About two years ago, a gentleman of an adjoining county engaged of me a pair of Berkshire pigs, and before I was enabled to supply him, he chanced, in a neighboring town, to meet with a lot of, to him, very fine looking pigs, which the owner represented as *genuine Berkshire*. The sequel was, the unsuspecting gentleman purchased a pair and took them home, and never discovered the deception until he compared them with some his neighbor procured of me. All the claim they had to Berkshire blood was, their parents were obtained in the county of *Berkshire, Massachusetts.*

I have not unfrequently been invited to look at a very fine Berkshire sow or boar, which their owner would affirm to be genuine, and on making some objections to their points, colour, &c. when the white colour predominated, I would be answered "why the mother was *entirely* white," &c. &c. Now, I have the charity to believe, that in most cases, it is more through ignorance than design.

There are persons in this vicinity who possess the *pure unadulterated English Berkshire* breed, which were either procured of Mr. Hawes, my predecessor, or from myself and others, that would spurn at the idea of selling a *mongrel* for full blood.

The three imported sows and boar I now own were selected in England, from different families of the same breed—still the resemblance is so great, and they breed so near alike, that a person would be puzzled to select a pig from a particular sow, when mixed in a pen together.

Some objections have been made to this breed in regard to size; to such I would observe, that in England they have been made to attain six, seven, and even eight hundred pounds.

The demand in this country has been so great, that very few of the full bloods have been fed. I killed a barrow in November, 1836, eighteen months old, fed for a short time in the fall, (after running in a pasture three months in the summer without any feed, except grass) on raw and boiled potatoes with a small quantity of soft corn; he was not fat, and when dressed weighed 312 lbs. Some of the same litter were fed and killed when nine months old, and weighed from 175 to 185 lbs. A three year old boar was altered in the spring and fed last fall, which I have been informed, weighed, when dressed, over 500 lbs. It is said they can be fattened at any age, and to very great weights, and at little expense, in comparison with other varieties.

A gentleman in Dutchess county put in a pen one of the Berkshire and one of the common pigs—fed them alike, and the consequence was, the Berkshire grew so *fat* and lazy, they were obliged to help him up to eat—while the other grew so *poor* that he required the same assistance at his meals. I do not assert this as a fact, but so the story goes.

Another gentleman, from one of our western counties, after examining my Berkshires, said to me, "I have just as good pigs at home, as these, with one exception—and that is, they have no *kink* in their tails." I need only say, that this gentleman owns a flouring mill, and "millers never have poor hogs."

Now, I do not say or pretend, that the Berkshire hogs will live on *air*—but I do say, they will grow larger and take on fat faster, with the same quantity of food, than any other breed I am acquainted with.

The demand for this breed, last year, was so great, that Mr. Lossing, of Albany, sold a pig (which he obtained of me) when thirteen months old, for $80. Others from six to ten months, were sold at from $25 to $50. Sucking pigs, only five weeks old, brought from $15 to $25 each.

My price for pigs, from six to eight weeks old, is invariably $10 each, or $20 per pair—cage to send them in, from $1 to $1.50, according to size, delivered in Albany.

Those gentlemen who ordered pigs in 1836–7 will please signify by what conveyance and to whose care they are to be sent. Some will be ready for sending off in all this month. Letters, *post paid*, will receive due attention.

C. N. BEMENT.
Three Hills Farm, Albany, May 1, 1838.

Agriculture—Its Usefulness.

Agriculture is a branch of business of the highest importance to mankind. By far the greater part of the human race are either directly or indirectly dependent on it for subsistence. In this region of country but very little is obtained for the support of man, but what may either be justly denominated agricultural produce, or is in some way or other derived from it, as for instance, the most of our animal food.—From these considerations arises the importance of the subject, and consequently its dignity; and hence the laudable pursuit of agricultural employment. The maximum of praise, however, is not due to him who labors with the greatest assiduity or energy, nor even to him who uses his tools with the greatest dexterity or skill. For, as according to the old maxim "a spur in the head is worth two in the heel," he may be most beneficial, to the community at large, who officiates in some department of the business which requires principally the exercise of the mental faculties. And, so every one in the subordinate sense in which his labors are beneficial to mankind, has a claim on his fellow men for their respect. Y.

Experiments in producing improved varieties of Indian Corn.

Baltimore, April 6, 1838.

Judge Buel,—In the last number of the Cultivator (page 51) I observe the following remark by the conductor:—"The idea of improving our corn by artificial crossing, is novel, yet perfectly philosophical."

Some ten of twelve years since, I instituted a series of experiments in crossing different varieties of corn, and was perfectly successful. The variety of corn named in Dr. Brown's list (page 43 of the same number) "No. 16, Pennsylvania 8 rows, called Smith's early white,"was the result of one of the experiments. It was produced by what we call the *Tuscarora*, or "New-York cheat," with the *Sioux* (No. 9 of Dr. Brown's list.) From the parentage of this new variety, you would naturally expect a mulatto color; but I will explain why it is *pure white*, as I go along. I had two objects in view, the one to get the large white grains of the Tuscarora on the small cob of the Sioux; and the other to produce a variety earlier than either, if possible. To accomplish my object, I planted a piece of ground, say the eighth of an acre, with both varieties, one in each alternate hill; but as the Tuscarora was known to me to be from 15 to 20 days later than the Sioux, I planted the latter 15 days after the former was planted. Now the process of crossing is performed in the following manner. The variety that has the cob that I wish to retain, is used as the female, and as the tassels (male flowers) appear, they are carefully cut off and suppressed; the variety whose grain I wish to get, is used as the male, and its tassels are allowed to grow. It is unnecessary to interfere with the female flowers (the silk.) The ears of corn produced by the Sioux hills had the form and size of cob of the Sioux, but the grain was a beautiful sulphur color, and of the form of the Tuscarora, though smaller. This corn I planted the next year, and the result was, a beautiful variegation of the grains, of pure yellow and pure white, though all the grains were alike as to size and shape. The cream color had evidently returned to its original elements. I then carefully selected the white grains, and planted them the third year, and the result was the establishment of the variety called "Smith's early white."—(I do not understand how or whence Dr. Brown obtained the name of *Pennsylvania* 8 rows.)

My experiments established the fact, satisfactorily to my mind, that you can place the grains of any variety of corn upon the cob of any other variety, by the process detailed above; and that there is no object more worthy the attention of farmers than improvements of this kind. You have only to regulate the time of planting each variety, to correspond with the time of flowering. I ought to observe, that if you do not destroy the tassels of the variety that has the objectionable *grain*, the crossing will not be so perfect, because the *impregnation* will be from two males instead of one, and consequently the grains produced will be various. The crossing is equally important in producing the large late kinds small and early. You can get the tall Virginia corn (that is the grain of it) upon the early dwarf stalks. Indeed, you may vary it almost at pleasure. As you will perceive above, it requires three years to accomplish the object perfectly. The first year effects the crossing; the second year, certain characteristics return to their original elements, such as the color, and somewhat of the flinty quality; the third year the new variety is produced perfect—and will remain so, so long as it shall be kept distinct from other varieties.

Another experiment was combined by me with the above, viz.—the first matured ears of good form and size were always selected for seed. By this process I was able in five years to make my new variety from 15 to 20 days earlier than the Sioux, or any other variety. I had green corn on my table for some years, two weeks earlier than the hotels who obtained early corn from Norfolk. I beg to observe, that the Smith's early white has but eight rows, and the Sioux (the female parent) twelve; now to account for this. After I had produced the variety, I was still desirous of putting it upon a smaller cob; hence I planted it with the sugar corn, using the latter as the female.—The result was the eight rows. I also once took a notion to give it a red cob, and had no difficulty in doing so, by using the red cob sugar corn as the female; but I recrossed and got rid of the red cob again, because it stained the lips and fingers while eating it.

Excuse this, from an old admirer,

GIDEON B. SMITH.

Judge Buel,—Sir,—I commenced raising ruta baga turnips last season, and am much pleased with the result. In order to ascertain when was the best time to sow them, I sowed some the first day of June, some the 13th and some the 24th day of June, and found that those sowed first were much the best. I would recommend to sow as soon as the 25th of May in this latitude, 43° 30′ north. I prepare my ground by ploughing in long manure, and spread fine manure on the furrows, and only harrow it in after the ground is well harrowed. I drag it with a bush, which completely pulverizes and mixes two or three inches of the surface of the ground.

I make my bush by boring holes in a stick six inches in diameter, six feet long, with a large auger, and fasten in bushes eight feet long, and then lash on another stick of sufficient heft across the middle, to keep them in place. I would recommend to bush all land that is stocked with grass seed for mowing. Those that cannot obtain a drill-barrow, may make a thing like a rake, with a tooth in each end of the head, one inch thick, sharp at the point, and mark the ground, and sow turnip seed by hand, or any other seeds they wish to sow in rows.

My method of harvesting turnips, is to take a sharp hoe and chop off the tops first and gather them into heaps, and then dig them with hoes,[*] which is a more expeditious way than to pull them by hand, and then cut the tops with a knife.

My land is a light sandy loam, not naturally good wheat land. Last spring I commenced liming my wheat ground; I put six bushels of unslaked lime on half an acre after the land was ploughed. I put a peck in a place, and covered it with earth, and let it remain three days, when it was completely slaked, and then spread it evenly over the ground, and then sowed my wheat and obtained a good crop, and no smut. My wheat was sown the 27th day of May; on the same day one of my neighbors sowed one acre and a half with the red chaff beardless wheat, and obtained sixty-one bushels from it.

A. C. HOWARD.

Thetford Post Mills, March 27th, 1838.

Brussa Mulberry.

New-York, April 7th, 1838.

J. Buel, Esq.—Dear Sir,—You will herewith receive one hundred Brussa mulberry trees, which please accept for inspection and for your own appropriation. This is an original tree, imported in the month of June, 1837, from Smyrna, and were so long detained in their passage, as to make their growth doubtful—but from a quantity, a portion vegetated and grew from the root and slip, as you have herewith. They are, undoubtedly, the real Brussa tree. As the consigners had no knowledge whether or not it would be a favorite tree with us, for this cause the best, that even at the time they arrived here, no information was communicated to the public that the Brussa tree was of a superior kind, nor not, indeed, until you brought it forward through the valuable columns of your paper. It is no doubt one of the most valuable that has ever been introduced; and to satisfy the minds of the wavering, your opinion would, if communicated through your next journal, decide the matter, and silence the doubts and impressions that are exerted to be made on those who are desirous of purchasing, by the gentlemen of Flushing, who have not the tree. I have this invoice of trees to sell, and have about ten thousand or more; and although I intend to go on propagating, still I must close the whole invoice, they belonging to the owners residing in Smyrna. Yours,

NICHOLAS HAIGHT.

EXTRACTS.

Science of Gardening.

The extracts which we shall give under this head, are from the "*Alphabet of Scientific Gardening*, by Prof. Rennie, of King's College." They are as applicable to farming as to gardening. They elucidate the great principles which govern in vegetable economy; and although they may seem abstruse to some, they nevertheless furnish valuable data, which all may profitably recur to; and we commend them particularly to the notice of the young, who aspire to usefulness, or eminence in the arts of rural labor.—*Cond. Cult.*

ARTS AND SCIENCE.

"The arts," says Sir John Herschel, "cannot be perfected till their whole processes are laid open, and their language simplified and rendered universally intelligible. Art is the application of knowledge to a practical end. If the knowledge be merely accumulated experience, the art is *empirical;* but if it be experience reasoned upon and brought under general principles, it assumes a higher character, and becomes a *scientific art.* In the progress of mankind from barbarism to civilized life, the arts necessarily precede science. Applications come later: the arts continue slowly progressive, but their realm remains separated from that of science by a wide gulf, which can only be passed by a powerful spring. They form their own language, and their own conventions, which none but artists can understand.—The whole tendency of empirical art is to bury itself in technicalities, and to place its pride in particular short cuts and mysteries, known only to adepts; to surprise and astonish by results, but conceal processes. The character of science is the direct contrary. It delights to lay itself open to inquiry; and is not satisfied with its conclusions, till it can make the road to them broad and beaten: and in its application it preserves the same character; its whole aim being to strip away all technical mystery, to illuminate every dark recess, and to gain free access to all processes, with a view to improve them on rational principles. It would seem that a union of two qualities almost opposite to each other—a going forth of the thoughts in two directions, and a sudden transfer of ideas from a remote station in one, to an equally distant one in the other—are required to state the first idea of *applying science.*"

THE WORD GARDENING.

The chief difference between "Gardening"[*] and Farming appears to exist in extent. The surface tilled being more extended, and the crops produced being often more coarse and hardy in farming, the operations require less minuteness and refinement, which, indeed, would seldom yield the farmer an adequate return for the money laid out. Whereas in gardening, the most refined and minute processes are frequently indispensable, in proportion to the delicacy of the plants which are reared, more particularly with respect to artificial shelter and artificial climate. Gardening, then, is a sort of refined farming upon a limited scale.

By "Scientific" Gardening, I mean the rearing of garden plants of every kind, useful and ornamental—kitchen vegetables, roots, fruits, and flowers, according to principles capable of being demonstrated by experiment or inference. What may, on the other hand, be called *routine* gardening, is founded not upon such principles, but upon vague and uncertain experience.

Nobody, I think would be so fool-hardy as to question the high value of experience; but mere experience, without the aid of science—I mean experience without accurate investigation of causes and effects, and without sound reasoning from observed facts—is just as apt to mislead as it is to direct aright, and often, I believe, much more so. Science again without experience will equally mislead.

The value of scientific knowledge in gardening being thus indisputable, it will be important to render it easily attainable, by putting the facts upon which it rests in as plain a manner and in as short a space as I can. For this purpose, it will be most advantageous to consider, first, what it is that nourishes garden crops, that is, the food which garden plants require; and then, upon what scientific principles this food can be best supplied by the gardener in his daily operations. He might, indeed, as well think of rearing rabbits or canary birds as of raising garden crops without food. My subject accordingly has two grand divisions—the Food of Plants, and the Philosophical Principles of Garden Operations for the management of this food.

FOOD OF GARDEN PLANTS.

It is obvious that a cabbage, a pine apple, or a primrose, can no more live without a due supply of food, than a rabbit or a canary bird; but animals must moreover have a peculiar kind of food; the rabbit, greens and oats; and the canary, rape, millet, or other small seeds; while in the case of plants, which are fixed to a spot, and cannot travel about to select their food, such differences, when they do exist, are not often of practical importance, the food of all plants being nearly, so far as it is known, very similar in kind.

The principal difference in most garden plants compared with others, is their greater delicacy; and hence so far as practice is concerned, their food must require, if I may use the term, more delicate and refined *cooking* and management. This will appear as we proceed, in the several branches into which it will be advantageous to divide our subject, beginning with what may be termed Garden Chemistry, meaning thereby a detail of the chemical elements which enter into the food of garden plants.

GARDEN CHEMISTRY.

Passing over, for the present, the food on which young plants are nourished at their first germinating from seed, which is as different, as we shall afterwards see, as the milk diet of our own infancy is from beef and bread, let us consider the food requisite for plants after they have exhausted the milky pulp contained in the seed lobes and seed leaves.

After young animals are weaned, they are nourished upon either vegetable or animal substances, or a mixture of both, together with water for drink, that is, a solvent to dissolve the more solid matters. These have to undergo the process of digestion in the stomach, where the heat is uniformly ninety-eight degrees, and the mixture of the various substances effected by the motion of the stomach, which is similar to that of an earth-worm.[*] On the pulpy mass[†] thus produced in the stomach passing onwards towards the chyle-gut,[‡] it is mixed with a portion of bile which separates it into two portions, one useless,[§] that passes off through the bowels, and another useful,[‖] which is taken up by the mouths of innumerable small tubes[¶] that open on the inner surface of the intestines, and after all these small tubes unite into a single large one,[**] they discharge this useful portion into the blood. Such, in brief, are the first processes by which animals are nourished with food.

Plants, on the other hand, having no stomach, like animals, for the digestion of food, and not being capable of travelling from the spot where they are planted, (except very partially by extending their roots) must depend altogether on what they can meet with there.

We find, accordingly, in the surface earth, or soil where the roots of plants are, that processes are always going on very similar to digestion in the animal stomach; I mean that portions of animal and vegetable substances in the soil are dissolved (I might in one sense say digested) and mixed with the water and air diffused through the soil.

In this point of view, the whole of the soil where a plant is rooted, may be considered as similar to the mass produced in the animal stomach by the first process of digestion, and consisting of two portions, one useful and the other useless. The soil would thence appear to perform an office similar to that of the animal stomach, in preparing the food of plants—the process, independent of other circumstances, going on more slowly from deficiency of heat in the soil, which, in this climate at least, is, on an average, far below ninety-eight degrees, which is the heat of the animal stomach.

The only thing in the soil that appears similar to the motions of the bowels of animals, by which the digested food is brought to the mouths of the little tubes, to be forwarded to the blood, is the motion[††] of the water, or moisture in which the useful portion of the vegetable and animal substances are dissolved, a motion quite indispensable, as we shall afterwards see. The water being then diffused through the soil, a portion of it must offer itself to the tips of the root fibres, or rootlets, where are suckers[‡‡] somewhat similar to those on the inner surface of the animal intestines.

It being of the first importance to ascertain of what materials the useful portion of the substances thus dissolved in water consist, many experiments have been made for that purpose; but the great difficulty of the subject has caused much diversity of opinion among those who have engaged in the inquiry. As it would, I think, be unprofitable, if not injurions, to distract the beginner with conflicting views here, which he can examine at leisure in larger works, I shall confine myself to what is least disputed and most generally adopted.

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[*] The hoe often cuts and bruises the roots. They should be pulled with the hand, and laid in rows; they may then be expeditiously topped with a large knife or spade.—*C. Cult.*

[*] Technically, *Horticulture*, from the Latin *Hortus*, a garden, and *Cultura*, tillage; a pedantic term, of no use whatever in the English language.

[*] Technically, *Peristaltic*, or *Vermicular* motion.
[†] Technically, *Chyme.*
[‡] In Latin, *Duodenum.*
[§] In Latin, *Fœces*, or *Excrementa.*
[‖] Technically, *Chyle.*
[¶] Technically, *Lacteals.*
[**] Technically, the *Thoracic Duct.*
[††] Technically, *Percolation.*
[‡‡] Technically, *Spongelets;* in Latin, *Spongiola.*

Upon trying, by means of chemical tests, the materials taken up by plants from the soil, they are found to consist of water, with which are mixed carbonic acid gas, and nitrogen or azote, along with a few other principles, usually in small proportions, which it may be well to examine separately.

WATER.

From experiments made by Van Helmont and Boyle, who reared plants in earth previously dried in an oven, and by Du Hamel and Bonnet, who reared others upon sponges and moss supplied only with water, it was concluded that water alone is the food of plants; though the inference is faulty, in consequence of overlooking what might be contained in the water before it was used, and also what it might afterwards derive from the atmosphere, as well as from the earth or the sponge. That water, indeed, was not all the food necessary, was proved by the plants so treated not remaining healthy; and it is well known, that though hyacinths and other bulbs will flower in glasses containing nothing but water, yet they never in such cases form seed; and if thus kept for a few months, they will infallibly die, as other plants do when placed in calcined or roasted sand, and watered with distilled water. The hyacinths in glasses, moreover, are not found to thrive unless the water is frequently changed, indicating that it is not the water alone, but something in the water which has become exhausted, or at least deteriorated, by the slimy matter thrown out by the roots.

The materials, which water holds or may hold dissolved, are therefore important to be ascertained, and this may be partially known by color, taste or smell, but more correctly by chemical tests. It is only, however, requisite for gardening purposes, to discover the materials which may prove useful or hurtful, and these, for the most part, are but few in number.

Among the substances useful to vegetation, dissolved in the water of soils, may be reckoned atmospheric air, carbonic acid gas, hydrogen gas, humic acid, and a small portion of the salts of lime and potass.

Among the things hurtful, are most of the acids, the salts of magnesia, and iron, metallic substances in general, and stagnant water.

It is also important to bear in mind, that the purest water is not a simple substance, but composed, as discovered by Cavendish, of eight parts oxygen gas, and one part hydrogen gas, or two volumes of hydrogen and one of oxygen, the correctness of which composition is proved by exploding, or burning these proportions of the two gases together, when the result is pure water. Plants seem to have the power of decomposing the water which enters into their system from the earth or the air; that is, of separating it into its component parts, oxygen and hydrogen.

Socrates in Praise of Husbandry.

It was the noble aim of Socrates, the Grecian sage, according to Cicero, to bring down philosophy to the level of common capacities, to render it more useful in common life, and to apply it solely to what might make men more rational, just and virtuous. In the extracts from Socrates, below, which have been handed down by Xenophon, we find Cicero's words verified: philosophy is happily applied to agriculture, and to the common business of life.—*Cond. Cult.*

"There is no condition of life," says Socrates, "however exalted, that should exempt a man from the practice of agriculture. By exciting in the soul an arduous activity for labor, it diffuses the most pure and delightful satisfaction. In augmenting our riches, it exercises the body, and gratifies every rational wish of a free agent. The earth not only rewards the toil of cultivation with those blessings essential to the support of life, but also indulges us with whatever can contribute to the embellishment of our persons, our houses, our temples! Our senses are regaled with the most agreeable and exquisite perfumes, and enraptured with varied prospects of hanging woods and enamelled meads.—The increase of flocks and herds, necessarily arising from agriculture, is productive of a variety of aliments for the sustenance of man. But in this liberal dispensation of her choicest gifts, the earth denies their enjoyment to sloth and inactivity; requiring rather that the body, habituated to the inclemency of winter, and the fervid heat of summer, should become almost invulnerable, and capable of enduring every kind of fatigue. The task of manual labor, in obliging us to be thinly clad, considerably augments the strength and vigor of the constitution; and the necessity of rising early, incumbent on all good husbandmen, by a uniform course of exercise, renders them robust, diligent and courageous." * * "What other art so bountifully distributes to its votaries the necessary wants of existence? Or what other art so amply recompenses their care and assiduity? A cheerful fire-side in the country, and a warm bath, resists the roughest blasts of winter; and a free circulation of air, the coolness of winding rivulets, and lofty groves, abate the intolerable ardor of summer. A man of independent fortune will find agriculture the most agreeable and satisfactory of all employments, and what will find him with maxims for the strictest propriety of conduct in any station of life. In the cottage, justice is never perverted, since the best laborer is always the best paid. Humanity, and reciprocal assistance to the wants of their fellow creatures, are daily practised by those employed in cultivating the same field with the sweat of their brow. Here the general may learn to instil obedience into his troops, by following the example of the farmer, who invites his laborers cheerfully to fulfil the task assigned them; rewarding the diligent and punishing the idle. A good farmer sees the indispensable necessity of animating his laborers, in the same degree a general does his soldiers; and the hired peasant, who works for bread, has even more occasion for encouragement to perform his task with alacrity, than the voluntary companion of honor. Reverence to the Superior Being is always inculcated in the most forcible manner, from a constant series of observations, that all things are dependent on the will of Providence; that snow and hail, frost, drought and storms, blights, and a thousand epidemical maladies, destroy the fruits of the earth, and defeat the best efforts of assiduous industry, directed by consummate prudence.

"Agriculture seems to possess an incontestible right to the title of parent and nurse of all other professions. Observe a country where agriculture flourishes, and you will behold arts and sciences flourish in equal perfection. But where devastation lays waste the soil, or slothful neglect induces men to leave the earth uncultivated, a general stagnation in maritime, as well as in commercial affairs, immediately succeeds.

"I have studied, with uncommon assiduity, the characters of men of every profession, who have been distinguished for prudence and understanding. I observed with astonishment, that among those engaged in the same occupations, some were rivited in penury and want, whilst others enjoyed affluence and ease. The cause of this inequality seemed worthy of the exactest and most accurate examination; and the pains I took to investigate it at length succeeded; I perceived that those persons who formed no regular plan of life, strangers to reflection and foresight, thoughtless of to-morrow, were, by the negligence of their conduct, the sole authors of their own distresses and disappointments. Those, on the contrary, whose steady and enlarged principles govern and guide their sagacious and determined views; who unite, in their several professions, diligence and attention, order and punctuality, qualities which smooth the rugged paths of life, will find the journey more easy, more speedy, and infinitely more lucrative.—These are maxims which, whoever attends to, must gain his point, in defiance of opposition, and amass wealth, should the malignity of men, or demons, endeavor to wrest it from him.

Capital.

[*From the New-England Farmer.*]

Ah! but he has no capital to begin with! Very often, very often we hear this said; and uttered in such piteous tones, that we are in such cases almost tempted to ask, what extraordinary and melancholy destitution does this young man, who is thus compassionated, labor under; or what singular calamity has befallen him, that he is thus held up as the victim of misfortune?

He has ordinary talents and capacity for labor; he has health and strength; he has enjoyed and improved the advantages of a useful education; he has acquired, or is in the way of acquiring, a respectable and good trade; he is not the slave of any bad habits; and above all things his character is good, and he has lived without reproach. Because he has no *moneyed* capital, you choose to pity him: now I entreat you, reserve your compassion for some more worthy object. He does not demand your pity half so much as your congratulation. He is much more an object of envy than of pity. "But he has no capital." Now what is capital? In respect to trade, or the business of acquiring wealth, capital is the means or instrument of acquisition and accumulation, and is generally applied to the money or property on hand not required to be consumed for immediate subsistence, but which we can use or apply for the purposes of begetting more. In an agricultural view, land which we may render productive by cultivation, or the seed which we cast into the ground, and which, under favorable circumstances of situation, season, and culture, will multiply and return to us very often a hundred or a thousand fold, is capital. In a commercial view, capital is property beyond the wants of immediate subsistence, which you can invest in goods or articles of trade, and hold them in your possession, until under favorable circumstances you can sell, or exchange, and realize the profits of such adventure. Capital, in short, is money on hand, or the reserved profits of former labor, and speculation, or trade, which you can use for other and further purposes of trade and accumulation, and be able to wait its returns. But there is much other capital besides land or money. Every means of accumulation should be considered as so much capital. There is another agent in trade of equal power, as a means of accumulation, as money, and that is credit. This is often even far better than a moneyed capital. This will enable you, as far as you ought to desire it, to command the moneyed capital of other men, as if it were your own, and to use it for your benefit and theirs; and where it is based upon those substantial qualities of character, which form the only just and sure foundation of credit,—namely, truth, honor, industry, frugality, exactness, or punctuality,—it may be used with equal success and propriety as the instrument of accumulation, as the heaped up thousands which lay in the coffers of the most affluent.

Every thing in relation to matters of trade, and the pursuits of wealth, which is a means of accumulation, is capital. Now let us see, then, with what propriety it can be said of this young man of whom we have spoken, though he has no money at his entrance into life, that he has no capital; or rather, let us see what renders him an object of compassion.

He has youth, health, and ability. These all enable him to labor, and labor will command its reward. He has habits of frugality, which will lead to expend carefully, and lay up the surplus wages of labor,—that is, the surplus beyond his immediate necessities. He has the elements of a good education; this furnishes him the means of acquiring more knowledge, and knowledge is always power. He has an art or trade; and this gives him an immense advantage, and puts it in his power to apply his labor and faculties with far more advantage and profit than he could without. He is not the slave of any bad habits; his gains therefore are not insensibly creeping away from him. Above all, he has good character, this will give him credit. Habits of industry, frugality, and exactness, will secure, establish, and increase his credit to all the extent he should desire; and give him the command of the property of others. All this, then, is capital—capital of the best kind. A purely moneyed capital may pass away from him by a thousand contingencies; but this other capital, which I choose to call a moral capital, is under his own control, secure from all the fluctuations and vicissitudes of trade and business, and never can be taken from him without his own consent.

For a young man to be placed at once in the possession of a large moneyed capital at his setting out in business, though it may be highly gratifying to his vanity, is extremely hazardous to his virtue. I have known in such cases innumerable instances of deplorable failure and bankruptcy. The passion for speculation, over-trading, and extraordinary gains, to which they are excited by the possession of a large moneyed capital at setting out, leads men into a thousand risks, which they cannot encounter without extreme peril. On the other hand, those habits of care and caution, which small means, and gradual and moderate earnings beget, are a sure foundation of increase and security.

Large means and extensive speculations, where the possessor has had no lessons in a humbler sphere, nor been compelled by an early and stern necessity to proceed with the greatest caution, almost inevitably lead to habits of wasteful expenditure. "Many estates are spent in the getting." Wealth and accumulation depend as much upon saving as upon gaining.

To say of a young man, therefore, coming into life with health, strength, capacity for labor, a good education, a useful and respectable trade, habits of sobriety and frugality, and above all a good and unsullied character, that he has no capital, is a gross absurdity and error. He has the best of all capital—a moral capital; the noblest of all power—moral power; he has the most certain means of honest and honorable accumulation and fortune, and may be sure, under circumstances ordinarily propitious, to rise to that competency of influence, respect and general confidence, and that honorable measure of wealth and independence, which should fully satisfy a reasonable and virtuous ambition. H. C.

Cheering Prospect.

[*From the Franklin (Ky.) Farmer.*]

Our information from all quarters indicates that the coming agricultural year will be one of unprecedented activity and spirit in Kentucky. Improvement in the breeds of horses, cattle, mules, sheep and hogs; in all descriptions of seeds; in modes of culture; in feeding; and in agricultural implements, is now "all the rage." In the present year, our farmers will sow more and better seed and reap larger and richer harvests. There will be an improvement in the number and quality of all kinds of domestic animals. Why, some of our breeders are incurring considerable expense to improve the breeds of poultry, though Kentucky boasts the possession of the "game cocks" of creation. Our farmers will have better fences than formerly; and many well painted gates will be substituted for those annoying *inconveniencies*, "draw bars" and "slip gaps." The fence corners will be freed from weeds, and corn or grass will take the place of briars in the old fields. The logs, brush and undergrowth in the woodland pastures will be cleared out; and blue grass will be set in their place. Many of our Green river friends will abandon tobacco planting and adopt the grazing business instead. The root culture will be more generally and more energetically tried, and its adaptation to our soil and to the purpose of feeding stock, will be verified or disproven. The silk culture will receive wider attention, and many new mulberry orchards will be planted. The breeders will provide more house-room to protect their horses, cattle, and sheep from the inclemency of winter. There will probably be about twenty new agricultural societies organized, and a greater spirit of emulation manifested between the various societies, and the farmers themselves; and their sons will catch the same spirit, and lay the foundation for their future prosperity, in the enlightenment and information they will derive from the action of these societies. The house-wives too, will improve their domestic economy; the dairies will groan beneath the increased weight of butter and cheese; and the flocks of fowls in the barn-yard, will be doubled. The manure of the farms will be more carefully husbanded, and spread over the fields, instead of being wasted. We shall import no breadstuffs; but send abroad larger droves of live stock, and export greater quantities of corn, wheat, flour, tobacco, pickled pork, and beef, and bagging, and rope. And this acceleration of the agricultural pursuits, brought about by the joint influence of an increased spirit of improvement, with the belief that it is this interest which will disembarrass the country of its present pecuniary troubles, will also stimulate all the other branches of state industry. A higher moral influence will be attached to the labors of agriculture, and its salutary blessings will reach the whole community. The farmer will seek for more scientific knowledge; the standard of agricultural improvement will be elevated; practical truths, the ascertained results of well conducted experiments, will be applied in aid of their operations; they will read more, think more, write more, and in short, several thousand more of their names will be added to the subscription list of the Franklin Farmer.

Young Men's Department.

Hints to Young Farmers—No. VII.

INDOLENCE.

Beware of habits of indolence. They are the bane of happiness. Action is the first law of nature to animal creation, and even to some of the primary elements. Water, when long at rest, becomes putrid, and deleterious to animals and vegetables. Air is only fit for respiration while it is kept in motion. Most of the metals lose their lustre, and become corroded with rust, if not kept in constant use. So the human body, and noble mind, by inaction, become stagnant and corroded, and too often taint the moral atmosphere. Action—constant useful action, is the first requisite to health and usefulness. What matter of surprise should it be, then, to hear men—young men—whom fortune, honor, and happiness invite to action—to hear them complain that they *have nothing to do!*—and to see them dragging out lives of sloth and indolence, or hastening their termination, by intemperate indulgencies.

There is a strong propensity in young men to indulge in indolence, as soon as they feel confident they can live without labor, which should be met and conquered at the threshhold of manhood; for if then left unsubdued, it will take root, and, like the young oak, grow in strength with increase of years. The acorn is easily destroyed; but when the acorn has become a tree, it is difficult to uproot it. The propensity to indolence once mastered, and habits of industry well established, be they manual or mental—both are best conjoined—the current course of life is comparatively serene and prosperous. Systematic habits of industry and moral rectitude, are a far better portion to a young man, in the outfit of life, than a large fortune without these habits. The first seldom fail to elevate the possessor to wealth and respectability; the latter to sink him in both. There are more men of wealth and standing in society, who have become wholly so by their personal exertions, than there are that enjoy these distinctions by hereditary descent. There is perhaps no circumstance so propitious to success in life, as a resolute determination in the outset, to rely solely, under Providence, upon one's personal exertions—upon his industry and integirty—for fortune, fame and happiness. Such a resolution is oftener the result of necessity than of choice; but where, from either cause, it becomes the governing principle, it imparts a dignity and an independent bearing worthy of all praise, and impels to the most worthy actions. Who that has resolved, that he can and will provide for himself, would become the sycophant of power, the pander of vice, or the dependant upon the liberality or charity of others? The scramble for office, which annually distracts and demoralizes our country, owes more of its violence to the desire of men to live at the public expense, than from any cardinal difference in principle in the great body of the American people.

We will close this article with the following extract from Addison's Spectator, upon the subject which we have been discussing:—

"Indolence is a stream which flows slowly on, but yet undermines the foundation of every virtue. A vice of a more lively nature were a more desirable tyrant than this rust of the mind, which gives a tincture of its nature to every action of one's life. It were as little hazard to be lost in a storm, as to lie thus perpetually becalmed; and it is to no purpose to have within one the seeds of a thousand good qualities, if we want the vigor and resolution necessary for the exerting them. Death brings all persons back to an equality; and this image of it, this slumber of the mind, leaves no difference between the greatest genius and the meanest understanding. A faculty of doing things remarkably praise-worthy, thus concealed, is of no more use to the owner, than a heap of gold to the man who dares not use it.

"The time we live ought not to be computed by the number of years, but by the use that has been made of it; thus, it is not the extent of ground, but the yearly rent, which gives the value to the estate. Wretched and thoughtless creatures, in the only place where covetousness were a virtue, we turn prodigals! Nothing lies upon our hands with such uneasiness, nor have there been so may devices for any one thing, as to make it slide away imperceptibly and to no purpose. A shilling shall be hoarded up with care, whilst that which is above the price of an estate, is flung away with disregard and contempt."

Chemical Catechism.

We wish to infuse into the minds of our *young* readers, and we would hope to infuse into the minds, too, of those who do not claim to be young, so much taste for chemical knowledge, as shall induce them to study it, in hours of leisure, as a means of affording them a high intellectual gratification, and of contributing largely to their prosperity and usefulness in life.

Chemistry has become so essential in the successful management of all the arts of productive labor, embracing even the household arts, that its study is now made a branch of education in the common schools of France and of many of the German states. Judging from our own experience, a knowledge of many of its leading and more important principles, may be readily acquired by persons of common capacity; and the further one progresses in his knowledge of this science, the more it delights the mind, and the more it becomes subservient to the useful purposes of life. In the view of its great importance to society at large, we propose to publish in the Cultivator such parts of Parkes' Catechism of Chemistry, as we shall consider particularly beneficial to the generality of our readers. We extract the following from the author's essay on the utility of the study of chemistry, particularly to illustrate the advantages of this science in the business of agriculture.

"From the present state of chemical knowledge," says Parkes, "and the rapid improvements which have been made in our arts and manufactures, by the judicious application of its principles, it is become very desirable that every youth should be acquainted with its rudiments, and that chemistry should be made a regular branch of education in every seminary where the sciences are professedly taught and explained.

I have, therefore, imagined that I should render an acceptable service to society by showing the advantages which would arise from the acquisition of this kind of knowledge; especially as a large proportion of the community is not apprised of its real value.

The well informed people of France are so fully convinced of the importance of chemical knowledge, that chemistry has already become an essential part of education in their public schools. It shall be my business in this place to endeavor to demonstrate it to be of *equal* importance to the various classes of our countrymen, that the science should be cultivated with the same ardour in these kingdoms. The branch of education we recommend to your regard, has for its object every substance of the material world, and, therefore, is equally interesting to every civilized nation upon the earth.

Is your son born to opulence,—is he the heir to an extensive domain? make him an analytical chemist, and you enable him to appreciate the real value of his estate, and to turn every acre of it to the best account.

Chemistry will teach him also how to improve the *cultivated* parts of his estate; and by transporting and transposing the different soils, how each may be rendered more productive. The analysis of the soils will be followed by that of the waters which rise upon, or flow through, them; by which means he will discover those proper for irrigation; a practice, the value of which is sufficiently known to every good agriculturist.

Should he *occupy* his own estate, and become the cultivator of his own land, he must of necessity be a chemist, before he can be an economical farmer. It will be his concern not only to analyse the soils on the different parts of his farm, but the peat, the marl, the lime, and the other manures must be subjected to experiment, before he can avail himself of the advantages which might be derived from them, or before he can be certain of producing any particular effect. Besides, a knowledge of the first principles of chemistry will teach him when to use lime *hot* from the kiln, and when *slaked;* how to promote the putrefactive process in his composts, and at what period to check it, so as to prevent the fertilizing particles becoming effete, and of little value. A knowledge of the chemical properties of bodies will thus give a new character to the agriculturist, and render his employment rational and respectable.*

The various operations of nature, and the changes which take place in the several substances around us, are so much better understood by an attention to the laws of chemistry, that in every walk in life the chemist has a manifest advantage over his illiterate neighbor. And it may be remarked, that in case of failure or disappointment in any particular line of commercial manufacture, the scientific chemist has resources as various, as the productions of the country in which he lives, to which the uneducated man has no access.

Were parents aware of this truth, that sordid maxim, *primo vivere, deinde philosophari,* would not be heard: but every youth would be instructed in the first principles of natural philosophy and chemistry, and as the *means* for qualifying him for managing with advantage the concerns with which he might be entrusted. If "knowledge is power," surely the *love* of knowledge, and a taste for accurate investigation, are the most likely means of conducing him into that path which leads to opulence, respectability and rational enjoyment.

Moreover, it is the necessary consequence of an attention to this science, that it gives the habit of *investigation,* and lays the foundation of an ardent and inquiring mind. If a youth has been taught to receive nothing as true, but what is the result of *experiment,* he will be in little danger of ever being led away by the insidious arts of sophistry, or of having his mind bewildered by fanaticism or superstition. The knowledge of *facts* is what he has been taught to esteem; and no reasoning, however specious, will ever induce him to receive as true what appears incongruous, or cannot be recommended by demonstration or anology.

CHAPTER I.

INTRODUCTORY AND MISCELLANEOUS.

What *is chemistry?*

Chemistry is the science which enables us to discover the peculiar properties of all natural bodies, either in their simple or compound state.†

How do chemists examine the properties of bodies?

The chemical examination of bodies is in general effected by producing a change in the *nature* or *state* of the body under examination.†

By what means do chemists affect a change in the qualities or states of natural bodies?

This is generally effected by means of *heat,*§ or by the *mixture* of some other matter with the matter intended to be examined.

How does the application of heat and mixture enable chemists to examine the properties of bodies?

By these means we effect the *decomposition* of a compound body, and thus acquire a knowledge of the nature of its ingredients.

What is meant by decomposition?

In chemical language, decomposition means the art of dividing a body into its simple elements. Thus water may become decomposed, and reduced into oxygen and hydrogen, which are simple substances, incapable of further decomposition.

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* Lavoisier cultivated 240 acres of land in La Vendée, on chemical principles, in order to set a good example to the farmers; and his mode of culture was attended with so much success, that he obtained a third more of crop than was procured by the usual method, and in nine years his annual produce was doubled.—*Lalande's Life of Lavoisier.*

† "Chemistry is that science which examines the constituent parts of bodies, with reference to their nature, proportions, and method of combination."—*Bergman's Essay on the usefulness of Chemistry, &c.* p. 4.

‡ To the eye many substances appear similar to other substances, though they possess different, and perhaps opposite, qualities; it therefore became necessary to discover the means of analysing these substances, and of ascertaining wherein their difference consists. These we find in chemical reagents.

It may, with few exceptions, be considered as an axiom in the science of which we are treating, that, *whenever chemical action takes place, a real change is produced in the substance operated upon, and that its identity is destroyed.* An example will place this in a clear point of view. If a little carbonate of lime (powdered chalk) be put into a glass of water, the chalk will sink to the bottom of the vessel. Though it should be mixed with the water, if left at rest it will soon subside. No chemical action has taken place, therefore the water and the carbonate of lime both remain unaltered. But if a small quantity of diluted sulphuric acid be added to a glass of chalk and water, a violent effervescence will take place the moment they come in contact with each other; a chemical union of the two substances will be the consequence of this chemical action; the identity of each substance will be destroyed; and sulphate of lime (a body entirely different from either of the substances employed) will be produced.

§ Heat has a tendency to separate the particles of all bodies from each other. Hence nothing is more necessary to effect the decomposition of many bodies than to apply heat, and collect the substances which are separated by that means. The mixture of two or more compounds, often produces a decomposition in each by means of chemical *affinity,* a property of bodies which will be more fully explained here after.

What are the different states of natural bodies?

The matter which constitutes this lower world is usually divided by philosophical writers, into four classes, viz: solid, liquid, aeriform, and imponderable.

What do you mean by a solid body?

Solidity is that quality of bodies whereby their parts cohere firmly, so as to receive impression.*

What are liquid substances?

Liquid substances are those whose parts do not firmly cohere, but readily yield to any impression, and have free motion amongst themselves.† They also assume, when in small masses, the spherical form, as may be observed in detached portions of mercury, and are incapable of being compressed into a smaller compass by mechanical force.

What are aeriform substances?

All elastic fluids, usually called vapors and gases, belong to this class of matter.

What substances are they which constitute the fourth class, or the imponderable bodies?

These are four only, viz: light, caloric, electricity, and magnetism. They are also sometimes denominated unconfinable, or etherial substances.

What occasions the difference which is observable in solid and liquid substances?

Liquid substances are merely solids converted into liquids by heat, a certain increase of which would convert any liquid into an elastic vapor, similar to that fluid body which surrounds the globe, and is described under the name of atmospheric air.

Why is the air called a fluid?

Because it flows like a fluid; because like a fluid it presses in every direction, and because light substances will swim in it.

What explanation do you give of bodies swimming in fluids?

All fluids upon which solids float are specifically heavier than those solids. This is an established law of nature. Thus a cork swims upon water, while a stone sinks in it.

Have you a clear idea of the cause which makes some substances sink, and others swim in the same fluid?

Those which swim are lighter, and those which sink are heavier, than that fluid:—thus in water, if a substance be heavier than a portion of water of *its own bulk*, it must sink.

What term is made use of to express the relative weight of bodies?

Specific gravity. Thus the specific gravity of one body may be much greater than that of another, though their absolute weights be the same.

How do you explain the difference in the specific gravity of different bodies?

When one body is larger, or takes up more room, than another of the same weight, the first is said to be *specifically* lighter than the other, and vice versa.

What definition do you give of the atmosphere which you speak of in connexion with this subject?

The atmosphere is that very light fluid‡ which surrounds us every where: it is the medium in which we live, and without which we could not exist.

What is the specific gravity of atmospheric air?

A pint measure of atmospheric air weighs nearly nine grains, whereas a pint measure of hydrogen gas weighs little more than half a grain. The same measure of pure water weighs upwards of one pound avoirdupois.

If the specific gravity of water be so much greater than that of atmospheric air, how is water retained in the atmosphere?

The water which is taken up by the atmosphere, is not in an aqueous state, but is converted into vapor by the matter of heat.

What is the immediate cause of the waters of the earth being thus evaporated?

As the rays of the sun warm the ground, a portion of caloric, or the matter of heat, combines with a portion of the water which has fallen upon the earth, and converts it into vapour.

But what causes the vapor to rise in the air?

If a cork be placed at the bottom of a basin of water, it rises immediately to the top, because it is specifically lighter than the water; so vapor rises in the air, because it is specifically lighter than the air.

What becomes of the water which thus evaporates from the earth?

It occupies the lower regions of the atmosphere, and is preserved there partly dissolved in air, and partly in the state of elastic vapor.

How is this vapor formed into clouds?

After it has remained some time in the atmosphere, it becomes in a measure condensed by causes unknown to us; and the particles of water of which it is composed unite, and form small hollow vesicles, which accumulate together and produce clouds.

What further changes take place in this aqueous vapor?

By the operation of causes which are also in a great measure unknown, the clouds after a time become further condensed, and are converted into water, which falls again upon the earth in the form of rain, hail, or snow.

What is the use of this constitution of nature?

This principle of evaporation is of great utility; it is subservient to many natural and artificial processes; and is of perpetual use to man in every occupation of life.

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* Lavoisier has explained solidity thus: "The particles of all bodies," says he, "may be considered as subject to the action of two opposite powers, repulsion and attraction, between which they remain in equilibrio. So long as the attractive force remains stronger, the body must continue in a state of *solidity;* but if, on the contrary, heat has so far removed these particles from each other as to place them beyond the sphere of attraction, they lose the cohesion they before had for each other, and the body ceases to be solid."

† We have no reason to suppose that fluidity is an essential property of any liquid substance whatever; but rather that solidity is the natural state of all bodies; for we are able to reduce most substances to a state of fluidity by the combination of caloric. In general, bodies treated in this way, expand in all their dimensions, and the attraction of aggregation is so much weakened thereby, that the particles of the body slide over each other, and are put in motion by the slightest impulse. This is the only distinguishing character of fluidity that we are acquainted with. On the contrary, the greatest number of liquid substances take a *solid* form by reduction of temperature. Thus water congeals and forms ice Even the gases show this disposition. Chlorine, or oxymuriatic acid gas, becomes concrete, and crystallises at a temperature near to that at which water congeals. All the gaseous substances, when they have lost their elasticity, by forming certain combinations, are disposed to assume the solid state, if the temperature allows it. Ammoniacal gas and carbonic acid gas, become solid as soon as they enter into combination; and hydrogen gas, the most subtle of the ponderable elastic fluids, and fourteen times lighter than the air we breathe, forms, with oxygen gas, the water which becomes ice.

‡ Atmospheric air, like all other elastic fluids, yields to the slightest impulse, and is put in motion with the greatest ease; but it has not the power of penetrating many substances, like oils and some other fluids.

The facility and rapidity of the motion of atmospheric air, cannot be explained on any principle but its fluidity. Some of the winds move nearly at the rate of 4,000 feet in a minute. This great velocity was, doubtless, designed to produce some beneficial effects in the economy of nature, with which at present we are not acquainted. I come to this conclusion because I think we have sufficient grounds for believing that the Deity does nothing in vain.

"His wisdom guides the rushing winds,
Or tips the bolt with flame;
His goodness breathes in every breeze,
And warms in every beam."—Darwin.

Nothing so much aids us in learning, as writing down the things we wish to remember.—*Lat.*

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*Moneys received during the last month, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

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Hoosick, Renns.		16
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Ninevah, Broome,		6
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Vincennes,	Ind.	6
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Williamsport,	Md.	5
Williamsburgh,	Pa.	5
Whitesville, Alleg.		6
Yelvington,	Ky.	6

PRICE CURRENT.

ARTICLES.		New-York. April 16.	Boston. April 18.	Philadelphia April 18.	Baltimore. April 17.
Beans, white,	per bush.	....	1 12.. 1 30	1 00.. 1 12	1 25..
Beef,	cwt..	7 00..10 00	6 50.. 7 25	7 00.. 9 00	7 00.. 8 50
Bacon, western,	lb....	10.. 10½	12.. 13	8 00..10	11.. 12
Butter, fresh,	lb....	18.. 25	18.. 25	14.. 18	20.. 25
Cheese,	lb....	7½. 9	8.. 9	9.. 10	....
Cotton, best,	lb....	7½.. 11	....	....	10.. 12
Flour, best,	bbl..	7 87.. 8 00	8 .. 8 25	7 87.. 8 00	9 50..10 50
Grain—Wheat,	bush.	1 37.. 1 40	....	1 37.. 1 40	1 65.. 1 70
Rye,	bush	1 .. 1 12	1 10.. 1 12	95.. 97	85.. 90
Oats,	bush.	40..	40.. 42	35.. 40	34.. 35
Corn,	bush.	82..	81.. 90	66.. 70	75.. 76
Hams, pork,	lb....	8.. 8½	12.. 13	10.. 12	13.. 13½
Pork, in hog,	cwt..	....	9 ..10	....	7 .. 7 50
Seeds—Red Clover,	bush	12 00..13 00	8 50.. 9	10.. 11	8 00.. 8 50
Timothy,	bush.	....	2 75.. 3 00	2 ..3 25	3 00.. 3 50
Wool—Saxony, fleece,	lb....	45.. 50	50.. 55	48.. 50	40.. 50
Merino,	lb....	45.. 47	45.. 47	45.. 50	30.. 40
1-4 and com.	lb....	37.. 38	33.. 38	33.. 38	25.. 30
Sheep,	head,	....	....	....	....
Cows and Calves,		30 ..45	27 ..35	20 ..38	35 00..46 00

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☞ We treat our readers, in this number, with more than thirty interesting communications from correspondents, residing in different states, upon various branches of rural economy—and almost the whole of them are from practical, intelligent farmers. We doubt whether there is a periodical in this country, or any other, so well sustained by the voluntary contributions of practical farmers.

Mr. Coleman's Report.

We proceed to notice, according to promise, the first report of Mr. Coleman, on the agricultural survey of Massachusetts, embracing the county of Essex. The object of an agricultural survey, our readers we presume need not be told, is to describe a district of country, its soil, sources of fertility, products and farming operations—and whatever may be useful to the state, in promoting the improvement of agriculture, developing its sources of wealth, and multiplying the comforts and enjoyments of its inhabitants. The report before us is well calculated to promote these primary and legitimate objects of civil government. By a faithful detail of the best practices in husbandry—and many of those described in the report are well deserving of commendation,—the farmers of the state are enabled mutually to profit by the skill and improvements of each other,—each one may adopt whatever he finds excellent in the practice of others—and thus render the intelligence of all in a measure subservient to his individual profit. Besides, to quote from the report—

"If the survey results in no other good, it will present, I hope, in their true light, the motives which the children of Massachusetts have to stay at home. Her rewards to industry, enterprise, and good conduct, directed by intelligence, and under the guidance of temperance and prudence in the cultivation of her soil, are sufficient to satisfy every reasonable desire. Her social institutions and privileges are pre-eminent; and such as no new and unsubdued territory can expect to reach, under the most favorable circumstances, even in half a century.

"Filial reverence and affection are honorable traits of character, and among the highest duties of religion. Let the children of Massachusetts then honor and love their old mother. Her soil may be hard; but labor compels it to be bountiful. Her climate may be harsh; but it gives strength and elasticity to the muscles, and the brightness of its own stars to the mind. Her voice in winter may be sometimes hoarse, and her face wrinkled and frowning; but her children will not love her less for a sternness of discipline, by which she trains them up in habits of unremitting labor and self-dependence; and thus qualifies them to be the blessings and ornaments of their own community; the substantial pillars of the federal edifice; and the pioneers of learning, civilization, humanity, and religion in the boundless west."

The county of Essex lies upon the Atlantic border of Massachusetts, comprises an area of 360 square miles, and contains a population of more than 93,000. The surface is uneven and rocky, the soil of primitive formation, varying in its earthy ingredients from beach sand to stiff clay, though a gravelly loam, well adapted to husbandry, preponderates. There are extensive tracts of salt meadow on the coast, and large tracts of peaty swamp in the interior. The soil has been exhausted, like all the old settled districts of our country, by bad husbandry; and *no part of it*, says the report, *can be advantageously cultivated without manure.* The rural population are hardy, industrious, prudent, persevering, and of course prosperous. Tillage is very little practised, the main body of the land being devoted to pasturage and meadow. Much of the hay is carried to the towns, and manure brought back by the returning teams.—The tillage products are those common to the north, as grains, roots, &c. and considerable profits are drawn from the dairy. The quality of the soil is considered relatively good; but here, and in the yet unimpoverished west, it would be considered poor.

We will proceed to notice, in a summary way,

THE CROPS.

Grasses.—The following is given as the kinds and quantities sown: (I.) half a bushel of herds grass; (II.) half a bushel of herds grass and quarter of a pound red top; (III.) three pecks herds grass; (IV.) half a bushel herds grass, one-quarter pound red top, and one pint clover; (V.) half a bushel herds grass and half a pound red top; (VI.) one bushel herds grass, and sometimes two bushels. The herds grass here spoken of is the timothy of New-York and the south, and the red top is termed at the south herds grass. The average crop of grass seems to be from one and a half to two tons per acre, though the maximum product is given at three tons. The labor of cutting and curing an acre of grass, is rated at two days and a half of a man's labor; the average price of hay at the market, $16. The process of curing is not stated. The salt marshes yield from three-quarters to one and a quarter tons per acre—and the mean price of this hay may be stated at $10 per ton. In regard to saving herds grass (timothy) seed, the commissioner recommends, that the grass, when ripe enough, be cut when dry; allowed to lay one and a half days; tied in bundles, and set upright in a barn chamber, or on a scaffold, well ventilated, and where the scattering seed may be saved.

Indian corn is a staple crop; and the average expense of its culture, including manure, is given at about $40 per acre, a sum that would be appalling to a western or southern corn-grower; and yet the Essex farmer contrives to make a profit of $20 to $30 on an acre. The product is ordinarily from 40 to 70 bushels per acre, though it has been carried as high as 110 or 115 bushels. With some farmers this forms the first of a course of crops, and is planted upon sward; 2d year, corn or potatoes; 3d year, wheat, barley or oats, with grass seeds; then from three to four years in grass. Four to ten cords of manure to the acre are applied to the corn crop, which is hoed three times. The Pickwacket variety is deemed the earliest, though the Dutton has likewise ripened in favorable locations. The modes of culture and of harvesting are unfortunately omitted; though the commissioner recommends, that it be cultivated on a flat surface, without hills, in order that after the last hoeing *it may be laid down with grain and grass seeds*—a practice which we should decidedly condemn, as slovenly and particularly exhausting. Three highly exhausting crops, and all carried from the soil, in succession!! We like much better the following recommendation. The commissioner says—

"One of the most valuable improvements in the husbandry of the last twenty years, is that of planting this crop on an inverted green sward. The sward is completely turned over after vegetation has considerably advanced. The manure is applied on the *top* of the soil; and the field is then rolled in a thorough manner. The ground is next harrowed, and the corn planted either in drills or hills. When the roots of the corn pierce the sod, they find an abundant pabulum of decayed vegetable matter, equal, by as an exact calculation as can be made, to twelve tons upon an acre; and the crop is forced on, at the last of the season, when it particularly needs this stimulus and food, to great advantage."

As much as we commend this recommendation in general, and highly as we esteem the authority from which it emanates, we nevertheless venture to dissent from some of its positions. From the fact that only one pint of clover seed is sown in but one of the six modes of stocking with grass seeds, we presume the green sward recommended to be turned under "after vegetation is considerably advanced," is a tough old sward. If so, it will not be decomposed in season to afford food to the *young* corn crop, particularly without the aid of unfermented manures to accelerate fermentation and decomposition. Again: if the manure is unfermented, it will benefit the soil, ultimately, at least one-third more, if ploughed under, than if harrowed in. The recommendation will prove serviceable, in our opinion, only when applied to a *young* clover ley, and fermented manure.

Wheat.—The culture of this grain, "down east," is like rolling the stone up hill, except it be upon a limited scale, while the great secondary formation of the west is a competitor in the grain market. In 1827, we published in the New-England Farmer, our reasons for believing, that the primitive formation of New-England could never be a great wheat growing district, by reason of the deficiency of its soil in the salts of lime, and matters which afford azote, both found in wheat, and both indispensable in the soil to its successful culture; and we recommended the application of substances containing these essentials, as lime, bones, urine, horn, hair, night soil, the refuse of the tanner, tallow chandler, soap boiler, the offal of the butcher, the dung of fowls, soot, woollen rags, fish, &c. as proper means of giving to the soil this essential food to the wheat crop. And we remember that our friend Coleman rebuked us, and treated our views of the matter as visionary and absurd. We are happy to find that he has so far overcome his prejudice as to recommend lime, ground bones and soap-boiler's waste for wheat grounds, and to declare that some portion of the former is "deemed essential to success." This grain is however raised in Essex, on a small scale; but there is nothing mentioned of the mode of culture particularly worthy of notice. In regard to blight, Mr. Coleman states the following fact:

"Of two contiguous fields of wheat, similar in aspect, condition of soil, and kind of seed, which I visited this season, one was severely blighted, the other sound and perfect. The only difference ascertainable in the management of the two fields, was that one of the farmers, during the continuance of the heavy dews, and damp foggy weather, which occurred while the wheat was in flower, was careful every morning to sweep the dew from his wheat by passing a rope over it."

As the notice of the other farm crops contains nothing particularly notable, we merely make the following extract, describing a mode of preserving the potato. It would, however, be an improvement if the starch alone were retained, as the residue is of little use.

"Potatoes may be preserved by being rasped or ground to a pulp, and afterwards pressed with a heavy press, and then dried like cheese. Potato cakes of this sort have been found to keep perfectly sweet for years; and it is thought that ships bound on long voyages might find it advantageous to take their potatoes in this form."

Onions, carrots, beets and cabbages are cultivated profitably as garden crops for market. The produce of half an acre, in garden vegetables, is stated to have sold for $363.67.

The Dairy is on a limited scale, and little butter or cheese is sent to market. The commissioner states, that it requires a gallon of new milk to make a pound of cheese; that from two and a half to three gallons are required to make a pound of butter. "The cheese usually sells for eight or nine cents; the butter for 20 to 22. When cheese is worth nine cents, butter should be worth 22; the value of the milk then applied either way is the same. The skimmed milk and butter-milk, however, are of much more value for various domestic purposes, and for feeding swine, than the cheese whey. The labor of the manufacture is not very different. The care of the cheese, where it is kept through the season, is considerable. The yield of a cow in milk is stated generally at 350 gallons per year; of butter 87½, 116, 140 lbs.; of cheese I have not been able to obtain any return on which I could place any reliance." These data are worth remembering. Essex butter is stated to be inferior to the butter of Pennsylvania and New-York; and the commissioner hints at some of the causes of this difference, and suggests correctives.

The Sheep Husbandry is very limited, there being only about 6,000 sheep in the county. The commissioner thinks it may be profitably increased, in fattening wethers und rearing lambs for market. He estimates that the former may be fattened 12 weeks, upon hay and corn meal, for $2.54; and that they will then bring him $5.50 to $6.00—no great profit after paying $3.00 in the outset.

Beef.—The fattening of beef is extensively pursued, and the weight of some heavy cattle are recorded. Corn meal and potatoes, and in some cases apples, are the principal auxiliaries to hay, in the fattening process. A peck of meal and a bushel of potatoes are fed per day to a pair of fattening oxen.

Swine.—The Byfield breed, of some celebrity, originated in this county. The practice of cooking food for swine is recommended. "In an exact experiment," says the commissioner, "made by myself a few years since in this county, the largest gain ascertained was more than three pounds live weight; that is, 57 lbs. in 18 days. This was obtained on pure Indian hasty pudding."

Under the head of *Neat Cattle*, the report details the great product of several cows; but as this seems to have been owing to high feeding, and select individuals, rather than to particular breeds, we omit these details. The stock most prevalent is a mixed breed, termed "native stock," in which the Devon generally preponderates.

The chapter on *Manures* is valuable, particularly where, as in Essex, a farmer is content to pay $5.50 a cord for cow dung, and cart it four miles. Stable dung is in high repute, and sells at a very high price; yet there exists many other sources of fertility yet but partially brought into notice, which the commissioner names, as clover and other green crops, peat earth, sea ooze, sea drift, oyster and clam shells converted into lime, the refuse of the manufactories of almost every kind, leached ashes, and gypsum in the interior. Prof. Hitchcock's report cannot fail to enlighten the farmers of Essex on the interesting subject of manures.

We shall omit, for the present, any further notice of the report, and close this article with some suggestions of what we think would be manifest improvements in the husbandry of Essex. And,

First.—The root culture, particularly the ruta baga crop, might be beneficially extended, as a material for feeding and fattening farm stock, making manure and ameliorating the soil. Half a bushel of potatoes and half a peck of corn meal are stated to be a ration for a fattening bullock. Estimating the average potato crop at 160 bushels per acre, and of the corn at 40 bushels, an acre of each would give 320 rations to a fattening ox. Two bushels of ruta baga per diem, would be fully an equivalent for the half bushel of potatoes and half peck of corn meal, and we think would do more in the fattening process. An acre of ruta baga would give about as many rations as the acre of potatoes and acre of corn together, and could be cultivated and harvested at less expense than either; would not be so exhausting as the corn, and would add much, probably a third, to the manure. Thus, one half of the labor, and one half of the land might be saved.

Second.—By more generally alternating grain, grass and roots, for which the soil seems to be generally adapted, less manure would be required to keep up fertility, and the crops would unquestionably all be improved. We have treated this subject so fully in our article upon the new husbandry, that any further remarks are deemed unnecessary at present.

Third.—The culture of clover, with all small grain crops, as a means of *dividing and enriching the soil*, we think would certainly prove beneficial. The tap roots of this plant are admirably adapted to the amelioration of the soil; and supposing the ley to afford only half the vegetable matter furnished by old green sward, it would give six tons of manure to every acre which it is employed to fertilize. This, as manure is there valued, would be worth at least $20 the acre—a very liberal return for 60 or 70 cents expended in seed. And where gypsum exercises its magic powers, this would hardly fail to prove a reasonable result.

We shall take an early opportunity of resuming our notice of this report.

Geological Science applied to Agriculture.

We are obliged to our friend, the Rev. Mr. Coleman, for a copy of the last report of Prof. Hitchcock, being "*A re-examination of the Economical Geology of Massachusetts*;" or, in other words, geological science rendered subservient to the improvement of agriculture. It is a pamphlet of great interest, and we venture to class it among the most valuable works of the literature of American husbandry. It discusses with ability the sources of fertility, the causes of deterioration, and the means of renovating, our soils.—It describes the origin of soils; gives a classification of them, and a table of analysis; explains the properties of marls and lime,—the theory of their action upon soils, and the practical application of this theory; and it develops the fertilizing properties of marsh mud, muck sand, and other natural products, which abound in the state, and which may be brought to aid agricultural improvement. The work is a happy illustration of the vast benefit which science is capable of imparting to our husbandry.

We had occasion, in the second number of the current volume, to speak of the properties of *humus*, otherwise *ulmin*, or vegetable extract, the great source of fertility to soils. In the report before us, this indispensable food of vegetables is denominated *geine*, a name first given to it by Barzelius. The following extracts, which are in the language of Dr. Dana, of Lowell, will enlighten our readers further on this subject, and serve to demonstrate, that all animal and vegetable substances are convertible into the food of plants;—that they constitute the proper food of plants;—that all organic matter may be again transmuted into organic matter;—and that the alkalies, salts and atmospheric air, with which dung more or less abounds, are indispensable agents in converting dead into living organic matter—into grains, grasses, and roots,

"By *geine*," says Dr. Dana, "I mean all the decomposed organic matter of the soil. It results chiefly from vegetable decomposition; animal substances contain a similar compound containing azote." * * "Geine exists in two states: soluble and insoluble: soluble both in water and in alkali, in alcohol and in acids. The immediate result of recent decomposition of vegetable fibre is abundantly soluble in water. It is what is called solution of vegetable extract. Air converts this soluble into *solid* geine,* *still partially soluble in water*, wholly soluble in alkali. Insoluble geine is the result of the decomposition of solid geine; but this insoluble geine, by the long continued action of air and moisture, is again so altered as to become soluble. It is speedily converted, by the action of lime, into soluble geine.†—Soluble geine acts neither as alkali or acid. *It is converted into a substance having acid properties by the action of alkali*, and in this state combines with earths, alkalies and oxides, forming neutral salts, which may be termed *geates*. These are more soluble in water than solid geine; especially when they are first formed.—Their solubility in cold water is as follows: beginning with the easiest, magnesia—lime, manganese, peroxide of iron—(it does not unite with protoxide of iron,) alumina, baryta. The geates of the alkaline earths are decomposed by carbonated alkali. The geates of alumina and of metallic oxides are soluble in caustic or carbonated alkali without decomposition. The geates of the alkaline earths, by the action of the carbonic acid of the air, become *super-geates*, always more soluble than neutral salts. Soluble geine, therefore, includes the watery solution—the solid extract caused by the action of the air on the solution, and the combinations of this with alkalies, earths and oxides. Insoluble geine includes all the other forms of this substance."

"Soluble geine is the food of plants. Insoluble geine becomes food by air and moisture, Hence the reason and result of tillage. Hence the reason of employing pearlash to separate soluble and insoluble geine in analysis."

"These are facts. Will they not lead us to a rational account of the use of clay, lime, ashes and spent ley? Will they not account for the superiority of unfermented over fermented dung in some cases?

"Geine forms the basis of all the nourishing parts of vegetable manures. The relations of soils to heat and moisture depend chiefly on geine. It is in fact, under its three states of "vegetable extract, geine and carbonaceous mould," the principle which gives fertility to soils long after the action of common manure has ceased. In these three states it is essentially the same. Of all the problems to be solved by agricultural chemistry, none is of so great practical importance as the determination of the quantity of soluble and insoluble geine in soils. This is a question of much higher importance than the nature and proportion of the earthy constituents and soluble salts of soils. It lies at the foundation of all successful cultivation. Its importance has not been so much overlooked as undervalued. Hence, on this point the least light has been reflected from the labors of Davy and Chaptal. It needs but a glance at any analysis of soils, to see that fertility depends not on the proportion of the earthy ingredients. Among the few facts best established in chemical agriculture, are these: that a soil, whose earthy part is composed wholly, or chiefly, of one earth; or any soil, with excess of salts, is always barren; and that plants grow equally well in all soils, destitute of *geine*, up to the period of fructification,—failing of geine, the fruit fails, the plant dies. Earths, and salts, and geine, constitute, then, all that is essential; and soils will be fertile, in proportion as the last is mixed with the first. *The earths are the plates, the salts the seasoning, and the geine the food of plants*. The salts can be varied but very little in their proportions, without injury. The earths admit of wide variety in their nature and proportions. I would resolve all into 'granitic sand;' by which I mean the finely divided, almost impalpable mixture of the detritus of granite, gneiss, mica slate, sienite and argillite; the last giving by analysis a compound very similar to the former. When we look at the analysis of vegetables, we find these inorganic principles constant constituents—silica, lime, magnesia, oxide of iron, potash, soda, and sulphuric and phosphoric acids. Hence these will be found constituents of all soils. The phosphates have been overlooked from the known difficulty of detecting phosphoric acid. Phosphate of lime is so easily soluble when combined with mucilage or gelantine, that it is among the first principles of soils exhausted.—Doubtless the good effects, the lasting effects, of bone manure, depend more on the phosphate of lime, than on its animal portion. Though the same plants growing in different soils are found to yield variable quantities of the *salts* and earthy compounds; yet I believe, that accurate analysis will show, that similar parts of the same species, at the same age, always contain the inorganic principles above named, when grown in soils naturally arising from the decomposition of granitic rocks. These inorganic substances will be found not only in constant quantity, but always in definite proportion to the vegetable portion of each plant. The effect of cultivation may depend, therefore, much more on the introduction of *salts* than has generally been supposed. The *salts* introduce new breeds. So long as the salts and the earths exist in the soil, so long will they form voltaic batteries with the roots of growing plants, by which the 'granitic sand' is decomposed, and the nascent earths, in this state readily soluble, are taken up by the absorbents of the roots, always a living, never a mechanical operation. Hence, so long as the soil is *granitic*, using the term as above defined, so long is it as good as on the day of its deposition; *salts* and *geine* may vary, and must be modified by cultivation. The universal diffusion of granitic diluvium will always afford enough of the earthy ingredients. The fertile character of soils, I presume, will not be found dependent on any particular rock formation on which it reposes. Modified they may be, to a certain extent, by peculiar formations; but all our granitic rocks afford, when decomposed, all those inorganic principles which plants demand. This is so true, that on this point the farmer already knows all that chemistry can teach him. Clay and sand every one knows: a soil too sandy, too clayey, may be modified by mixture; but the best possible mixture does not give fertility. That depends on salts and geine, [manures.] If these views are correct, the few properties of geine which I have mentioned will lead us at once to a simple and accurate mode of analyzing soils—a mode which determines at once the value of a soil, from its quantity of soluble and insoluble vegetable nutriment,—a mode, requiring no array of apparatus, nor delicate experimental test,—one, which the country gentleman may apply with very great accuracy; and, with a little modification, perfectly within the reach of any man who can drive a team or hold a plough."

Professor Hitchcock gives the analysis of 125 specimens of soils, with the quantity of soluble and insoluble geine, salts of lime, and granitic sand found in each, and also the absorbent power of each. Only seven of these specimens, gave indications, on analysis, of the presence of carbonate of lime, although several of them came from limestone districts. After a detailed account of the examination of soils, Professor Hitchcock adopts the following

GENERAL CONCLUSIONS.

"Without stopping," says the report, "to notice some things of minor importance, I will state at once the most important conclusions that have forced themselves upon my mind, from all my examinations and analyses of our soils, respecting their deficiencies and the means of remedying them.

"*First, the grand desideratum in our soils is calcareous matter; that is, carbonate of lime.*

"*The second desideratum is, an additional quantity of geine; that is, a larger supply of the food of plants.*

"*Hence, thirdly, the great object of the agricultural chemist should be, to discover and bring to light new supplies of both these substances.*

"The discovery of either of them would, indeed, be of no small value; but it is a principle that never ought to be lost sight of, that an additional quantity of lime in the soil, will commonly require an additional quantity of organic matter, [manure] and an increase of the latter will be far more serviceable, if attended by an increase of the former.

"These fundamental principles and conclusions I have kept in view continually; and will now proceed to show with what success I have searched for new sources of lime and geine. I shall begin with the former as the most important, because the farmer already possesses the means of increasing the quantity of his manure, but not of obtaining calcareous matter; for, with the exception of Berkshire county, Massachusetts is very deficient in limestone."

We shall resume, hereafter, the subject of this report, and at least enumerate the fertilizing materials of which it takes cognizance.

The North and the South.

The remark is often made in the southern journals, that the north is half a century in advance of them in agricultural and rural improvement. From what little observation we have been able to make, we are inclined to think there is some truth in the remark, though there certainly are in the south many individual and highly honorable exceptions. The exhausting system of continual cropping, has been so long persisted in at the south,* that perhaps millions of acres have become so impoverished as to be thrown into commons—and turned over to nature to renovate their fertility, by a slow growth of cedars, pines and chinquepins. We confess that in some districts of the north our condition is but little better; but in general we have long since commenced a better system, which is now going on with spirit. By clover and plaster, alternating crops, root culture, draining, increase of farm stock, and economy in saving and applying manures, we have renovated much of our once exhausted, and reclaimed much of our waste lands, and rendered them highly productive and profitable. Yet at the north the work of improvement is but begun.

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* Hence the impropriety of summer yarding manures.

† Hence the use of lime in soils abounding in inert vegetable matters, or insoluble geine.

There has, besides, been less attention paid to the comforts and embellishments of HOME in the south than in the north. The buildings, particularly those denominated out-buildings, court-yards and gardens, receive less attention at the south than they do at the north. A traveller, in describing this contrast to us, remarked, that in one case the owner seemed to be AT HOME—in the other, NOT AT HOME—that one, like the bee, appeared to be gathering the sweets of life from a diversity of rural and interesting objects, as it were in detail, while the other was looking for enjoyment principally in the products of his broad-spread fields, and by wholesale.

There is evidently, however, a difference, in favor of the north, in the manner of managing farm lands, principally, we believe, growing out of education and habit. If there is not more science, there is at least more practical knowledge in husbandry at the north than at the south; and these are both essential to an improved state of husbandry. Poor Richard says,

> "He that by the plough would thrive,
> "Himself must either *hold* or *drive*."

The northern farmer generally does one or both, either from choice or necessity. He is the manager, if not the laborer. It is too often the case in the south, we fear, that the planter, personally, neither *holds* nor *drives*. Hence the mismanagement of his land and the deterioration of his soil. Where labor is held to be menial, the principles upon which it ought to be conducted are often overlooked. A knowledge of these principles, acquired in youth, with the supervision of their application in practice, would soon impart a relish for rural pursuits, increase their profits, and greatly improve the general appearance of the country. The sentiment of Washington, that there is "no pursuit, in which more real and important service can be rendered to any country, than by improving its agriculture," backed, as it was, by his efforts to improve his own and the agriculture of his country, should be a sufficient stimulus to the generous minded and chivalrous young gentlemen of the south to imitate his illustrious example,—to study the principles of the parent art, and to understand so much of its practical routine, as to be able to direct its labors with skill and profit. We recommend this course, not only as a source of profit, but of high intellectual enjoyment and substantial comfort. An education in a practical and theoretical school of agriculture, at the north, would enable the young gentlemen of the south to manage their estates far better than they are now managed, without abstracting from their respectability, their rational enjoyments, or their usefulness to society. Such schools we hope yet to see in successful operation among us, and to see their blessings, agricultural, moral and political, diffused into every portion of the Union, in despite of the fatuitous policy, which seems yet to prevail, in regard to this matter, in our halls of legislation.

The Grain Worm.

The legislature not having offered any reward for the discovery of a preventive to the destructive ravages of this insect, our offer of a premium of FIFTY DOLLARS for such discovery remains in force. The editors of the Yankee Farmer have offered a like reward of THIRTY DOLLARS. What gentleman will authorize us to add 50, 40, 30, 20, or 10 dollars to the reward? The evil is one of great magnitude, involving the interests, more or less, of every member of the community. If the reward should be justly claimed, millions will be saved to the state. If it is not claimed, no one will be the loser. We invite millers, merchants, land-owners, farmers——all——to weigh the matter deliberately, and permit us to register their names as contributors to this fund, in such sums as they are willing to give.

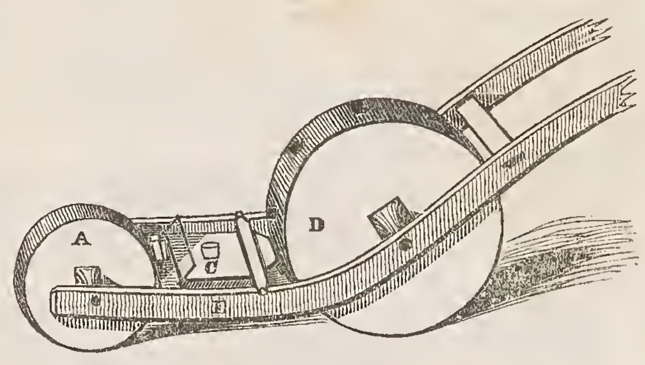
Small's Plough.

We have seen this plough in operation, under the management of two excellent ploughmen, who fully concur with us in opinion, that it is constructed on an excellent model, that it performs its work fast and well, promises to be durable, is of easy draught, and, what is a matter of some consideration, is moderate in price,—it being sold at the factory, in Argyle, Washington county, at $8, and in Albany at $9—two extra points for $1 additional. It has been brought to its present improved state by Mr. Wm. Small, an experienced and intelligent Scotch ploughman. It is for sale by W. Thorburn and J. H. Loucks, in Albany, and by Mr. Small in Argyle. We can with confidence recommend it as an excellent implement.

Bushnel's Drill Barrow.

We noticed in our August No. of last year a rough model of this implement, exhibited before the viewing committee of the State Society, described its parts, and pointed out some of its advantages. Mr. Bushnel, we are glad to learn, has built many drill barrows after the model exhibited, and finds a ready sale for them. He has placed some in the hands of our neighbor Thorburn, for sale, at $6, and sells them at his shop at $5. We shall speak more particularly of this implement after we have given it a thorough trial, which we design to do, having one in our possession; yet we doubt not but its operation will prove satisfactory. Address S. H. Bushnel, Sheffield, Mass. To those unacquainted with the value of the drill barrow, in sowing seeds in row culture, it may not be amiss to observe, that with one a man may sow three or four acres per day, of ruta baga or other seeds.

[Fig. No. 34.]



A. forward wheel, which smooths and pulverizes the surface. *B. B.* the shafts and handles. *C.* the hopper, between which and the forward wheel is the coulter, not seen in the view; and behind which is the brush or rake that covers the seed. *D.* the after wheel, which presses the earth upon the seed.

The Grain Crop.

We are gratified in the news from the south and the west, that winter grain generally promises a good crop, where it is not likely to be visited by the grain worm; but this insect enemy may be expected to reach Westchester on the south, and the valley of Genesee west, the coming summer. And it is no less gratifying to learn, by a gentleman from the northern part of Vermont, where the worm seems first to have made its appearance on our continent, some eight or ten years ago, that this scourge is no longer seen in those parts. We hope that in neither case will our information prove illusory.

"Half Farmers."

There is truth in the remark, that lumbermen and fishermen make poor farmers. These employments take men from home when they are most wanted on their farms; farming becomes with them a secondary business; and, besides, their constitutions become impaired, and their habits unsettled, by these employments. Farming will not thrive generally in any district where fish or lumber constitute staples of trade. And we have fancied, and it may have been nothing but fancy, that in passing out of New-York, where the farmers are generally *all farmer*, into New-England, that there was a marked falling off in the management of farms—which we ascribed to the proneness of our Yankee brethren to be "*jacks at all trades*," which, as the adage teaches, renders them "*good at none*." The truth is, there is hardly a business in life upon which a man's *whole* time, talent and capital becomes so *progressively* productive as that of farming—nor in which at least the two first are so essential to eminent profit and success. A correspondent, who dates at Susquehanna, N. Y. complains bitterly of the wretched state of husbandry in his vicinage, not owing, he says, to the infertility of the soil, which is good, but to the lumbering business, which, while it enriches a few, so impoverishes the many "half farmers," that they are barely able, with the greatest exertions, to "make both ends meet." We do not know how the evil is to be remedied, unless these "half farmers" will quit the water, take the Cultivator, and study and follow its maxims, which will not fail to make them

> "Healthy, wealthy and wise,"

as poor Richard says. Then may our correspondent see his hopes realized.

What has the Legislature done for Agriculture?

From the indications given in our March and April numbers, many persons, as well as ourselves, were led to hope and expect, that our legislature would have made a just, if not a generous appropriation, in aid of the improvement of our agriculture,—and they were lauded abroad for the liberal provisions which they were expected to make in its behalf. But alas! the session has gone by, and nothing has been done, and hardly attempted to be done, in furtherance of this great branch of industry. A bill was reported in assembly, by Mr. Allen, and some discussion had upon its merits; but no question was taken which fairly tested the sense of the house. Indeed, such was the boyish scramble for popularity, by shortening the session, and such the urgency of individual and corporate claims upon their attention, that the representatives had but little time to devote to the humble claims of agriculture. There were many thousand dollars appropriated to literary schools, and some millions to aid incorporated companies, but not a cent in direct aid of the great body of the people who follow the business of farming. And what is the most astonishing, and will hardly be believed by the coming generation, the farmers in the legislature were mostly disinclined to make the anticipated appropriations! We ardently hope, that the sons of *such* farmers will possess more wisdom than their fathers, and that they will ere long occupy their places in our legislative halls.

Agricultural Implements.

We mention, for the benefit of our subscribers in Virginia and the neighboring states, that an extensive manufactory of agricultural implements has been sometime in operation at Richmond, Va., under the direction of Jabez Parker; and that the implements furnished from his shop, as threshing machines, straw cutters and corn shellers, are, according to the Richmond Enquirer, particularly excellent. Labor-saving machines, like those above named, as well as cultivators, drill barrows, horse rakes, &c. add much to the profits of farm labor, and are becoming almost indispensable in spirited and profitable husbandry.

Agricultural School.

A highly respected correspondent, who makes farming his pleasure and sole business, and who, by his example, is enlightening and benefitting those around him,—expresses his disappointment and mortification, at the failure of our legislature to adopt an enlightened and liberal policy in regard to the improvement of our agriculture. In a letter to us, he says—

"I presume we went into the field too soon for the harvest. The time is not yet come—the Cultivator has not done its perfect work; but I feel assured it will do it in time; and until then, it will be to little purpose to force on a people a benefit they do not appreciate or wish.

"Any thing within the compass of individual enterprise and philanthropy, may still succeed, and be carried through, to the benefit of the few who have learnt the value of information and acquirements, and already suspect that there is science in agriculture. I look to the establishment of agricultural schools as belonging to an earlier state of things than agricultural exhibitions.—To him who has made no advance, an agricultural exhibition, nine times in ten, is a source of mortification, and a wounding of self-love; but a school will awaken the spirit of improvement; and a few young men going forth from such an establishment, will be like a little leaven in the inert mass. I hope its consideration may be early resumed. At this moment, how many young men of education, could they enter such a school, if only for a year or two, would put their hands to the plough, as the auspicious means of providing a moderate living for the future."

Massachusetts Premiums.

The trustees of the Massachusetts agricultural society have offered the following premiums for the best cultivated farms in that state, of not less than seventy acres, exclusive of wood land, regard being had to the quantity of produce, the manner and expense of cultivation, and the general appearance of the farm:

For the first best farm,	$200
For the second best,	175
For the third best,	150
For the fourth best,	75

All the minutia of soil, culture, stock, manures, product, &c. are required to be stated, and the farms are to be inspected by one of the trustees or an agent. The form of application, as prescribed, is this:

"To Benj. Guild, Esq. Boston.

"Sir—The subscriber, living in the town of —— hereby makes known his intention of applying for a premium for the best farm, and offers the same for inspection."

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* A letter just received, and now before us, dated Eastville, Va. says—"*All* our cleared lands are divided into two equal fields, one of which is planted in Indian corn, and the other sown with oats alternately, every year, except some manured lots, which are appropriated to sweet potatoes, on which all the manure is put which can be had from the most negligent and slovenly husbandry. I presume an average crop of maize is from six to seven bushels to the acre, and from five to seven bushels of oats." It is no wonder, that under *such* a system of farming, lands should soon be worn out.

Teazles

Are extensively used in our woollen manufactories. They are biennial—that is, it requires two seasons to bring the crop to maturity. They have been partially grown among us; and, under favorable circumstances, are a highly profitable crop. The following communication, copied from the Silk Grower, describes the mode of culture, and gives data as to the profits of the crop; which, allowing one half for leeway, it will be seen, is still far greater than we are accustomed to realize from ordinary farm crops.

"The soil should be rich, not sandy, but loamy; I begin to sow in the spring *not* expecting a crop till a year from next fall; in order that I may have an annual crop I adopt the following method: I sow two rows about 16 inches apart, leaving the plants about 12 inches apart; if they are too thick, I transplant them the next spring. I then leave a space of four feet for the next year's crop, which is manured by use of a hand cart. I hoe the plants well two or three times. The same piece of land, if well cultivated, will bear a good crop for several years. To make it still more profitable I sow English turnip seed on the vacant parts; in this way I raise about 200 bushels of good turnips. It does not cost any more to raise teasles than it does corn; there is no danger of the frost injuring them. I raise from 150,000 to 200,000 to the acre; they are worth this year $1.50 per thousand; some years they are worth $3 a thousand. I raised two acres of them this year; at the present prices the profit per acre is from $225 to $300; when they command $3 per thousand, the profit is from $450 to $600, which is giving five or six fold more profit than can possibly be made from corn. I generally *give* away the seed."

We add to the above, from Loudon, that the crop is taken, except the plants to be preserved for seed, about July of the second year of growth, *when the blossoms begin to fall from the top*. It is the best method to have the heads cut as they become fit, at three different times, at the distance of ten days or a fortnight from each other. The heads are cut with a knife, contrived for the purpose, with a short blade and a string attached to the haft. A pair of strong gloves is likewise necessary. The ripe heads are cut with a stem of about nine inches, tied in handfulls, put in a dry shed, and exposed to the sun, when the weather is fair, until they become perfectly dry.—When tough, and of a bright color, they are sorted into three kinds, termed kings, middlings and scrubs, and are then fit for market. *To save seed*, leave the requisite number of plants uncropped—select, when ripe, the largest and terminating heads, and thrash them with a flail.

German Agriculture.

We know very little of the details of German agriculture; but we have read quotations from the agricultural works of Von Thaer and Sprengel;* and we have learnt from travellers, enough to desire to become better acquainted with her rural practices, conscious that they would afford valuable data for guidance in American husbandry. We have been induced to refer to this subject, by the receipt of a printed memorial of Charles Lewis Fleischmann, a graduate of the royal agricultural school of Bavaria, on the subject of improving the agriculture of this country, and printed by order of congress. We make the following extracts from this memorial, to show the advances which are making in Europe in the improvement of agriculture and of the agriculturist, by the establishment of schools of practical and scientific agriculture, and by agricultural societies and agricultural journals—and in the hope, too, that these extracts will awaken in our statesmen and our citizens generally, a better feeling—and induce a more liberal and enlightened policy—towards that great branch of productive labor, which is at once the basis of our prosperity and the palladium of our independence.

"Agriculture has made, within the last twenty years, throughout all Europe, and even in Asiatic Russia, a very successful progress. The advantage and necessity of diffusing this useful science were felt especially in Germany; there, different plans were suggested and adopted to accomplish it; agricultural societies were formed, and privileged by the governments; the divers experiments were published through journals, and prizes distributed for inventions and improvements: but all that had not the expected effect. The practical farmer, uneducated and full of prejudice, was not able to understand the principles of the new system; the man of scientific education had no experience and knowledge of applying science to practice properly; and so the most brilliant result of one improved branch was the cause of the ruin of other branches, by paying too much attention to a pet branch, and neglecting, for its sake, the whole system. This partial experimenting caused more injury than real good. Lastly, in order to diffuse the science of agriculture properly, so that every branch would affect all others advantageously, and the whole system of this so important science become perfected, it was found necessary to erect schools, and educate young men scientifically and practically. Such schools were established on large properly-conducted farms, where all the sciences were taught connected with agriculture, illustrating the practical manipulations in the field, barns, stables, &c., together with the use of all the implements and machines, as well as all the minutest branches of husbandry.

"The great *A. Thaer* brought the science of agriculture to a system, and *Burger's Lehrbuch* [manual] of agriculture was the general guide for the pupil.

"Within the short period of six years, the influence of these institutions was felt throughout the whole country. The young scientific agriculturist was employed as domain inspector, or superintendent; many applied the new science to their own estates.

"A proper rotation of crops having been introduced, with regard to the circumstances and localities, the stock increased and progressed far towards perfection; the land was ameliorated, and every part of husbandry improved; their ignorant and prejudiced neighbors became convinced; they began to imitate, and to read; and, in a short space of time, the old system was abandoned, and the farmer soon saw and realized the advantage of the science of agriculture.

"When land is rich, cheap and plenty, farming seems to be easy; but when land is poor, scarce and valuable, then the question, *'how to gain the highest clear profit under any circumstance, and to improve land and stock,'* becomes difficult.

"In general, poor soil can only be improved by animal manure. To produce animal manure cheap, and in sufficient quantity, is the most important subject of investigation for an agriculturist. It has an influence upon every branch of agriculture; from the quantity of manure necessary depends the rotation of crops, so as to produce, with least quantity of manure, the greatest quantity of food and grain, and to ameliorate the ground. From the quantity and kind of manure necessary depends the number of the domestic animals that must be kept on a given quantity of land.

"Manure has to be the first consideration in taking up poor land, and from that point start all other investigations. The cheap production of manure influences cheap production of food and grain, and is the result of high profit.

"The moment is arrived when agriculture can be brought to the highest perfection.

"Chemistry has made great progress, and has been especially treated in reference to agriculture.

"The scientific agriculturist is enabled now to make a sure and correct judgment on the experiment of the practical farmer. He can now with certainty, in advance, predict the result of every agricultural operation, and has to place no dependence on good luck, and leaves nothing to chance; neither is it necessary for him to lose time and profit, by making experiments on a small scale.

"Agricultural chemistry detects and discovers especially the secret of the life of plants, and it is therefore a necessary science for all who occupy themselves to gain products from the field, meadows, &c.

"Agricultural chemistry is that science which shows the influence of rotation and the richness of soils; it is the science which teaches how to ascertain the relative value of food, grain, straw; the value of the different kinds of manure; and to ascertain with certain success the proper food for animals, the proper kind of soil for plants, and the best manure for them.

"*Charles Sprengel* occupied himself during 20 years to apply chemistry to agriculture. He was guided by the essays of the most celebrated chemists, and has succeeded in giving the scientific world a systematical book, in which the principles of chemistry are illustrated through examples, and the theories of his doctrine applied to practice.

"Germany has many agricultural schools of great perfection; agricultural societies and journals every where; and the nobility have taken it as a pride to improve their domains, and publish their progress.

"Germany possesses eminent schools of veterinary, and distributes prizes every year for treatises on agriculture.

"Germany brings every year at least 1,000 volumes more books into market than any other nation; and the most of those books are on sciences adapted to practice. And yet how little do we know about their philosophical and scientifical transactions? And why? The German language is very little understood among a population of *English* origin.

"The first step in every undertaking is the most difficult. This difficult step this country has already taken—which is, having discovered the utility of diffusing the agricultural science. The next step is to establish agricultural schools, where that science can be taught theoretically as well as practically.

"In such agricultural schools should be taught pure mathematics, such as arithmetic and geometry; the practical application of it in mensuration, surveying, mechanics, hydraulics, hydrostatics, architecture, civil engineering, &c.; natural philosophy; chemistry, and its application to practice; zoology, botany, mineralogy, and geology; drawing; the veterinary art; and agriculture in all its branches.

"The pupils should be divided into three classes.

"The *first class* should consist of those who only want to become acquainted with the practical management of peculiar branches; for example, wool-growers. These should be paid for their services, and have a lecture every evening, *gratis;* and after serving one year or more, they could be qualified to superintend similar branches.

"*Second class,* those who desire to become acquainted with the practical management of all branches in agriculture, and the necessary rudiments of the sciences.—Terms two years, from 16 years of age and upwards.

"*Third class,* those who wish to become entirely versed in the sciences of agriculture, so as to be qualified for professorships. Term, three years.

"To illustrate the theory by practice, there should be a pattern-farm of about one thousand acres, so as to show an extensive manipulation. The farm should be conducted with the view of gaining the highest profit, so as to prove the utility and truth of the science of agriculture. A few acres of land only ought to be employed for experiments.

"The veterinary art, which teaches the external forms, as well as the internal construction and economy of the domestic animals, the proper management of them, the causes and treatment of their diseases, and the art of shoeing them, is a most important branch of an agricultural school.

"Agricultural schools of the preceding description, in which the most important sciences for a practical life are taught, would be the nursery of valuable citizens for a republic. Such men would honor and benefit the whole country; encourage and promote commerce, manufactures and internal improvement; carry public prosperity to the highest point, and increase the happiness of society."

Geological Survey of Ohio.

We have been politely furnished, by the author, with a copy of the first report on the geological survey of Ohio, by Prof. Mather. It announces the important fact, that 1,200 square miles of that state are underlaid by coal, and 5,000, by workable beds of this valuable mineral. This fact is of the utmost importance to the future welfare of that state, and of other states connected with it by water communication.—It not only ensures a permanent supply of fuel, when the native forest shall disappear, an event with which a large portion of that state is threatened from the fertility of soil, and the rapid increase of its population,—but will be all important in working the iron and the lead, with which the state is believed to abound, and in carrying on other extensive and needful manufacturing establishments. The coal formation constitutes the principal mass of the southeast portion of the state, reposes in beds of a mean thickness of six feet, lying nearly horizontal, and the coal beds are favorably situated for working, as they are found in the hills and ravines, where they can be drained with little expense, and without deep shafts and expensive machinery. Limestone is the prevailing rock, and underlays a large portion of the state. It is accessible, and well adapted to the purposes for which it is elsewhere employed. Sand stone most predominates in the coal region, and is found suitable for the most permanent works, and some answers well for grind-stones. Salt and other mineral springs are numerous. Buhr stone is found in abundance on the southern border of the state, and the value of mill stones annually manufactured from it is stated to amount to 20,000 dolls. We shall close our brief notice of this report with the following extract on

"SOILS.

"The soils of Ohio are so rich, that many would suppose them scarcely capable of being rendered more productive. Art, however, is capable of improving many of them, so much as to double their produce.

"As we are almost exclusively dependent upon the soil for those articles of food and raiment necessary to the supply of our animal wants, and, as the annual products of the soil form the largest item in the increasing wealth of the state, it is deemed expedient to consider this subject with some attention. All the richest and most densely populated agricultural districts, are on the transition, secondary, tertiary and alluvial formations. Soils, with the exception of those resulting from alluvial *depositions*, are derived from the disintegration and decomposition of the subjacent materials, and they depend, in a great degree, for their qualities, upon their mechanical and chemical constitution; hence, the geology of a territory is a necessary prerequisite in estimating the agricultural characters and value of its soils.

The variations in the productiveness of soils are due to two general causes—viz.

1st. The mechanical texture of soils.

2d. Their chemical composition.

1st. The *texture* of a soil is a character of more importance than is generally supposed. To form a good soil, its texture should be such as to retain a suitable quantity of moisture for the nourishment of vegetation, and be neither so clayey as to bake and crack in the heat of the sun, or heave by the action of frost; nor so sandy as to become parched, and be mere dust at the depth to which the roots of plants penetrate. Argillaceous soils have so strong an affinity for water, as to retain a small portion even when heated. There should be a sufficient quantity of clay in soils to enable them to retain three or four per cent of water when dry, and to convert the other materials into a loam. Perhaps a light loam, properly treated, produces the best crops.

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* We do know of a more acceptable service that could be rendered to American husbandry, than the translation of these works, or a portion of them, into English. We have no doubt but the translator and publisher of them would be amply indemnified for labor and expense.

It is also necessary to consider the substratum, in judging of the productiveness of any particular soil.—If it be clay, or rock without fissures, the soil, however good in its texture and other qualities, will probably be "cold and wet." If the sub-soil be gravel or sand, the surface soil is frequently too dry, unless it be a loam so heavy as to retain a sufficient quantity of moisture for vegetation. Where a clay sub-soil occurs, it often alternates with beds of gravel and sand. Advantage may often be taken of this geological fact to drain wet soils, either by boring, or by sinking wells through the clay, into the gravel or sand below, so that the water will find an outlet in springs at a lower level, where these strata emerge on the sides of hills or ravines. In this way, stagnant ponds and marshes may be drained, not only so as to reclaim unproductive lands, but to render the surrounding country more healthful. These principles may be practically applied in many parts of Ohio.

However poor the texture of a soil, it can always be brought to a proper state of cultivation by art; but, unfortunately, the value of produce and the price of labor will not often justify the expense. Light and heavy soils may always be benefitted by a proper admixture of clay or sand, as the case may require. That clay and sand are almost always associated, is a geological fact of much practical value in agriculture, as well as in the arts. The occurrence of one, (unless from the effect of some local cause,) is a pretty sure indication that the other may be found in the vicinity. Light dry soils are often injured by removing the small loose stones, which, instead of being an injury, are in reality an advantage, as they not only prevent the evaporation of moisture below the surface, by shading the ground; but, by their slow decomposition, furnish stimulants and food for vegetation, thus acting as a permanent manure.

"2. *Chemical composition of soils.*

"The chemical as well as the mechanical composition of soils, exerts a powerful influence on vegetation.—Salts, alkalies, and alkaline earths, act as stimulants if used moderately; but if in excess, they are injurious. Many soils contain calcareous rocks, stones, or pebbles, which are continually undergoing disintegration and solution by atmospherical agents; and thus serve as permanent mineral manures. Other soils abound in stones derived from such rocks as contain potassa as a constituent, and by their decomposition, furnish this alkali, in solution, to the roots of plants, by which it is absorbed and carried into the circulation, and there acting as a stimulant, remains combined with some vegetable acid. The decomposition of gravel, pebbles and rock has been observed to be a benefit to vegetation; and as the rapidity of decomposition depends upon the surface exposed, it follows, that if such materials be ground fine and sowed upon the soil, like plaster of paris, a more decided benefit would be the result. This has been partially tried with success; and it is to be hoped, that the intelligent farmers of this state will give it a more thorough trial.

"Iron, in some states of combination, exercises a beneficial influence on vegetation; yellowish and reddish soils almost always contain iron, and are generally productive.

"MARLS.

"The value of marls for manure is well known.—The term marl, in its strict mineralogical sense, means an argillaceous carbonate of lime, but by general usage, marl is an earthy mineral substance, (or one which becomes earthy on exposure to the weather,) which, by being spread on the soil, renders it more fertile.

"The principal varieties of marl, common in this country, are clay marls, shell marls, and the gray and green sandy marls. Clay marl, and the fresh-water shell-marl are common in Ohio; and these deposits will become valuable at no distant time.

"A rock formation of great thickness, occupying a broad belt on the surface of the state, and undoubtedly underlying a large proportion of our territory, seems to be well adapted for use as a marl. It rapidly crumbles and disintegrates on exposure.

Fresh water shell marl is formed by molluscous animals, which secrete lime from the waters of the lakes and ponds, in which they live, to form their shells; and as generation succeeds generation, the dead shells accumulating, form thick and extensive beds of this material. When the pond or lake has shoaled to within a few feet of the usual water level, a growth of plants succeeds; and by an accumulation of vegetable matter, peat and "muck" are formed, and cover the marl.—The peat and "muck" near the marl are filled with small fresh water shells, similar to those which have crumbled down to form the proper marl. The pure marl is a white crumbly mass when dry, but unctous and plastic when wet, and contains a few small white fresh water shells. If vinegar or any acid be poured on it, it effervesces briskly.

"The value of fresh water shell marl is well known to some of our intelligent farmers; but few know it when they see it, and still fewer know in what situations to find it. For these reasons; I have particularized its character and its situations. It performs the same office on the land as air-slaked lime, and is as valuable, while it has not the causticity to injure vegetation. One object in burning lime, is to reduce it to the state of powder by slaking. The shell marl is already in a pulverulent state, and only requires to be dug from the swamps and ponds and spread on the land."

Beet Sugar.

It is announced in the New-England Farmer, on the authority of H. C. (Rev. H. Coleman,) that an important discovery has been made by a gentleman in the neighborhood of Boston, in the manufacture of sugar from beets;—by which *all* the sugar contained in these roots may be obtained; the raw material may be put in such a state of preservation as to be used in any season of the year; the process of manufacture is rendered simple and easily understood; requiring no expensive machinery, other than can be furnished by a farmer's kitchen; and the whole calculated to enable the farmer to produce his own sugar from his farm at a very small expense, compared with what this article now costs at the store. The proprietor is procuring a patent for his improvement. If these high expectations should be realized, the discovery will prove to be one of the highest importance to the country, particularly to the far west.

The following article, which we cut from a Northampton paper, has reference, probably, to the improvement above noticed, or to one very similar.

"The German improvement over the French method of making beet sugar, a patent affair in Europe, consists *simply in drying the beets*, which are then reduced to a powder by grinding, and changed into a decoction by adding water. The experiment has been thoroughly tried by Mr. Zachariah Wilder, of this town, which resulted in *complete success*. Mr. W. by this process, which, we understand, is as simple as that of making a cup of tea from aromatic herbs, has succeeded in extracting *ten per cent of sugar from the crude beet*—and he is confident that at least twelve per cent can be obtained at another experiment.—For his efforts in prosecuting his experiments to signal success, Mr. Wilder deserves the unqualified thanks of the agricultural world. The result of his labors will give an impetus to the culture of beets in Hampshire county, which cannot fail to be productive of lasting good. But to the process again. The dried powder of the beet was found to yield its saccharine immediately, as the decoction was found to be as sweet as boiled maple syrup, the moment the water was added to the powder. The means used for the clarification of the decoction were very simple. Animal charcoal and lime were the only agents employed. This eminently successful experiment proves the fact, that the immensely important article of sugar can be manufactured by any intelligent farmer's household, as easily as bread, pies or cakes can be made and baked. A rich garden spot of a quarter of an acre, can produce beets enough to make a thousand pounds of sugar; no heavy capital or incorporated company is required to carry on the business. Every individual can make a pound of sugar as cheaply and as easily as he can make a pound of Indian meal. This important fact has just been proved.—Now let us look at the amount of sugar brought into Northampton last year. Why, it amounted to *one hundred and seven thousand pounds*, which, together with the molasses consumed, would cost over $10,000. This is no inconsiderable sum to be expended by our citizens annually. A dozen resolute farmers, by their *influence* and labors combined, can create that sum from their lands this summer in the culture of the beet. At least, so we think."

Lime for wheat.—Dr. Jackson, geologist of the state of Maine, remarks—"I find by chemical examination of several remarkable soils, that a very minute quantity of carbonate of lime, viz. from one to two per cent, is amply sufficient to render them capable of bearing heavy crops of good wheat. I am also satisfied that a soil is incapable of producing wheat of good quality if it does not contain carbonate of lime; for this substance is an essential ingredient of this grain."

Importance of the Salts of Lime.

"I apprehend that the importance of the salts of lime in a soil is but little appreciated by farmers.—Their crops may fail, although they may have manured and tended them well; but it is almost always easy to find a cause that satisfies, in the character of the season; but hard to convince them that the failure may have been owing to the single grain in a hundred, of some substance that can be discovered when present only by chemical examination. And yet I doubt not many a crop has failed for want of that one per cent of sulphate or phosphate of lime.—Facts, indeed, seem to me to warrant the conclusion, that, without lime in some form, land will not produce any valuable vegetation."—*Prof. Hitchcock's report of a re-examination of the economical geology of Massachusetts.*

The salts of lime referred to, as having a salutary influence upon vegetation, are the carbonates, sulphates and phosphates, or lime chemically combined with carbonic acid, as in common limestone—with sulphuric acid, as in gypsum—and with phosphoric acid, as in animal bones. These all abound, more or less, in vegetables—the sulphate particularly in clover, &c., phosphate in barley, wheat, &c., and the carbonate in many plants. As they are essential, in minute proportions, in the organization of plants, they must necessarily exist in the soil, or be formed there by chemical process, or the plants requiring them will fail for want of these necessary constituents.

Dr. Perrine.—This worthy citizen, formerly our consul at Campeachy, has been indefatigable and persevering in endeavoring to add to the useful plants, and consequently to the productive wealth and independence of our country. He has been at great expense in transporting to Cape Florida many tropical plants, where the climate seems congenial to their growth, which promise to be of great advantage to the arts and to commerce, particularly some which afford an excellent material for cordage. The Doctor has petitioned congress for aid, by a grant of Florida land, and a report has been made favorable to his application. We sincerely hope the recommendation of the report will be granted. *Whatever benefits a part, benefits the whole of our country;* and that the Doctor's exertions, if suitably rewarded, will lead to the most beneficial results, we have not the least doubt. And besides, what he asks will not make the country poorer, but it may enable him to be eminently useful. We repeat, we hope congress will grant his request.

☞ *An admonition.*—Most of our old farms have been worn out, or greatly impoverished, by bad management; and many of them are in the process of expensive renovation. As prevention is cheaper than cure, those who are upon new farms should be admonished, not to "kill the goose which lays the golden eggs." Constant cropping will ultimately impoverish the richest soil; as will the practice of carrying *all* off, and returning *nothing*, in the shape of manure, to the soil.

☞ *Fine Animals.*—We are happy to state, that there is now in the hands of Mr. Hall, the artist, accurate likenesses of some choice animals, belonging to an eminent American breeder, which, with a letter press description, we hope soon to exhibit to the readers of the Cultivator.

A Nursery for sale, containing a great variety of choice fruit trees, and many thousand seedlings, situate on the Kentucky side of the Ohio, opposite Cincinnati, with a farm and suitable buildings, if required. A professional nurseryman may obtain an advantageous bargain, by communicating with S. C. Parkhurst, Cincinnati, Ohio.

☞ *See Last Page.*

CORRESPONDENCE.

What is a Load of Manure?

DEAR SIR—I often see in the Cultivator, particular accounts of large crops, in which I am much interested. In these accounts, the *number of loads* of manure applied to the acre is generally stated, but I am always at a loss to know how to calculate with regard to the *quantity* of manure thus used. Some farmers call a common cart body full a load; others do not call a cart well loaded unless they have on a pair of wide sideboards full; so that the statement of a certain number of loads to the acre, without being more explicit, is only calculated to leave the reader in the dark.

I have been for some years past in the habit of drawing annually a large quantity of manure from Hartford, (six miles.) It is all measured, and we call ninety-six solid feet a load; but one of these loads will more than fill two common cart bodies. If your correspondents would always state the quantity of manure used, in cords or solid feet, all could judge more correctly with regard to the good or bad management of the person making the statement.

I find my crops generally increase in proportion to the quantity of manure used on an acre.

Yours very respectfully,
D. N. GRANT.

Bloomfield, Conn. April 11, 1838.

REMARK.—The general meaning of a *load of manure*, we believe, is what can be conveniently drawn by two horses or two oxen, to the field where it is to be used. At Boston, and it seems at Hartford, we apprehend, it implies *as much as can be drawn by four or six cattle upon a hard road*—or "ninety-six solid feet."

Culture of Clover and Melons at the South.

Scull Shoals, Ga. 20th April, 1838.

Judge BUEL—I have read the numbers forwarded me with much satisfaction and improvement, and feel no hesitation in believing that they will prove highly useful to all who will read and understand them; they contain much information useful to the south, particularly the cultivation of corn and the saving of manure.

For the last three years, I have been making some experiments with red clover, timothy and orchard grass, and find that if sown about the last week in September or first in October, that we can have as good a stand of clover and grass here as you have near Albany.—From a small lot of four acres, I last June cut as fine hay of clover and timothy as I ever saw grow at the north, it being from three to four feet high. I put about four hundred bushels of cotton seed on this land, which I have no doubt is a better manure than gypsum. On my alluvial bottoms, it thrives exceedingly well without manure, but on our exhausted fields, a good coat of manure is indispensable. When sowed in the spring it comes up well, and then dies from the heat and dryness of our climate.

I take the liberty of sending you twenty-four water melon seeds—the twelve white looking seed is called the mountain sprout, and has a rich yellow meat—and the twelve dark seed I took from a melon that weighed thirty-eight pounds, and three-fourths of a yard in length—the latter has a blood red meat. They are, without doubt, two of the most delicious varieties that can be found any where. I cultivate them thus:—I have holes dug in the ground, ten feet distant each way, eighteen inches wide at top, and twelve deep. I then have the holes filled three inches above the surface of the earth, with rich light earth, and plant and cover the seed about one and a half inches deep, leaving two stocks in a hill. The ground between the hills I keep well ploughed or harrowed until the vines begin to run. They must then be hoed often, to keep the earth light. A southern exposure on a hill side is the best, and the poorer the ground the better, except where the hill is made. I am of the opinion that any climate that will mature Indian corn, will mature the water melon.

Most respectfully,
T. N. POULLAIN.

Improvement progressing in the South.

Georgetown, D. C. April 25, 1838.

J. Buel, Esq.—Dear Sir—We have had several very cold days—ice one-quarter of an inch. Great fears were felt for the safety of the early fruit, as it was in full bloom; but I am happy to say from the best information, that it has escaped with very little or no injury. Our winter crops, wheat and rye, look well, and promise a better harvest than we have had for many years.

The spirit of improvement among our farmers is increasing daily. To give you some idea—there has been two or three times as much clover seed sown this season as last, and would have been more if it could have been had. Yours very respectfully,

JOHN H. KING.

Miller's Tolls.

Burlington co. N. J. 4th mo. 14th, 1838.

Friend Buel—I see in No. 1, of the present volume of the Cultivator, some complaints of the extortionate toll of the millers in your state, and am surprised to see them make no vindication of their cause in the last No. and admit it looks somewhat unfavorable to them; but such being the case, I feel disposed to defend them in some measure, at least, as I fully believe they are not as censurable as you deem them to be; as you appear to make no other deduction than the customary and with us lawful tenth, allowing nothing for filth, fixed air, nor any thing else; the former of which, with *some* customers is considerable, and in such cases, according to your standard, the miller's expense for cleaning apparatus and gratuitous labor, would only add to his condemnation; and further I apprehend you are not aware, (for if you are, you should have mentioned it,) that in solid bodies, there is fixed air, that in being reduced or pulverized escapes, and thereby a loss of weight is sustained, of which fact nine-tenths perhaps of the agricultural community are ignorant, and if so, no wonder that millers should be accused of taking too much toll. I have found by careful experiment in grinding rye, (weighing 56 lbs. per bushel,) with my own hands, long before I saw the account in the Cultivator, that it lost three and a half pounds per bushel, or twenty-one pounds in six bushels, the quantity ground, and which added to the toll, would amount to about 16 per cent.

Oliver Evans, late of Philadelphia, in his Millwright's and Miller's Guide, note pp. 159, 160, says—"If we consider that most bodies are in part composed of air, which is in a solid or fixed state, and constitutes a proportional part of their weight, and this proportion is different in different species of matter, from one-sixteenth to one-half, and in one species of wheat has been found by experiments to be one-fifth of its whole weight, that is, 12 lbs. of fixed air in 60 lbs. or one bushel of wheat." (Alas, for the miller's reputation who might grind such wheat, it being weighed before and after taking it to mill.) "Now this air is roused into action two ways, viz. by fermentation and by heat, and as fast as it is roused, it instantly leaves the body and expands itself into about a million times more space than it filled before in the form of a dense body. *See Martin's Philosophy*. As a confirmation of this hypothesis, we may observe, that many experiments have been made by weighing a quantity of wheat carefully before it was ground, and then weighing every thing it made in manufacturing, and we have found it to be lacking in weight from one to five pounds per bushel, which could not be accounted for any way better than supposing the loss to be occasioned by the escape of fixed air." This air being roused into action by heat, grinding grain when stones are dull, or glazed by garlic or the grain damp, occasioning more heat, it will consequently produce a greater escape of the air, and greater loss of weight will follow. Now thus circumstanced, can any miller possibly escape censure, though acting ever so honestly? Certainly not, and I have no doubt that owing to the ignorance of these things, and the negligence of properly cleaning their grain by some customers, many honest persons have had their reputation blasted and their incomes much curtailed, and that too upon the strongest possibly conceived evidence on the part of their accusers, viz. "weighing before and after grinding," deducting the toll only.

I do not make these statements as a shield for dishonesty in the least, for no doubt there are many who follow the occupation of milling, whom it would be well to keep a strict watch to; but for the information of the public, and to exonerate the upright from unmerited disgrace.

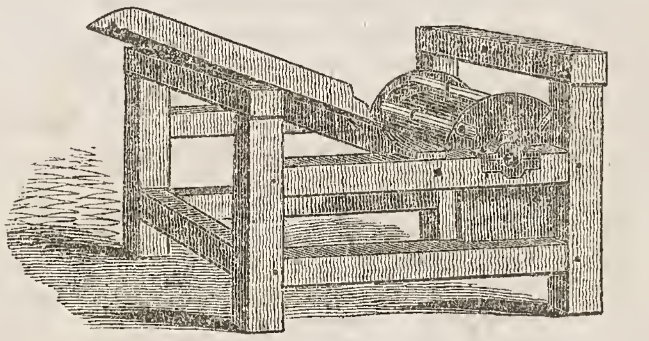
I would recommend thee to make proof of these matters by some honest miller, if there is any to be found in thy neighborhood, under thy own close inspection and observation, the motive unknown to him, and publish the result in your highly useful and interesting paper. Respectfully thy friend,

DAVID WALTON.

Remark.—There is no doubt much truth in the remarks of our correspondent, as to the diminution in the weight of grain by grinding. But it is not so much the amount of toll which is objected to, as the want of a *legal* or other *standard* of toll, so that a customer may know when he is dishonestly dealt by; and we do not know of a better way of coming at this fact, than by "weighing before and after grinding."

Webster's Spring Beater Threshing Machine.

[Fig. No. 35.]



The above cut represents one of D. H. Webster's machines, with the top off. It has been in use for several years—is very simple in its construction, durable, and not liable to derangement. The heads of the drum or cylinder are of cast iron, and sixteen inches in diameter, the cylinder twelve inches, and sixteen inches in length. There are four wrought iron fluted beaters extending from one head to the other, supported in the centre, the ends turned to fit in a groove in the heads which admits of half an inch play, and kept to their place by means of springs. The advantage of this play is, that in feeding, sometimes a larger quantity of grain is drawn in, and the elasticity of the springs lets it pass through. The bed plate is cast iron, with ribs running across.—The frame occupies four feet in length and two and a half in breadth.

The advantages of this machine are, safety, durability, and simplicity. Stones, pieces of roots, sticks and even a hammer has been thrown into the hopper, without injury to the machine or those attending, which in a spike machine would not only endanger those attending, but would injure and most probably destroy the machine.

With one of Allen's powers it is capable of doing as much execution, threshing as clean, and breaking the straw less than the spike machine.

This thresher was exhibited at the fair of the American Institute, in October last, for which the committee awarded him a silver medal, for the best threshing machine exhibited.

They are for sale at the store of Messrs. Geo. Russell & Brothers, corner of State-street and Middle-lane, Albany. Price $35. B.

Albany, June, 1838.

Agricultural Employment Commended.

"Agriculture is the most healthy, the most useful and the most noble employment of man."—*Washington.*

Mr. Editor—I have made a short extract from the writings of Washington, on which to base a few plain and honest remarks. Being a man considerably advanced in life, and one of the laity, and not possessing a very good education, the reader must not expect a great display of erudition or of scholastic accuracy.—My object is to make some common-place suggestions for the encouragement and consolation of the farmer. From my youth up, I have been principally engaged in *agriculture*. Yet I have endeavored to get some knowledge of *other* occupations, so as to be able to compare and judge which is the most *healthy*, the most *useful*, and the most *noble*. And with the greatest sincerity, I can echo the sentiment of the intelligent and worthy Washington. I very well know, that this is not the opinion of many, *very many* of the community; yet it is *unquestionably* well founded. Ask the *dandies*, who are perambulating our streets, dressed in all possible finery, living upon the hard earnings of their parents, and they will tell you they consider agriculture a *dirty, degrading* business. Ask those

"Who lounge about in lazy bands,
Throng tippler's shops and tavern stands,"

and *they*, too, will tell you that farming is not the business for them. But, ask the truly intelligent and meritorious, and they will tell you that agriculture is the *main spring* of all employments. That not only the *peasant* but the *king* is served by the field. That it is not only *useful*, but highly *honorable*. They are ever ready to reiterate the sentiment contained in the following lines:

"Good Cincinnatus, at his plough,
With more true glory shone,
Than Cæsar with his laurel'd brow,
His palace and his throne."

The extract on which I have proposed to remark, contains three propositions:—The first is, of all employments, *agriculture is the most healthy*. This is evidently a fact, from the following considerations:

Man was created for *exercise*. Toil must nurture him, or else his powers and faculties will never ripen. When this cannot be brought about, he sickens and dies. Taking into consideration the regularity that may attend a farmer's labors, the regularity in meals and sleep, and the salubrity of the air he breathes, and the sun that warms and vivifies him, we at once perceive, that no employment is so well calculated to aid the functions in fulfilling their purposes. As vegetable creation is affected, so is animal. Shut out the sun and air from a vegetable, and deprive it of terraqueous, or natural aliment, and how soon it will become sickly! just so with the human family.

Again—agriculture is well calculated to afford peace of mind. A farmer's business being very much within himself, there is not that chance for altercation, disappointment, perplexity and mortification, that other men experience. Just compare with the professions. The *clergyman*, if he make every effort to give satisfaction to his parishioners, must meet with disappointment.—If he preach like one inspired, he cannot please them all.

"Some wanting grace,
Laugh in his face,
While solemnly he's prosing;
Some sneeze or cough,
Some shuffle off,
And some are even dozing."

"The *lawyer* leads a harrass'd life,
Much like a hunted otter,
And 'tween his own and other's strife,
He's always in hot water."

I should like to say something better of a *doctor's* business, but am not able.

"For like a tavern waiting man,
To every call, he's 'coming,'
Now here, now there,
Must he repair,
Or starve, sir, by denying;
Like death himself,
Unhappy elf,
He lives by other's dying."

The next proposition is, that *agriculture is the most useful*. And how can this be, when so many other employments are so useful? I will give an explanation, my dear readers, for it is very capable of illustration. The community, or the different classes of people may, very properly, be compared to the human frame, which is composed of body and limbs. All the members are very useful in their places. One cannot say to the other, I have no need of thee. Yet, we may at once perceive, that they are not equally important. A *leg* or an *arm* may be amputated, and yet the person or the body may survive; though it must be a great loss. But kill the *body*, and the limbs will die also. So with the community. The farmers are the *body*, the other classes are the *limbs*. Now amputate or cut off these limbs from society, the body may survive, though it must of course suffer much. But destroy the body, or farming interest, and all is lost.

The third and last proposition is, that *agriculture is the most noble*. This is acknowledged by all noble minds. It is what heaven ordained that man should pursue. It is the business in which our first parents were engaged. It is the business that has and must sustain the human family. It is noble in itself—it produces noble effects. How it ought to ennoble the mind, to be employed so much among the works of nature. How it ought to lead the mind from nature up to nature's God.

"A farmer's life 's the life for me,
I own I love it dearly;
And ev'ry season full of glee,
I take its labor cheerly."

AN AGRICULTURIST.

Westborough, Worcester co. Mass. May, 1838.

On wintering Sheep.

In *rural economy*, as well as in the *arts*, our success is generally expected to follow *industry* and attention to our husbandry; but unless we use both *care* and *skill*, our labor will be of but little use. The wise proverb, that "the hand of the diligent maketh rich," will be of little avail, unless we give proper attention to *little things*. *Hard work* will not advance us in prosperity unless we *work it right*. We always find some farmers' stock in good condition—and why? Because they work it right. In an adjoining fold, their neighbors remain in poor condition, notwithstanding they may be sufficiently supplied with fodder of the best quality. This farmer heeds not *little things*. He does not take up the "stich in time" to ensure success.

The season will soon arrive, when sheep require more attention than farmers in general are apt to bestow on them. To do well through the winter, they must be in good condition when they begin it. Sheep *well summered*, and got up to hay in good heart, are *half wintered*. It is with us, a very common practice to permit them to ramble over the fields late in fall, until snow obliges the farmer to bring them into his enclosures. They may look full on the frost-bitten herbage, but it does them little good; there is but little nutriment in it.—They should be confined in dry enclosures, between the 10th and 20th of November, while in good heart, and fed on the best of early mown hay. In wintering lambs, the foundation of so much loss is more frequently laid in the fall, by leaving them to cut their own fodder until winter sets in, than by all other neglects.

The different kinds of wethers, ewes and lambs, should be separated; and each flock of a size, that they not materially get the advantage one over another. It is also necessary to keep the old and poor sheep separate. As soon as one begins to decline, it ought to be removed into the hospital, where it can receive better attention; and it is highly beneficial that dry airy sheds are prepared, that they may not be exposed to the rigors of the winter, and cold storms in the spring.

Smut or ergot was very abundant the two last seasons, on the heads of June or spear grass. When this abounds, hay must be thrown out more abundant, that they may have a selection of food. I have known large flocks nearly all destroyed by this vegetable poison. They should be winter fed to the degree of commencing the grass season in good store order, without having sustained any check in carcass or wool. It is of the utmost importance to keep them on as dry grounds as possible in the spring. Wet feet will relax the system, it introduces a general debility, and loss of appetite. One of the principle causes of the internal rot in sheep is by their wading in wet yards, and feeding on wet grounds.

We often hear the idea presented, that the *breed is nothing* and *feed is every thing;* that this is in fact all that is necessary to make fine animals; but this notion is one that ought to be exploded. Good keeping is an excellent thing, and is not doubted; the farmer that keeps his flocks well is paid down; a fat sheep requires less hay by one-fourth than a lean one; they also produce more weighty fleeces, and more lambs; but it was never known to produce any material change in animal physiology.

The yolk, or oil, which by perspiration is secreted in the wool in warm weather, returns again into the system in a cool day; this gives a fat sheep the advantage to withstand the sudden changes of the weather, better than a poor one; and this yolk adds weight to the fleece, when shorn in a hot day; by the same rule wash them in moderate weather to preserve the oil. I have often seen flocks of sheep decline in spite of all the care and feed that could be given; but in this case, it is not wholly depending on good attention and a plenty of nutritious food for a remedy; any species of animal nature will decline in a few generations, when propagated by the same family blood.

Exercise is one very essential point, which may be produced by feeding them within ten or fifteen rods of a warm fount of water, that should not stand in a bleak windy field; and if they can have another barn or stack to run to once a day, it will give them exercise, a change of food and an appetite. To satiate their thirst on snow for a length of time is a wrong notion, and ought to be exploded. Unless they are fed on roots, they will not do as well without water, which should be convenient to them at all times.

It is very healthy for sheep to run among burned logs and stumps after being shorn, through the summer; the coal dust drives into the wool, and is a sure and simple remedy for ticks. I have tried no other method in summer to prevent these vermin, and have always been successful in preventing or expelling them.

Pine or hemlock tops should be put in their way, when they have been kept from the ground for any length of time, to invigorate their health. Where the hay is not salted, it is of importance also to brine it in mild weather now and then.

I always cut my mows, and first feed out one-half.

> "I then can judge on candlemas day,
> Whether I have more stock than hay."

It is also an economical way of saving fodder. Fresh hay is as much better for stock, as a slice of bread is for man, just cut from a loaf.

The agriculturists generally throughout our state, are applying their serious attention to the growing of wool, with the *hopes* of a fair remuneration for their enterprise. The price of the last clip did not range so high as was expected; still we are inclined to believe, that wool will do a shade better the present season; an unusually small stock of old wool remains on hand; it has not been so generally sold off and manufactured for a number of years, in this state. Our increase in sheep for the last five years has been very rapid. The present number may be estimated at two millions. In one township, rising seventy thousand have been assessed, and probably a greater number were owned. The average annual expense of keeping sheep in Vermont will not much exceed one dollar the head.

Dear sir—I respectfully submit the above for your consideration. And believe me, with great respect and esteem, to be, very truly, your obedient servant.

SOLOMON W. JEWETT.

Weybridge, Vt. May, 1838.

Italian Spring Wheat in Ohio.

Waterville, Lucas co. Ohio, April 16, 1838.

J. Buel, Esq.—Sir—I have thought for some time, that I would send you the result of my experience in the culture of Italian Spring Wheat, in the valley of the Maumee, believing as I do, that the dissemination of information upon the agriculture of this region, will be acceptable to a large class of the readers of your paper. I sowed last spring, six bushels of wheat procured of J. Hathaway, of Rome, N. Y. a part upon the bottom lands of the river, and the remainder upon what is called the "second bottom," which is a light sandy soil of moderate richness. No more than ordinary care was taken with the crop, even for this country, where the business of agriculture is carried on rather loosely at the best. Some of it suffered considerably from weeds, and I was far from considering this experiment a fair trial. I harvested one hundred and twenty bushels, the product of the six bushels of seed, of plump, fair, heavy grain, in all respects as good as the seed, while from twenty-five bushels sowing of winter wheat, every way as well put in and taken care of as the other, I only harvested one hundred and sixteen bushels, so great is the loss from winter killing in this part of the state. As an evidence that I consider the spring wheat one of the most valuable acquisitions to the agriculture of this country, I have already sowed eighty bushels of my crop upon my best lands, and shall continue sowing till I have exhausted my stock. Some of the wheat is already up, and looks finely.

With respect, I am yours, &c.

HENRY REED.

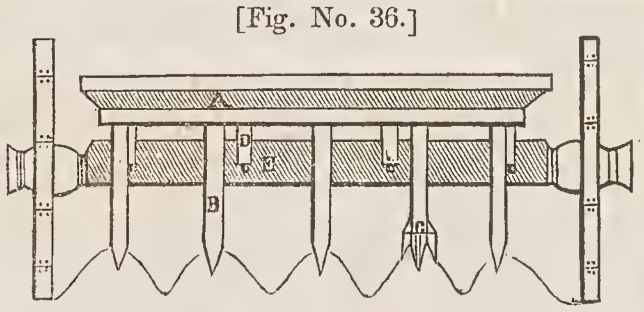
Scotch Turnip Drill.

J. Buel—Dear Sir—When in Scotland for a time, some years since, I remarked a good method they had of cultivating ruta baga. You may have published it; if so, I have not seen it. (It is but lately I have read that excellent periodical of yours.)

It is this. Having first ploughed the land in ridges, about three feet apart; then, with a drilling machine, the drills of which are graduated to the width of the ridges, and whose wheels run in the centre of the furrows, having four or five ridges between them; the drills of the machine entering the top of each ridge, and depositing the seed there, which is covered over by two irons inclined to each other at the hinder ends, and attached to the machine.

The chief good resulting from the plan, is in the thinning out and hoeing the crop; the former is done by one stroke of the hoe between the plant to be reserved and that part of the row which is untouched, pushing the refuse plants, &c. into the furrows, leaving the proper plants, with a small portion of their roots in the ground, and blowing about in the wind, which causes them to grow the faster; (so the farmers there assert.) When the weeds are grown, and the ground requires hoeing, the ridges although flattened down in the thinning of the crop, are again submitted to the same operation of pushing and pulling the earth and weeds into the furrows on each side, where if they vegetate again, they are removed by the horse hoe, till totally eradicated. The crops grown by this method are very great, although I have no means of informing you of the number of bushels, at this space of time. Suffice it to say, that part of Scotland, (East Lothian,) is reputed to be as well farmed as any part of the kingdom.

[Fig. No. 36.]



PLAN OF DRILL.

A. Box for holding seed. B. The drills, pointed with iron, and hollow for conveying the seed to the ground. C. Irons for covering the seed. D. Pieces connecting the drill, &c. to axle tree. E. Hinge attaching the axle to the pieces, &c.

If the above is new and worthy a place in your paper, you are welcome to it. It may be interesting to some of your eastern readers, whose lands are not crowded with stumps. Yours, J. E.

Lockport, N. Y. April 24th, 1838.

Indian Corn.

April 25th, 1838.

Jesse Buel, Esq.—Dear Sir—As every thing relative to Indian corn and its culture is particularly interesting to your subscribers throughout that great extent of our country where this grain constitutes the chief staple, I hope you will permit one who has been a corn maker for nearly half a century, to offer a few remarks upon several articles on the subject in your number for this month.

And first, of Dr. Brown and his varieties, in regard to which, as well as to his criteria for selecting seed-corn, I differ from him essentially. He has fixed upon the number of rows of grain on a cob as constituting a variety; yet *nature* has caused the same stalk of corn very often to produce ears having cob and grain exactly alike in color and shape, but differing in the number of rows upon each, from two to six or eight. Difference therefore in the number of rows, should not be considered as constituting a variety. Again, he names as a variety, but one kind of gourd seed, which he calls "genuine,"—that is the yellow—yet *nature* has made another which is white, and much more common to the south—having, not unfrequently, from twenty-four to thirty-four rows on a cob. The grain, however, has the same shape with the yellow gourd seed, and is evidently so called from its resemblance in shape to the seed of the common gourd. Of the doctor's classes, I can only say, that the rules by which he has formed them, and the characteristics which he describes as peculiar to each, appear to me both too vague and inapplicable to be useful. Some of his names, for example, are known only in a very small extent of country, and cannot of course, be intelligible at a distance; while he gives to some of his varieties the names of particular states; although in regard, at least to Virginia, I can certainly say, that it would puzzle a jury of the most experienced planters among us, to tell which variety of corn, out of fifteen or twenty, had the best right, if either had, to the name of our state. His third principal class I perceive, he has christened "Hæmatite, or blood-red."—Now if he means the second term as a translation or explanation of the first, it hardly applies to any one of the ten sub-classes which he has ranged under this chief one. In fact, it is inapplicable to any kind yet known; for hæmatite is a hard mineral substance, either *red, black or purple*, but the powder of which is *always red;* whereas, the powder of all the varieties of corn I have ever heard of is always white, or yellowish. The variety which the doctor calls "Guinea corn," if it be the same so called in Virginia, is not a corn at all, but a species of millet. His No. 32 is said to be quite as common in South-America as in Texas, where a small yellow grain corn is more generally cultivated than any other, at least in the country round about Galveston Bay. The proper name of his No. 32, is "tunicata" corn, from the circumstance of each grain having a distinct cover or coat.

Permit me now to examine his criteria for choosing seed corn. That which he ranks first is, "*the most stalk*," and if he goes upon the principle of "first named, most honored," we have a right to conclude that the doctor considers the quantum of stalk the most valuable of all the qualities of the corn-plant. My experience tells me that it is the least valuable; for it by no means follows that the variety which has most stalk, will produce either most fodder or most grain. The first depends more on the number of joints in a stalk than on its height; for the number of joints differ materially in the different varieties, and each joint bears a blade; while the quantity of grain depends more on the number of ears, than on their relative size, and the number is almost invariable smaller on very tall stalks than on those of a medium height. In verification of this, there is no remark which is more commonly heard among us southern corn-makers, than "that corn," (speaking of some particular crop,) "is running quite too much into stalk, and shooting too high." Again—as to the value of corn stalks: no animal to which we southerners have ever offered them when dry, naked and stripped of all their blades and imperfect shoots, will eat them, unless we cook them somewhat after the recipe for making good soup with common pebbles—that is, to put in such ingredients as will make good soup of themselves, and call it "stone soup." In fact, corn stalks of themselves, are fit for little else than to act as absorbents of manure, when thrown into farm-yards, and would not be worth the labor of collecting, but for this circumstance.

The doctor's second criterion is, "*the largest cob;*" a recommendation to those who love corn cob pipes; but for nothing else. For although it is certainly true, that the largest cob will generally contain most rows of grain, yet there are several exceptions; for some varieties have very large cobs and grains comparatively broader, in all which cases the rows will be fewer in number than on cobs of equal size with narrow grains. Again—the greatest number of rows will not always produce the greatest quantity of grain by measure, unless the grain be considerably larger than the kind with which it is compared; for all which reasons I deem the doctor's second criterion no better than his first.

Let us next examine his third, which is, "*the longest grain.*" Now it is notorious to every southern corn-maker, that all the longest grain varieties are what we call "*chaffy*," and are far less weighty, measure for measure, than the short grain varieties. This we consider a decisive proof that they have less of "*the farinaceous product*," although I have not heard of any accurate experiments having been yet made to ascertain the fact.

The fourth and last criterion named in this fanciful classification is, "*early growth and quick culture.*" This last term, (if I understand it,) is merely an incident that may or may *not* happen to all cultivated plants whatever, but is not a quality in any. "*Early growth*," or I should rather say, *early maturity*, is certainly a recommendation; but far more important to the north and east, than in what may properly be called the corn region of the United States. Within *its* limits it is universally true, that the varieties which ripen very early—say three or four weeks before the kinds most generally cultivated—although heavier are much less productive: so that his fourth criterion would be still less suitable in the southern country, than either of his others. In short, if we southern corn-makers were to go by the doctor's rules, in choosing our seed corn—rules indeed which are so incompatible with each other that they never could be true of any one of his thirty-five varieties—we should soon have to apply to some other corn doctor for farther advice.

The next remarks which I beg leave to notice relative to Indian corn, appear to be editorial. They are contained in an enumeration of the advantages of "*cutting* *up corn,*" over the practice of "*topping it.*" I cannot speak from experience in regard to the whole of them, but am confident that the writer is mistaken at least in *one* of his assertions, if he applies it to southern as well as to northern and eastern corn. He says, "*two smart men cannot top more than one acre a day.*"— Where corn is planted as thick as it always is to the north, this may be, and I presume is true, as the writer states it for a fact; but in a vast extent of our southern country, wherein our corn is left to stand much thinner and more distant, two acres topping would be deemed but a poor day's work, even for *one* "smart man;" for the process with us is a very different sort of business from what it is "down east,"—our laborers having acquired, by long practice, a degree of dexterity in it incomparably greater than an eastern man who had never witnessed it, could believe possible. Again—the writer affirms, that "a hill of corn is gathered at a single blow," in cutting up; but no implement ever yet used among us will do this on our corn, where three or four stalks are left in a hill, which is sometimes the case. Indeed, it requires a strong man, with a sharp hoe always to cut up even two stalks at a single blow, after they have attained their full size.

Under the head of "*succoring corn,*" there is a remark which requires explanation. It is in the following words: "The opinion has been given, and we think well sustained—that the succors perform an important office—that the pollen of the tassels impregnates the male* blossoms after that of the main stock, which develops earlier, has been blown or fallen off."† Now I have always before been taught to believe, that the *male* of every species of animal or vegetable whatever, was the impregna*tor*, and never the impregna*ted*. If, therefore, the male of the corn-plant is an exception, I should be highly gratified to see the proofs. Again—I am at a loss to understand to what part of the main stock the term "blossoms," is applied, for both the tassel and the silk of the ears are generally dry on southern corn, in our climate, before any pollen at all appears upon the succors, supposing them to be left.

The practice of tarring seed-corn, which Mr. L. J. Hopkins has so highly commended, is very generally followed in Virginia, and I believe in the Carolinas.—He could get thousands of planters with us to concur with him in opinion, that it is preferable to all others in preparing the seed. But care must be taken not to use too much tar, or it will injure and retard the coming up of the grain. A single pint to ten or twelve gallons of tepid water is quite sufficient. This should be well stirred before the grain is put in, after which the mixture will be found adhesive enough to attach to each grain as much gypsum or lime, (for both are used,) as may be deemed necessary.

I have been induced, sir, to offer these remarks from a thorough conviction that no subject is more interesting to a very large portion of our agricultural brethren, than that of Indian corn; and moreover that the knowledge they possess of it, still falls very far short of what it might be, if such a course of judicious experiments were instituted and persevered in, by the best informed among them, as might easily be made, and at a very moderate expense.

Should you deem the foregoing observations worth a place in your highly interesting and valuable journal, I present them to you for that purpose, and remain,

Your friend and constant reader,
CORN-PLANTER.

NOTES OF THE CONDUCTOR.

* An inadvertent error of ours. For "*male* blossoms," read "*female* blossoms," or silk. New silk frequently puts forth, in the north, after the first silk has become partially dry.

† We are inclined to favor, though we are not confirmed in this opinion. The pollen, the "impregna*tor*," on the main stock, is sometimes blown off, or beaten off by rains, before all the silk, the "impregna*ted*," has protruded from the husk. Hence a portion of the latter does not become impregnated by the pollen from the main stock, and the terminal end of the cob is consently barren. The tassels of the succors, being later in putting forth, and less exposed to winds, assist to complete the process of impregnation. As an evidence of this, we call to mind the fact, that the earliest ears are always best covered with grain, while those which push late often exhibit a quarter, a third, or a half of naked cob, in consequence, we presume, of want of impregnation. This explanation, we trust, will clear up the obscurity in the text, which seems to have puzzled our correspondent.

Agricultural School.

Albany, 16*th April*, 1838.

To Hon. J. Buel—Sir,—It is with no small degree of difficulty that I comply with the request you were pleased to make in a recent conversation I had with you, in relation to a judicious plan of instruction for the "New-York Agricultural School," and the advantages that will be likely to result therefrom; for my experience has not been extensive nor varied enough for so important a purpose. Therefore, I can only submit the following abstract, which, if it should merit your approval, and be deemed worthy of an insertion in the Cultivator, you are at liberty to make that use of it; if you think otherwise, you have my concurrence.

The chief object of the school should be to form practical mechanics, civil engineers, operative chemists, veterinary surgeons and practical agriculturists. It should be endowed with six professorships of the following subjects:

1. Mathematics and Design.
2. Rural Architecture and Civil Engineering.
3. Natural Philosophy and Practical Mechanics.
4. Geology, Mineralogy and Chemistry.
5. Entomology, Botany and Practical Husbandry.
6. Comparative Anatomy and the Veterinary Art.

The preparatory studies for entering the school should be reading, writing, English grammar, common arithmetic, history, geography, and book-keeping by single entry. No pupil should enter who is under seventeen years of age, who does not sustain a good moral character, and who has not a constitution adapted to active employment in the field.

The instruction of the school should be of two kinds, *general* and *special.*

The *general* instruction should continue two years, to be comprised of *courses* given by the professors at suitable periods, commencing each year on the first Wednesday in January, and continuing until the first Wednesday in September, from which, to the first Wednesday in December the pupils should be put under general examination upon all the branches in which they have received instruction.

During the entire courses, the pupils should be interrogated by the professors on the various branches they are pursuing, and should perform manipulations in chemistry, natural philosophy, mechanics, engineering, rural architecture, and ornamental gardening; and whenever the season would permit, to devote a portion of their time to tillage and other kinds of work connected with rural affairs, and occasionally to accompany the professors or their adjuncts on botanical and geological excursions.

The drawings should consist of plans made with the scale and dividers, and of outlines sketched by the hand relative to the courses pursued; the whole of which should be executed by the pupils, and should be duly verified by the professors. What has been said of the drawings should be repeated in regard to the manipulations. They should be sufficiently numerous to give to the pupils a positive knowledge of every branch pursued.

Independently of the interrogatories and manipulations, as stated above, the pupils should have general meetings for discussing topics relative to their studies, and for digesting memoirs upon various questions of political economy, statistics, &c.

At the end of the second scholastic year, the pupils should submit themselves for examination for their fitness or unfitness of entering the duties of their special education; and if they receive their certificate of capability, they should name, with the consent of their parents or guardians, the career for which they design themselves, and during the third year they should be practically employed in the kinds of business they intend to carry on. Should they be deemed incompetent to enter their special education, they should be permitted to repeat their course of studies, or to depart without any certificate of capability, or even of their connexion with the school.

At the general examination at the end of each scholastic year, there should be selected from the school six of the most distinguished pupils, who should serve as adjunct professors, and who should receive, besides this distinction, their instruction gratuitously during the third year. Independently of their special duties, they should assist their professors, and give elementary lessons to pupils whose preparatory studies may have been too small.

The *special* instruction should occupy the third scholastic year, during which the pupils should be actively engaged in the kinds of business for which they design to prepare themselves, whether to pursue general studies so as to qualify themselves for professors, or to become practical mechanics and civil engineers, operative chemists, manufacturers, veterinary surgeons, or practical agriculturists. They should then be placed under the special direction of the professors of the branches they pursue, who should afford them daily conferences, to point out to them a plan of operations, to follow their progress, and to designate the portions of the courses it would be useful to repeat anew.

The school should be furnished with a library of select books on mathematics, natural history, agriculture and the veterinary art. It should be provided with an extensive philosophical and chemical apparatus, and with a collection of plants, minerals and anatomical preparations. There should be constantly kept on the farm a large stock of the most useful breeds of domestic animals, and an hospital for the reception of sick animals and for veterinary practice. The farm should be large enough to produce a sufficient quantity of food and vegetables for the animals kept upon it, and to embrace as great a variety of soils as possible, and a water privilege. It should be principally tilled by the students, who should be practically instructed in the nature and composition of soils, the economy and preparation of manures, the adaptation of crops to particular soils, and the alternation of crops.

The buildings belonging to the establishment should be well constructed, and adapted to the objects for which they are intended. The laboratories and work-shops designed for manipulation and experiments should be spacious, so that a large number of students can labor in them at a time. There should be attached to the school a carpenter and wood-turner's shop, and of a mounter and turner of metals. Workmen should be employed under the eyes of the students, whether in constructing models for the collection of the school, or in making parts of machinery ordered by the pupils in their exercises, and to give them proper notions upon the handling of tools, the use of the forge, &c.

In fine, there should be placed in the hands of the students all the materials necessary for the construction of agricultural implements and machines, and such as are employed in rural architecture; and, in order to give the work as practical a character as possible, they should have at their disposal a certain number of models, implements, and machines which they can put up and take down, to operate, and to submit to such trials as will enable them to estimate their useful effect.

There should be connected with the school, either directly or indirectly, into which the students could be introduced in order to study the operation, establishments for the fabrication of chemical products; for the making of charcoal from wood; for the preparation of coke; for the extraction of marine salt; for the preparation of lime, gypsum, potash and soda; for the making and refining of sugar; for the preparation of wine, beer, cider, oils, tallow; and for the manufacture of flour, starch, soap, candles, and numerous other products; which would afford the students means to acquire a practical knowledge of the labors relative to their fabrication.

Such is a general plan of what may be deemed proper to improve the condition of our agriculture. Independently of the special objects of this seminary, young men will find a positive education, which will inspire them with a taste for agricultural pursuits, because they will see that labor guided by science is fruitful in useful results. Such a course of instruction will offer to those who shall distinguish themselves a station in society as honorable as it is lucrative, and will be regarded equivalent to a collegiate education, in harmony with the spirit of our institutions, the importance of which will be more and more felt, in proportion to the growth of the mighty west, which will receive new developments, when its political influence is better understood.

When we reflect upon the great interests of our country, we cannot but look with regret upon the neglected condition of our agriculture. For some years past, this all-important branch of industry has experienced serious obstacles, not only from being viewed by many as a degraded occupation, but from the want of attention and intelligence in the great body of our population. We have in our country numerous young men who have ample means for entering largely into this branch of business, but who are too little enlightened in regard to its nature, and refrain from industry, and suffer their capital, even with great losses, to remain dormant. We have others, too, who are without capital, and have a remarkable tendency towards the study of the practical sciences, of which we all feel the need in our actual or our future occupations. The latter class of young men would be incalculably benefitted by this course of education, and might be usefully and profitably employed as civil engineers, as directors of establishments, as well as teachers and professors in our colleges and schools.

In order that agricultural industry may develop itself throughout our country, it is necessary that our practical studies should enter into our manners; and this to such a degree, that each capitalist may find, either in himself or around him, able counsel. We should break down the barrier to every species of industry, and by leaving every man to enjoy the fruits of his own labour, undiminished by the exaction of a rapacious government. Let these principles be the immovable basis of our political economy. Our commerce and our manufactures should be defended and cherished like the sacred soil of our Republic. With means so ample and unembarrassed, we should give more enterprise and extension to works of domestic improvement. A taste for agricultural pursuits should be inspired, and new impulse given to public spirit. Institutions should be established, which, by assimilating the feelings of our citizens, may strengthen that union which is the bulwark of our national independence. Already the influence of our character far exceeds that of our strength, and our claims to the rank of a primary power, are admitted by the whole world, whose attention daily becomes more and more fixed upon our conduct. A great example is wanted by mankind—from us they demand it—and the cause of universal liberty is interwoven in our actions.

I have the honor to be, very respectfully, your devoted servant.
D. JAY BROWNE.

Gauge Wheel for the Plough and Ruta Bagas for Hogs.

J. Buel, Esq.—Dear Sir,—In your April No. of the Cultivator I noticed an article captioned "Help one another," and I can think of no way that I can better help my fellow husbandmen than by recommending to general use the gauge wheel on the plough.

Good ploughing I consider the first requisite in good husbandry, and yet many perform that part of their labor in a very slovenly, imperfect manner.

The article above mentioned, I view as a very important addition to the plough. The wheel should be 8 inches in diameter, and may be made from a plank 3 or 3 1-2 inches thick, with a bevel from near the centre to the outside, reducing the thickness to 2 inches. The tire may be made of common band iron. Bore an inch hole in the centre, place in it a box, reducing the hole to half an inch, which is to receive a bolt on which it revolves. The wheel is confined in iron bars or braces, one on each side of the wheel and beam. The braces should be placed in perpendicular form from the wheel to the beam, a little back of the clevey, through each of which should be three or four holes, and fastened to the beam with a bolt passing through it, with a screw and nut, with a handle, so that it may be easily altered, according to the depth you wish to plough, and from the wheel backwards, angling, to meet the beam a little forward of where the coulter should be put on, and fastened the same as the other ends. They should be 1-4 or 3-8 of an inch thick and one inch wide, so that it may be used among stumps or firm stone without danger.

The advantages of the gauge wheel are numerous. Any one who has ploughed old land in a natural and uneven state without it, knows that it is very difficult to turn the land evenly, all over. With it, it can be done with perfect ease. By having the chain good length, you can enter all the hollows and turn the furrow well on the knolls; whereas, without it, the plough will invariably run so deep on the knolls as to leave the furrow edgewise, and ten to one it will turn back after you. Also, in ploughing where you ascend and descend, it is very beneficial, as the plough will run no deeper down than up hill; and if you wish to plough with three horses abreast, it keeps the heft of the whiffletrees and traces from urging the plough too much onto the point; and while I am here, let me just state, for the benefit of those who may wish to plough with three horses, that you can have a plough built with a play of one inch in the mortice of the beam through which the handle is put, which fill with a wedge, that when on one side of the handle will give it land enough for a single or common team, and when on the other none too much for three horses abreast. But to return. The gauge wheel is of great benefit when you wish to use four horses, as the forward pair can draw direct on a line from the end of the beam without affecting the running of the plough. Finally, it makes it much easier for any team, easier for the man that holds, and does the work far better. The whole expense does not exceed $2, and the only wear is on the bolt and box in the centre of the wheel. My neighbors who have used mine have each one of their own. "To try it is to be convinced." Therefore, to every farmer I would say, get you a gauge wheel.

With regard to ruta hagas for hogs, I would barely say, that I kept my store hogs, ten in number, entirely on them, raw, for more than two months in the last winter, of which I raised some with good success the last season. One and a half bushels per day kept them well. They would weigh probably 150 lbs. each.

If you think the above worth your notice, you may do with it as you think proper, and I am content.

Your obd't serv't,
L. A. BEEBE.

Lima, Livingston Co. 7th May, 1838.

New kind of Wheat.

Sir—Last summer I received from Portugal a sack of wheat, the nature of which you will see by the subjoined extract of the letter that accompanied it. I send you a small parcel that you may appropriate it as you may think best for the benefit of the public.

"*Lisbon, 11th April.*

"They have here a description of wheat which I think may answer your purpose, called Trigo Tremeg, or Trigo de sette somanas, for its being cut sometimes seven weeks after it is sown. It is only grown on the low marshy lands which are under water at the time of sowing the common wheat, or upon the higher lands, when the spring rains have been so violent as to wash the seed out of the ground, by no means an uncommon circumstance here. On the marsh lands it gives regularly a very fine crop; on the hills it is uncertain, for if the hot weather comes on rapidly it gets burnt up before it has strength to resist the sun; if it escapes that risk, it usually gives a more productive crop than the common wheat. It is usually sown in the beginning or middle of May, and reaped in the beginning of July."

Yours very obediently.
L. ASHBURNER.

Stockbridge, Mass.

[Mr. A. will please accept our thanks. We have distributed and sown the wheat, and will hereafter give the result.—*Con. Cult.*]

Mode of disposing of loose Stones, &c.

Plattekill, Ulster, 4th mo. 13th, 1838.

As there is much valuable land in this section of our country rendered almost useless by the abundance of stones that cover the surface, it may be asked how I get rid of them? I answer, there is a lane across my farm which is not at all injured by being covered two or three feet with stones, and the same gravel that covers one foot of stones would cover three, provided the large ones are laid in the bottom and the small ones atop. The same remark will apply to roads, one or more of which is contiguous to almost every farm, and would be rendered better by filling the hollows with stones and taking earth from the hills to cover them.

After clearing my rough land of stones, from the many encomiums on the ruta baga contained in thy valuable paper, I am induced to believe that to be the most likely crop to pay the expense, but it wants manure to cultivate it successfully, and I want all my stable and barnyard manure on my corn field and meadow. Are there not other ways of accumulating a heap of manure sufficient for an acre or two of ruta bagas on a farm of 100 acres? Every cleanly woman uses a barrel or more of soap in a year, and makes much rily water, by cleansing her floors, which, with the soap suds, is thrown out near the kitchen door, and forms a stagnant pool. Its miasma is prejudicial to the health of the family, and the cleanliness of the wife is put to the blush by the slovenliness of her husband.

Now every house is, or should be, on higher ground than some contiguous part of the farm. I would suggest the plan of making an under drain from the house to some low spot, put a fence around it, and a shelter for hogs, which, during the summer, may as well be confined at night as to be in pasture; in this yard throw weeds from the garden, straw, swamp earth, and no disadvantage would result from mowing many a field of St. Johnswort and daisies when in blossom, and consigning the crop to this yard. Now, lest I should tire thy patience, I will write no more.

Jesse Buel. S. HEATON.

A good suggestion.

Wheatland, April 25, 1838.

Dear Sir—I was highly gratified on seeing the proceedings of the State Agricultural Society and Convention. I think the appointing of committees to report on the various items of husbandry is an excellent plan, and if continued, cannot fail of being very useful, and if there were two or three committees to report on each of the most important subjects, it would be better, as there is difference of opinion and practice on the most of them. We could then compare them, and be better able to judge which was right. Being some time ago in conversation with an intelligent gentleman, (who takes great interest in agriculture,) on the best plan for its advancement, he suggested the employment of a competent person to visit the various sections of the country and spend a day or two in each neighborhood, and thus ascertain what each are doing, and wherein they are deficient, and give it to the public through the medium of our agricultural journals, *without giving individual's names.*

I thought that the plan would be an excellent one; if performed by a competent person, it would elicit volumes of useful information.

April thus far has been very cold, with severe frosty nights, which has very much injured wheat on most ground, but dry soils as yet stand it well, which proves the great advantage it is to the cultivator to *ridge* and screen the ground so as to keep it dry.

WM. GARBUTT.

Remark.—The suggestion of our esteemed correspondent is a good one, and is virtually recommending an agricultural survey of the State—by which a knowledge of the best practices of every district, and of every good farmer, may be made known to, and adopted by, every farmer in the state who is desirous of improving his condition. There is no doubt but this important subject will engage the attention of our legislature,—*as soon as personal and political matters will permit them to attend to those of a primary and public nature.* As agriculture is of no party, she cannot expect her interests to have precedence of those which promise personal or political aggrandizement.—*Conductor.*

Mineral Manures.

Although there is much to please and interest the mind in practical farming, yet devoid and apart from the theory, it is little else than a routine, suited to the capacity and ambition of uncultivated minds. An active and enlightened mind seeks to understand the cause and effect—to apply the sciences; in short, it is restive, until the queries embraced in agriculture, are disposed of and determined upon sound philosophical principles. 'Tis this constitutes theory! and 'tis this theory, that unfolds a world of beauties to the scientific agriculturist, of which the mere prejudiced practical farmer, the mere tyro and novitiate, must remain ignorant, and that too, of the highest branch of the profession which he follows.

The improvement which has been effected within the last twenty years in several of the eastern counties of Pennsylvania, (and *especially* in Chester,) is almost incredible. And the whole is mainly attributed to a regular and judicious use of lime as a manure. To me, it has been matter of astonishment, to find this inestimable restorative meet with so little favor in the minds of the conductor and correspondents of the Cultivator. My farm is situated in a district of secondary formation, and the soil is principally calcareous, yet I have seen the most surprising beneficial effects attending the free use of lime and plaster; the latter apparently reacting on the former, and consequently, the greatest benefit is derived by using them together. The crops, not only on my own farm, but on others in this vicinity, have been doubled by a free use of mineral manures. When a farm has been improved so as to produce heavy crops, there will be such a corresponding increase in the quantity of stable manure as to insure its future fertility.—I look upon the immense beds of limestone in this region as an inexhaustible store, designed by the wise Governor of the World to keep up the strength of the land, in all time to come. I regard the limestone of Pennsylvania as a mineral, which will confer more real benefit upon posterity than any of her other mineral treasures. The aid which it promises to contribute to the support and improvement of her agriculture cannot be easily overrated. Some idea may be formed of the estimation in which lime is held here as a manure, by the fact, that farmers come from 25 to 30 miles, i. e. from Maryland and the poor district of primitive formation in the southern part of Chester county, bordering on the Maryland line, to my lime-kiln and others in the neighborhood: the lime costing those farmers twenty-five cents per bushel when delivered. To the farmers in that quarter, lime is the "anchor of hope;" *there* it has already made the barren and desert place *glad*, and is fast putting a new and improved face upon the country. The farmers, *even there*, with this far fetched means of improving their land, prefer bettering their condition by liming near a good market, rather than migrate to the exuberant soil, and realize the utopian dreams and fairy tales of the "far west."

On part of my farm, 300 bushels of lime per acre have been applied within 30 years, at the rate of about 100 bushels per acre at a dressing, and always put on fresh, and slaked, then immediately spread. I am not inclined to believe that lime should become carbonated before it is applied. I adopt Sir Humphrey Davy for my prototype, in every case involving agricultural chemistry. I shall be encouraged so to do, until some modern wiseacre can clearly demonstrate that Sir H. is wrong. Doubtful points in Davy's theory have become demonstrable truths with me, after being aided and enlightened by the lamp of experience. Lime, in its fresh caustic state *only*, while an alkali, acts as a decomposing agent in the soil, rendering vegetable substances soluble—but when a mild carbonate, it operates only like marl, in improving the texture of the soil, according to Davy, whose authority is unquestionable, and the theory, at all events, may fairly challenge contradiction; hence the advantage of applying lime, like stable manure, in its fresh state.

With regard to the theory, or the manner, in which gypsum operates on vegetation, an accidental circumstance which occurred in my practice and under my own eye, goes further to establish the truth in my mind, than all the ink that has been spilled on the subject; even the adopted theory of Prof. Low and British Husbandry to the contrary notwithstanding. In April, 1832, I sowed a ½ bushel of plaster on a small piece of land in the middle of a wheat field, for experiment,—in order to ascertain whether the plaster would have the slightest effect, even of changing the color of the wheat,—the result answered my expectations; there was not a shade of change in the color of the wheat in the future stages of its growth. In autumn following, the same field was again ploughed for wheat, and the plaster of course turned down, the field was deeply ploughed, say seven or eight inches—the spring following the field was sown with clover seed; the secret *then* was speedily developed; when the wheat was cut in harvest the growth of clover on that same land which had been sown with plaster was so luxuriant as to interfere with the cradle in cutting the wheat. Soon after harvest, the clover on the said land flowered, and a heavy swarth might have been mown on it in September following. The adjacent parts of the field, with the same soil and culture, exhibited a sickly contrast. In the autumn of 1833, the clover on said land was trodden down by stock, returning manure to the soil, and by that means the plaster *indirectly* prepared the ground for a sure crop of wheat.—This one single and simple fact, serves to overthrow the theory that plaster must be sown on the plants, to be absorbed through the pores of the leaves—attract moisture from the atmosphere, &c. This mooted point I consider settled, and the soil and roots made the laboratory instead of the leaves and the atmosphere.

Although my agricultural career has been only short, yet the great object, *improvement*, has been ardently and zealously pursued—sufficiently, indeed, to create a most utter and implacable abhorrence against all vague and unfounded theory, which is the bane of the agricultural press. The mere conjecture of a writer, if in error, will do no harm; but 'tis the *positive* declaratory assertions, where wrong, that do mischief, inasmuch as many believe and adopt what they read.

Quere. Why is it that lime and plaster act much more efficiently when both are applied to the soil, since the base of *both* is lime?

WM. PENN KINSER.

Springlawn Farm, Pequea, Lan. Co. Pa. April 25, 1838.

Planting Corn and Potatoes.

Mark out the field (large or small,) one way two and a half feet apart, then plant two of these rows with potatoes, and two with corn, alternately. Both corn and potatoes to be planted fifteen inches apart between the plants or hills. Plough among the plants only one way, or any other process of horse hoeing in the same direction, not only cleaning and pulverising the soil, but laying up the earth to the potatoes, so that very little hand hoeing is necessary; and whatever the *produce* may be, the *number of plants or hills* is at least four, often five or six times, greater, than common planting by the acre. The philosophy of this mode of planting is, that the potatoes do not shade the corn any, and every row of corn is an outside one, so that it has light and air in abundance, and the potatoes are not hurt by the partial shade of the corn. I am a Scotch farmer.

J. Buel. WM. SMALL.

A too Common Case.

New-Scotland, April 18, 1838.

Mr. J. Buel,—Sir,—Having been a constant reader of your valuable paper, the Cultivator, since its first publication, I have invariably found you quite anxious to better the condition of the agricultural community generally. We New-Scotland farmers, many of us, are like the man who held the six-pence so close as not to see a dollar at arm's length. Our practice is as follows: if the land be nearly exhausted, to plough and sow the more, to obtain the greatest possible quantity of grain for market as soon as possible—to take crop after crop of small grain, and apply no manure, (except perhaps plaster) as long as a medium crop can be obtained—to reduce the stock in proportion to the quantity of hay and grain that may be on hand at the setting in of winter. The consequence is, a diminution of the quantity of manure, the stock so sparingly fed as to be quite unprofitable, and the farmer discouraged. You are no doubt ready to denounce these practices as bad, yet there are two causes, (and perhaps more) which go to confirm them; the customs of our fore fathers, having forgot that it has fallen to our lot to renovate a worn out soil, and the want of sufficient capital. With regard to my own practice, I must confess, I am robbing my land of its just due every year for the want of capital. Every ton of hay and straw, and every bushel of grain which I raise, should be consumed on the farm for ten years to come, at least. I am of opinion that had I kept all my produce of last year, ground the grain, and chopped the hay and straw, I could have kept twice the stock, and this rule may be applied to all my neighbors.

With regard to the foregoing remarks there are perhaps some exceptions, yet they apply to New-Scotland too generally. It is evident, then, our condition, as farmers, needs to be bettered, and if you think we need skill more than capital, (as we know you can impart it,) we shall look to the pages of the Cultivator.

W. M.

To relieve choaked Cattle.

Agawam, Hampden Co. Mass. April 24th, 1838.

Judge Buel,—Dear sir,—Observing in your valuable paper several communications on relieving choaked cattle, I take the liberty to state a case that came under my observation, which was as novel to me as it was efficacious. A neighbor of mine called on me one morning, a few years since, to assist him in relieving an ox of his that was choaked some time during the night, in consequence of breaking into an orchard; the ox was much bloated and in great distress, and it appeared he could not live many minutes. While making active preparations to relieve him, an elderly lady belonging to the family emptied part of the contents of a small snuff box into her hand and applied it to the nose of the ox; the relief was almost instantaneous, the bloat rapidly diminished, and the ox five minutes after ate some hay laid before him. I never heard of the remedy before, nor have I known it tried since, but in that case it was effectual.

Yours respectfully,
JONA. E. FERRE.

Plants exhaust moisture.

Judge Buel,—Sir,—In Mr. D. Tomlinson's communication in Cultivator, No. 2, vol. 5, on sowing grain early and feeding it off, he presents one idea, which I think is an error, and has a bad tendency. He recommends sowing grain early, (so do I these cold seasons,) so that it *"should come forward, shade and protect the ground from becoming too dry by early drought."* I suppose, from your remarks, which follow, that you either did not notice the above quotation, or else you are of the same opinion, that ground covered with vegetables will not become as dry in a drought, as it would if it lay naked. If vegetables do protect the ground from drought, then we cannot differ from our neighbor, who, in a dry time, remarks, that he shall not hoe his corn and turnips until it rains; he wants the weeds to shade the ground and keep it moist, or *"shade and protect the ground from drought."* As many farmers suppose that the shade of trees and vegetables keep the ground from becoming as dry, in a dry time, as the naked ground, I would mention that experiments, as well as reason, has satisfied me to the contrary.* I have found, by digging where the ground was equally loose or mellow, in a naked summer fallow, and corn field, where the corn nearly shaded the whole ground, in a very dry time, in August, that the ground in the latter, was at least a hundred per cent the dryest. The reason for this is so obvious, that it needs no explanation from me, and I offer none, unless called for. If Mr. Tomlinson should *"engage again in farming,"* and examines his grounds in a drought, to find where they are the dryest, I think he will find it to be in his upland meadows, or under the shade of a tree in his meadow, (I mean to except roads and other hard trod ground,) if it is a little before haying.

Yours respectfully,
WM. BURNHAM.

Madison, April 28, 1838.

Force of Habit.

Chillicothe, Ohio, April 11, 1838.

J. Buel, Esq.—Sir,—The soil in this Scioto valley is naturally so rich, that our farmers have heretofore considered that there was nothing more necessary on their part to ensure a crop than merely to put in the seed, and bestow upon it a small amount of *rough* working. But we find, tho' the country is but about forty years old, this mode of culture has been such a continual draw upon the native strength of the soil, that manifest symptoms of exhaustion appear. This is causing some farmers to think upon the necessity of altering their mode of culture, and seeking for new lights upon the subject. But this waking up to a consideration of their true interest and that of the country, is not general among our farmers; there is but here and there one who has been brought to think upon the subject; hence the small number of subscribers to your valuable paper, and the scattering manner in which they are sent you.

It is a hard thing to break through ancient prejudices and habits. You ask a Scioto grazier how much corn it costs him to fatten an ox—he will tell you from 75 to 80 bushels. You question the necessity of expending that quantity upon an animal, and his economy in feeding, he will say to you, I have been engaged in feeding cattle for more than 30 years, and can be taught nothing respecting the business. To another, who practises no rotation of crops,—you say to him,—by taking off a crop of corn from your land year after year, burning the stocks, and neglecting to put any manure upon it, you will exhaust the soil and impoverish your land. He will reply, "I am an old corn raiser, and perfectly understand the making of that crop."

Light must be let into such minds by degrees; and I know nothing better calculated to lead farmers to thinking upon the subject than reading the Cultivator.

Very respectfully, &c.
NATH. SAWYIER.

On steeping seed Corn.

To prevent birds from pulling up or insects from destroying corn when planted, soak the corn 24 hours in a solution of salt petre and warm water; then, after draining off the water, take three parts tar to two parts of fish oil, warm, and mix them together, and put the mixture on the corn, stirring the corn until the mixture adheres to and covers the grains; after which it may be rolled in plaster, lime, or ashes, to prevent the grains sticking together when dropping. It is thought the tar prevents too much wet, after planting, from rotting the corn, and the oil prevents too much dry weather from drying the tar and thereby forming a crust around the grain that a sprout cannot get through, but both together make the mixture of a proper consistency that retains the moisture, renders the covering soft, and admits the sprout to get through. The above method has been tried a number of years by Mr. Ephraim Clark, a highly respectable farmer of Westfield, N. J., a number of whose neighbors also have tried the same with beneficial results, rarely having had to plant their corn over prepared in this way.

N. B. The same preparation answers well for Lima beans.

The above method was communicated to me by Mr. Ephraim Clark, who gave me permission to send it for publication.

Yours, &c.
WILLIAM MARSH.

Rahway, April 24, 1838.

Tonawanta and Tuscarora Hogs.

Tonawanta, 27th March, 1838.

Sir,—I notice in the extra of this month, which has but just reached me, among matters both sage and interesting, the very excellent report of the State Agricultural committee on swine, in which I find that you honor our young town in the name of a *distinguished* breed of the grunting gentry. We take the affair quite as good humoredly as it is there represented, and can only regret the "non-accompaniment of the sketch terrorum," as a finish to the no less just than comical picture. We hope it may yet be found, and grace the columns of your admirable journal as an *eschewing* beau ideal, for all future pig breeders. I suspect, however, that when the said portrait does appear, it will find many a faithful original, not only in Tonawanta, but where-ever the Cultivator may happen to circulate, be it in the forests of the north, the settled regions of the east and south, or the wild prairies of the west, and alike recognized, a wandering, squealing, grunting, raw-boned, thick-skinned herd of Ishmaelites—profitless to their owners and a nuisance to their neighbors, whose hand, or rather *snout*, is against every man, and against which every hand in the land should be indiscriminately raised.

Thus much in corroboration of the Tonawanties.—Allow me now to regret, that the committee had not extended their researches a little further in our good town. They would have then found, through the spirited exertions of a few individuals, another breed grown up among us, that I, at least, think the very perfection of swine, and that will prove to hogs, what the Durhams have to cattle, viz. combining in a very eminent degree the best qualities of all others. These also bear an aboriginal name, the noble sounding Tuscarora, and have been found mainly by a judicious crossing of the improved China with a very superior breed from Canada, and a slight touch of the Berkshire, giving them nearly the fineness of bone, the quietness and aptitude to fatten, together with the delicacy and sweetness of meat of the China, and a trifle more than the size, and an equal goodness of ham, of the Berkshire. They are beautifully spotted, of a clear black and white, the colors showing about equally,—are fine in the head, small ears, short legs, long, broad and deep bodied, and square lady sloped sterns, being in this last point, in my humble judgment, a very handsome contrast to the Berkshires.

The tenants of the Hon. Stephen White and A. B. Allen, Esq., rear them in the greatest perfection, but thus far have been rather chary in offering them for sale, preferring first to tolerably perfect the breed. Mr. Allen now proposes to part with boar pigs. He has also a stock of the improved China and Berkshires, so that gentlemen addressing him may be sure of a choice in the only breeds that are really worth cultivating, and I will venture to say as fine animals as can be imported or found in any other part of the country.

Thus, sir, having taken up the cudgel in an amateur whirl on behalf of the productions of our flourishing young town, and, as I hope, done the numerous readers of the Cultivator some service, in introducing to them, for the improvement of their own stock, a new variety of the honorable, grunting fraternity.

I remain, very respectfully, your ob't serv't. A.

P. S. 6th April. Since writing the above, I have had a look at the Cultivator of this month, in which I see a real racer, mounted over a fat Berkshire. He certainly is a *caution*, as we say here in the west, and gave us many a hearty guffaw. Pray, sir, is this the "Tonawanta sketch?" If not, let us have it, as I think our varied breeders here can match you for any thing pictured, be it *fat* or *lean*.

Reclaiming Swamp Land.

Glassboro, N. J. April 24, 1838.

Dear Sir—With your permission I will avail myself of the present opportunity to thank you for the suggestions contained in the March No. of the Cultivator, in reply to my queries respecting the improvement of my worn out lands. If it will not tax your patience too far, I will again call your attention to this *to me* most interesting matter. My experiment with the ruta baga has been most satisfactory. My milch cows, fed upon nothing but very indifferent hay, with a half bushel of turnips cut tolerably fine a piece, given twice a day, make butter, which, for color and flavor, I think, will not suffer in comparison with that made from the best clover pasture—while their appearance is so sleek, notwithstanding their having been exposed, without any kind of shelter, to all the storms of the past winter, that the question has been asked by others, have they not been fed on grain? This season, I am going to try to raise double the amount I did last.

But the matter I had more particularly in view when I commenced this, was to ask your advice in regard to reclaiming a piece of branch meadow, containing about twenty acres, situated on a part of my premises. This meadow lies at the head of Prince Maurice's river,—once part of an extensive swamp—and has at this time a soil about six feet in depth, composed of alluvial deposit. Twenty-five years ago this, with the rest of my farm, was in a fine state of cultivation, producing heavy crops of valuable grass. But it is now a waste, covered with a solid mat of moss, partly overgrown with bushes, with scarcely a spear of fine grass throughout its whole extent. Its only ditch is cut nearly through the middle, following the serpentine course of the original stream; the whole is now wet and miry. The bushes I know what to do with—but how am I to get clear of this infamous moss, which now holds such entire possession? What plan shall I pursue in draining it? And when reclaimed, how is it to be got into grass? Any information respecting the above, will be gratefully received by

Yours, E. C.

Remark.—Water—excess of water—is the undoubted cause of infertility. It probably comes from the higher grounds, and has to pass to the central ditch for an outlet. If our correspondent will ascertain its source, and conduct it off before it saturates his six feet soil, and will clear off the moss and bushes, and stock it with grass seeds, there is no doubt but it will again produce valuable crops of grass. Let a good under drain be made upon the borders adjoining higher grounds, to catch the water and lead it into the main drain; and if the wetness continues, make lateral drains; and if the water comes from spouts or springs on the flat, the source of the evil must be sought out, and the remedy, a drain from it, applied. Make the main drain straight, at least four feet broad at the surface, and three to six feet deep.—*Cond.*

Agricultural Books—Ruta Baga.

Unionville, April 7th, 1838.

J. Buel, Esq.—Dear Sir—Permit me to avail myself of this opportunity to convey to you my own and the thanks of our Agricultural Society for your kind assistance to me in procuring books for our library when in Albany in 1836. We should be glad to see in the Cultivator a notice, from time to time, of such publications as you would consider a valuable addition to an agricultural library.* We are adding some few volumes to our library, as we have opportunity, but we find it very difficult to procure suitable books to any extent for such a library, and still more difficult to get farmers to read them when procured.—Nothing that has ever been introduced into our agricultural society here has met with more opposition than the introduction of agricultural books and periodicals, and it is only within these two years past that the one or two persons that have advocated it these eight years past could get a majority to consent to it at all; and we believe that the same amount of money has never been expended by the society in a way to produce as much lasting benefit to the community; and the managing committee of our society, which is now called the District of Johnston Agricultural Society, have become so far sensible of this, that they have determined still farther to increase the means of information, by placing in the hands of each member of their society, (that pay two dollars a year or upwards,) a monthly agricultural paper gratis, and it is in furtherance of that determination that I am authorized by them to make the above order. We have ordered papers from other places, and the probability is, that we may be under the necessity of troubling you with further orders before the termination of the year. Since we have adopted the plan of diffusing the means of information, we find it far easier to get farmers to introduce new plans of improvement in their agricultural operations. Notwithstanding the slowness of our progress in the scale of agricultural improvements, in comparison with what is being done in some parts of Europe and the United States, yet it ought to be matter of some encouragement to us, that by making a seven years comparison we can discover that we have progressed a little. Our Society was formed in 1830, and as was usual at public meetings at that time, the brandy and wine bottle was brought in abundant requisition, and after the close of business, the meeting was broke up in dispute and disorder. But clear cold water has now taken the place of the brandy and wine bottles at our agricultural meeting dinners, and generally supersedes the use of whiskey in the field; and we expect for the future to bring clearer heads and sounder understandings to our assistance in hastening mental and agricultural improvements. Six years ago an attempt was made by the managing committee to introduce the culture of the ruta baga, by offering a small premium to any one who would cultivate a quarter acre, but not an individual could be induced to make the trial. But last year a number of pieces came in competition, and received premiums. My own received the first, and yielded at the rate of about six to seven hundred bushels per acre, and this year there is a prospect of considerable being cultivated, if seed can be obtained. Mangold wurtzel would receive a trial also, if we could get seed.

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* Mr. Burnham is correct.—*Con. Cult.*

* We are not aware of any recent publications on American husbandry, except our agricultural periodicals. If Chaptal's Agricultural Chemistry, Low's Elements of Practical Agriculture, and the Farmers' Series, published by the British Society for the promotion of useful knowledge, were not included in our former list, we can recommend them as valuable acquisitions to an agricultural, or farmers' library.

J. G. BOOTH.

Economy of Manures.

Hagerstown, April 25th, 1838.

To Jesse Buel, Esq.—Dear Sir—* * * In speaking of 40 loads of manure to the acre for corn, does Agricola mean cart or wagon loads? I find a much smaller number of wagon loads of long manure from my farm yards, (so constructed as to retain all the *lye*, and the manure completely saturated with the lye,) a handsome dressing for corn. On the subject of manure, I will observe, that my system is, to carry out from my farm yard two crops a year. The first crop is made chiefly from straw, during the fall and winter, and carried out in March, for my corn crop. I then, immediately, commence feeding my corn stock fodder, brought in and stacked near the farm yard, so as to be fed and littered away in my farm yard, where my cattle and horses are kept until the middle of May, or the crop of fodder is consumed. By keeping my cattle up in this way until late in May, I find their manure, mixed with the corn stalks, produces fermentation and decomposition by the middle or last of August, so as to enable me to use the manure to great advantage on my fallow fields as a top dressing, to be harrowed in with the seed wheat. This year I shall keep my cattle, &c. in my farm yard after they have consumed the corn fodder, and feed them on clover, cut and brought into the farm yard and fed from racks. This, I think, will greatly enhance the value of the manure, expedite fermentation, and tend greatly to decompose the corn-stalks. My corn field will be an old clover field, mixed, I regret to add, with too great a quantity of wire or blue grass, (to get rid of which I wish you to instruct me.) The sod is turned under, deep, in the fall. In the spring, the spring crop of long manure is applied, and the ground cross ploughed, throwing the long manure below, and the sod turned under the last fall, a great portion of it is brought to the surface, which, by the use, then, of a heavy harrow, twice applied, is well mixed with the soil, and my land, I find, in good condition; and by the use of the Cultivator, frequently used during the summer, my crop of corn will be productive, and the land put in fine tilth for small grain. I have been surprised to find the sod turned under the preceding fall, on being brought to the surface and exposed in the spring, easily pulverized and incorporated with the soil, and so decomposed as to furnish, I would suppose, fine pabulum for the young corn.

The above remarks, hastily thrown together at a leisure moment, are intended to elicit your opinion. A short letter in reply, (or full on every subject, if you can spare the time,) will be esteemed a favor.

I am, sir, very respectfully, your ob't serv't,

F. TILGHMAN.

Remarks.—We are inclined to think that cross ploughing for corn both wastes the fertilizing matter of the sod, and encourages the growth of blue grass. We venture to suggest, that the spreading of the spring crop of long manure in the spring upon the clover ley, and *then* ploughing it under well *once*, would be a preferable course. If the sod is found to decompose in the winter months, it will do so much more readily in the spring, particularly if aided by the leaven of long manure. Mr. T. will find his queries, in regard to preserving corn, and to what constitutes a load of manure, in a measure anticipated in other columns of this paper.—*Cond.*

To the Dairy Women of our Country.

New-York, April 25th, 1838.

The undersigned, dealers in butter and cheese, would call the attention of the manufacturers of these articles in the middle and western part of this state, to the existence of general and just complaints in regard to the quality and condition of both butter and cheese made in such sections, together with the packages. In view of this fact, and to encourage an improvement that will restore and increase the reputation formerly enjoyed by producers of these articles, they would respectfully submit to their consideration, the following views, relative first to the manufacture of cheese:—In all cases, the milk and rennet should be perfectly sweet; as much of the animal heat should be evaporated from the milk as time will admit; when the curd is properly produced, break it up very fine, cook it well, but do not heat it so much as to start the oil in the curd; season it with clean fine salt, pure from lime; put the cheese in the press cool; press it hard, in order to extract all the whey from the middle before the outside closes tight; continue to press for two days; from the press put a dry cloth over it for a few hours, until a rhind is formed—then put on Annatto, dissolved in strong lye; cover again with cloth until next day; after the cloth is removed, put on a thick strong coat of melted bees-wax and lard, or butter; get a bright smooth surface, and keep one, by constant rubbing and turning, until the cheese is perfectly cured. When put in the casks, let it always be done in cool dry weather. All cheese should be slightly colored with Annatto in the milk, and such as do not exceed fifty pounds in weight, should be made a bright orange color—cheese of this description being generally in good demand for the southern markets. Finally, there should never be any late cheese. In no case should cheese be sent to market made after the 15th day of September, nor should it be sent even thus late, unless the utmost pains is taken with it, and unless well cured by a fire. It is of the greatest importance to the dairying interest, that these rules, in regard to late cheese, be strictly conformed to: for this kind of cheese not only destroys itself and greatly injures the market for a good article at the present time, but should the practice of making and sending it be persisted in, it will eventually destroy the business. To prevent any loss to the farmer, the undersigned would advise them to make butter after the 15th of September. Butter made after this time always commanding a fair price.

2nd. Of cheese casks.—They should be smoothly and well made of good seasoned wood, not less than half an inch in thickness for small casks, and five-eighths of an inch for large casks: the heads of all large casks should be at least five-eighths of an inch in thickness, to prevent them from springing; the staves should be narrow, in order to preserve their places and keep the cask round; there should be always a fair bilge, with at least eight good substantial hoops, (maple hoops should never be used,); the quarter hoops should never be put down so low on the casks as to allow the staves to spring out when the head hoops are taken off; the other hoops should all be securely nailed.

3rd. Of butter.—In all cases where it is made from cream, it should be churned before the delicious flavor is lost, or any bad flavor is induced; avoid too much heat in the process,* as this causes the butter to be soft, and of fine grain, bordering on a waxy character; never fail to extract every particle of milk before it is laid down; season it with rectified fine salt, or ground solar salt, and work in no more of it than will be entirely dissolved—where any of it is left undissolved, it destroys that delicate rosy flavor which renders the article most desirable, and its value diminishes in proportion to the excess of salt—this being one of the greatest objections to western butter.

4th. Of the packages.—The undersigned would recommend two kinds, viz. firkins and Welch tubs.—The firkins should be made of seasoned white oak and walnut hoops. Where white oak is not to be had, they should be made of heart stuff of white ash, and hoops of white or black ash, or elm, of good shape, and perfectly smooth; have on at least ten good hoops, smoothly shaved; be perfectly tight, and contain 100 lbs. Welch tubs should be made of seasoned white ash, hooped with seven substantial split ash hoops, smoothly shaved, to contain 100 to 120 lbs. Both firkins and tubs should be soaked with a strong pickle, in order to saturate the wood before the butter is laid down, (but never put any salt at the bottom or on the top of the butter.) Great care should be taken to put it down solid; never fill the packages so full as to have the head or cover touch the butter, and always make a smooth surface on the top with the ladle. The tubs and firkins should be weighed, and the actual dry weight marked upon them with a marking iron in such a manner as not to be obliterated; and let them always be found accurate.

In conclusion the undersigned give it as their decided opinion, that the manufacturers of cheese and butter in the middle and western parts of this state, who will observe the above rules, and unite with the observvance a desire to make their articles of the first quality, after a little experience, will soon be able to compete with any part of the United States, both in quality and prices, at home or abroad. Possessing, as these manufacturers undoubtedly do,—one of the finest soils, and best adapted to grazing of any in our country, they may produce the article in the greatest perfection. On this, as well as other accounts, the undersigned wish to impress upon their minds the importance of this subject, and that the course recommended is the only one which will secure to them the advantages of a fair price and good reputation for their labor and pains.

Leggett & Lapham,
Nathaniel Gordon,
Wm. H. Davenport,
Burrell, Perry & Co.
John Johnson's, Son,
Gregory & Brown,
Walter Sutherland,
Eleazer Mills,
P. Pidgeon, Broker,
Abbey & Atwood,
A. B. Meech & Co.
Smith, Howe & Palmer,
Stickney & Dean,
Gove & Brown,
Charles F. Joy,
Robert Nisbet,
Seth Miller,
Cook & Gage,
Varnum S. Kinyou,
John P. Snell,
Curtis Easton & Co.
Nisbet & Husted,
Henry W. French,
Charles Stanton,
Solomon Petree,
John J. Owens,
Ashley Devenport,
A. H. Buel,
Henry Carter,
Chas. Stokes.

On Steeping Seed Grain.

Ionia County Seat, Mich. April, 1838.

Sir—Having recently become a patron to your excellent and very useful paper, and in the last volume finding several communications upon the subject of steeping seed corn, from persons who have been unsuccessful and are adverse to the practice, I feel disposed to offer a little of my experience in its favor.

It is now some twenty years or more since I first inherited the practice (from my elder brother,) of steeping seed corn in a solution, of sal nitre, and have ever derived manifest benefit therefrom. One object of this communication is to relate the effects of this practice on a particular occasion, which, however incredible it may appear to some, is not the less true. Another is to encourage those unsuccessful steepers to try again and again—try on. In the spring of 1826, I planted twelve acres of corn on a green sward recently turned over; harrowed and the rows marked out, and as usual put my seed a steeping the evening previous to the commencing the operation of planting. Repeated experience had proven to me that if the planting was accomplished before the cold easterly storm commences, which visits our country between the 5th and 20th May usually, my corn was more thrifty, would better endure a drought, and be beyond the effects of early frosts; while the older farmers in my neighborhood, who waited for that storm to pass by, were sure to have a poor crop, when that storm was late, or a drought followed, as was sometimes the case. On this occasion the storm came on in the midst of the planting, and drove the men from their labor. The seed in a tub was brought home and put in the carriage-house, and in hopes the storm would pass off in a day or so, the liquid was not poured off, but remained with the seed until the germs had grown a quarter or three-eights of an inch; in this state the seed was emptied upon a piece of very coarse sacking, the corners of which were pursed over a hoop and fastened, and hung up to drain, where it remained for some days until the storm was over, when the planting was recommenced with this sprouted seed, the germs of the corn having become wilted somewhat and thereby toughened, so that they would not break off, readily satisfied me that the seed would grow; the planters being faithless, thought to improve the matter by putting in five and six kernels to the hill, instead of three or four, as I had directed; the first consequence of which was, that the seed was all used up before finishing the ground, when I knew there was an abundance. This was, however, kept secret from me until the corn told the tale, and I was obliged to pull up at least one-third of the corn so planted, and showing satisfactorily that the seed all came up.

My invariable mode in preparing the seed was to put the nitre into boiling water, that it might the more readily dissolve. As to quantity I was never precise, but as we Yankees would say, "guessed at it."—When the nitre was all dissolved, and I could bear my hand in the solution, I poured it upon the corn, and if there was not sufficient water to more than cover the seed, added more warm water, otherwise the swelling of the seed would soon cause a portion of it to be out of the water.

Should you deem this communication useful in what I esteem the very excellent practice of seed steeping, you are at liberty to make such use of it as may seem proper. Very respectfully, sir, your obd't servant,

J. Buel, Esq. TRYON.

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* It has been found, that the *best* and *most* butter is obtained when the cream is about the temperature of 55°—and if the temperature is over 60°, the quality is inferior, and the quantity diminished. Hence, every dairy should have a thermometer.—*Conductor Cult.*

Deep Ploughing—Steam Engines—Wisconsin.

Buffalo, April 12, 1838.

My Dear Sir—Under the head of "good tillage," in your last number of the Cultivator, you have thrown out some most valuable suggestions as to the mode of ploughing. Your recommendation of *deep ploughing* is one that I have thought for some time, should be made a subject of special attention by agricultural papers, and *insisted on,* as the *great augmenter of nutriment for vegetables.* By breaking up the hard, compact earth, which sustains the vegetable mould, and disintegrating this indurated mass, the atmosphere, and rains, and dews, have access to portions of earth hitherto beyond its reach, and as you have conclusively shown, rapidly fertilize and render it capable of sustaining vegetable life. This increase of the *pabulum* of vegetables by the difference of the *mode* of culture, without addition of expense for *material,* and scarcely any of labor, seems akin to that of increasing the food of animals by steaming simply; the first makes *two* blades of grass grown where only one grew before, and the last makes each blade go twice as far; the result of the combined improvement of deep ploughing and steaming, giving as four for one over the common methods. These topics should be insisted on strongly and constantly, and whenever adopted generally through the country, farming will become what it really is, and ever ought to have been considered, not only the *first* and *noblest,* but the *most profitable* occupation of man.

This subject acquires great additional interest when applied to our western soil. With us, and throughout the great west, nearly all, (I think I speak within bounds in asserting seven-eighths at least,) of the land in the west, is what is called *clay,* having a clay sub-soil, with a large share of this earth intermixed with the super-soil. This is eminently the kind to be most improved by deep ploughing. This earth is so adhesive that it forms a perfectly solid mass, impermeable to water and the atmosphere in the slightest degree, and while remaining in this state, incapable of furnishing the least sustenance to vegetables. Yet this same sterile material, so worthless in its natural condition, becomes by proper cultivation, the most fertile and valuable, capable of producing, with proper additions of coarse manures, every variety of crop in the greatest luxuriance. *Deep ploughing* is the first and essential requisite for this, and now sir, how are we to apply the remedy? We have no plough that is at all suited to this object. "Smith's sub-soil plough" referred to, we have no description of, and know not where to obtain, till you, sir, do your subscribers the favor to direct them where they can be procured, or give a description so minute that any ingenious mechanic can make one. With this instrument, however, it seems to me a *steam propelling power* should be used, as the great additional labor to be done will require a considerable increase of power, which will render the application of steam peculiarly appropriate and desirable. Indeed from the great saving which steam would afford in this branch of husbandry, it is somewhat surprising we have not yet had even one successful *steam plough.* In the spring of '36, while travlling over the fertile praries of Wisconsin, I was struck with the perfect feasibility of the application of steam to ploughing, and of its great utility too, as I saw some eight or ten yoke of large cattle attached to an axletree, to which a plough was fastened, and this with no one to hold it, and only a single driver, was turning a furrow of almost interminable length, at a snail's pace, which it is almost impossible to quicken with oxen attached to a plough of any kind. There was nothing in this operation which was not perfectly mechanical, and coming within the scope of *machinery,* under competent management. For a large portion of the west, (with us as well as elsewhere, when the ground is clear of stumps,) and over all the level lands of the east, such as the large and fertile intervals of the Connecticut, in and about Northampton, where by a judicious municipal arrangement, fences are done away with, tracts of thousands of acres could be ploughed in a body by a single machine, at an expense of probably one-fourth the present cost of ploughing, and this too may be done with scarcely a perceptible increase of expense for any additional depth, and others by combining the two improvements, steam and deep ploughing, we obtain our great objects, *the fertilization of the soil and the large increase of vegetable product,* at an expense very much below that of the ordinary method.

Mr. Dutcher, of New-York, the successful competitor for the premium plough at the fair of the American Institute last fall, is experimenting on a steam apparatus, as I was informed when in the city last winter, but my search for his establishment was unsuccessful, and I know not what progress may have been made in perfecting one. It is to be hoped, however, it may not be deferred beyond the period absolutely required to complete it.

Allow me, sir, to suggest an idea or two which you can make of benefit to the community, though a little out of the path of *agriculture.* Cannot *steam* be used to a great extent in enlarging our canal by applying it to excavating machines, which will work perfectly well under water? I have used such a machine in some parts of our harbor, that with horse power would do the work at from six to eight cents the cubic yard. Could excavation be done as cheap even if the water were excluded?

In the long reaches of the canal, where locks were not interposed, could not a large saving be made by laying a slight rail-way on the tow-path for a locomotive, that could draw any number of boats attached to it, at twice the present speed, and perhaps one-tenth the present expense? Cannot some plan be devised of carrying off the smoke, cinders and steam, which are now the great annoyance of rail-road travelling? I believe it entirely practicable, by having large, stationary, horizontal pipes attached to the top of each car, to be connected when the cars are attached to each other, by *flexible* pipes, which can in a moment be joined, and through this continuous pipe the whole obnoxious effluvia from the locomotive would be delivered behind the train. In winter a pipe might form a part of the floor of the cars, and thus contribute essentially to the comfort of passengers. This alteration would allow of seats on the top, and thus enable travellers in pleasant weather to make a trip as agreeable as expeditious.

Can you inform me where any of the *genuine* Egyptian spring wheat can be obtained?

Excuse this discursive sheet; I should not have obtruded myself at this time on your attention, but for the purpose of requesting you to forward the *present* volume of the Cultivator to J. W. Conroe, P. M. Manitouwoc Rapids, Wisconsin Territory. We are beginning a fine settlement at and adjoining the mouth of the river in this fertile valley, which extends from Lake Michigan on the east to Lake Winnebago on the west, through which we hope eventually to have a navigation by the Fox and Wisconsin rivers, *now navigable* to the Mississippi; and this internal communication will be second to none other in importance in the west, combining timbered lands and prairie of unsurpassed fertility, copper and lead mines, pure water and a wholsome climate, soon to be filled with a dense, intelligent, active and thriving population, and *we want to begin this end of it right,* and know of no better method than to commence with your excellent publication and the Genesee Farmer. If your periodical suits the soil and climate, and I know of no objection to its answering for both, I think in five years you will have some thousands of subscribers in that territory alone.

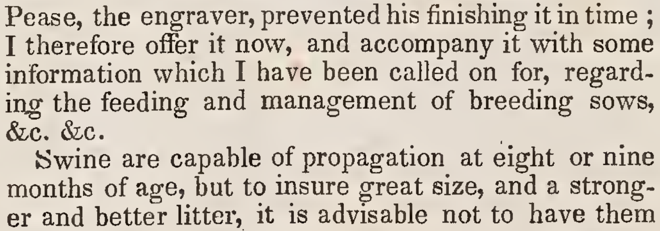
Very truly, your friend and ob't serv't,

R. L. ALLEN.

Judge Buel.

Treatment of Berkshire Hogs.

[Fig. No. 37.]



Mr. Buel—Sir—It was my intention to have had the above cut, a portrait of one of my Berkshire sows, at the head of my communication in the last number of the Cultivator, but the absence of Mr. Pease, the engraver, prevented his finishing it in time; I therefore offer it now, and accompany it with some information which I have been called on for, regarding the feeding and management of breeding sows, &c. &c.

Swine are capable of propagation at eight or nine months of age, but to insure great size, and a stronger and better litter, it is advisable not to have them come in, until after they are one year old. The boar should be used sparingly until he is eighteen months of age. The period of gestation is about sixteen weeks, so that two litters may be easily produced in the year. I prefer the months of March and September, for my sows to litter, as the weather is generally milder and less risk in rearing.

The usual produce, from my old Berkshire sows, is from nine to fourteen pigs—the younger ones from five to nine. When about to farrow, they should be put into separate pens, otherwise they may overlay or will mutually devour their offspring. Care should be taken not to let them get too fat; as experience having shown, that if they are in very high order, they will not produce as many nor as strong pigs. While suckling their pigs sows should not only be plentifully fed on nutritious food, but should be regularly fed, for if pigs are deprived of their proper nourishment while sucking, they will never arrive at the weight they would otherwise attain.

It is advantageous early, say when they are four weeks old, to accustom the pigs to feed from a shallow trough, on milk, corn meal, ground oats, barley, peas, or buckwheat; boiled potatoes or carrots, mixed with the above is also very grateful to them. This not only gives the pigs a fair start, but very much relieves the sows.

I have my troughs so constructed, that the pigs can be fed without the interference of the mother. (See my plan of a piggery in the first number, page 14, of the present volume of the Cultivator.)

At the end of a week or ten days after farrowing, they may be turned out of their pens into yards, for two or three hours on warm days, in order to stretch their legs, which is far preferable to total confinement.

The best time to wean pigs is when they are from six to eight weeks of age. They should be kept in styes having yards, or if possible, a clover patch for them to run in. Their food should be good; feed often and a little at a time, and as much as they will eat. Boiled or steamed potatoes or carrots, with a little corn meal, ground oats, barley or buckwheat, and where there is a dairy, mix with milk instead of water.

For making pigs grow fast, I never have found any food to compare with the offals of an hotel, or the slop of the dairy. During the weaning, great care should be taken in supplying them with plenty of sweet straw, and to keep them as clean as possible, so that they may always have fine sleek coats; a circumstance this, of such importance, that the want of it can never be compensated by the most plentiful supply of food.

This management is not peculiar to the Berkshire pigs, but will apply equally well to any breed. Sows may be permitted to breed till they are six years old; and the boar may be well until he has passed his fifth year, after which they may be fattened for pork.

For winter food for store hogs and breeding sows, I find roots admirably calculated, such as carrots or ruta baga, given them raw at noon and night and boiled or steamed with a small quantity of ship stuffs or buckwheat bran, mixed and given them warm in the morning. On such food, I kept from fifteen to twenty head during the winter, and I never had them in finer condition.

Charcoal, clay or rotten wood should be given them occasionally; also, a small quantity of sulphur should be mixed with their food, as often as every other week. Their boiled food should be seasoned with salt.

C. N. BEMENT.

Three Hills Farm, May, 1838.

Italian Spring Wheat.

Judge Buel—Dear Sir—It pains me to say that many wheat fields among us show no signs of vegetation; farmers are divided in opinion as to the cause; many impute it to the long continued cold in April, and severe freezing; others to brining *overmuch;* I incline to the latter opinion. Within a few days past, I took a sample of spring wheat from the mill—it had been screened and scoured in the smut machine—one parcel of it I covered with moist earth; another I put into brine, and after twelve hours, took it out and covered as before; the third parcel I put also into brine, it lay twenty-four hours, and then was sown. Of the first parcel, after five days, I did not find one kernel in fifty, but was firmly rooted and sprouted; of the two brined parcels, I did not find either sprouts or roots on a single kernel. Thus I have proof that admits of no doubt, that if Italian spring wheat be soaked in strong brine twelve hours, the principle of vegetation is destroyed. This fact ought to be widely disseminated. Other wheat, of a thicker epidermis may, for ought I know, grow after being steeped half a day in brine, but the Italian will not. I intend to experiment still farther, and ascertain the time that wheat will loose vitality in brine.

Respectfully yours,

J. HATHAWAY.

Rome, 12*th May,* 1838.

NOTE.

We will not pretend to conjecture *why* Mr. Hathaway's Italian wheat did not sprout after being steeped in brine; but we can state as an offsett, that we have soaked seed wheat in pickle, during twenty years practice, including the Italian, without the germinating principle having been destroyed, or apparently impaired. The practice has been general, and the above is the first case which has come to our knowledge, of its having proved prejudicial.—*Cond. Cult.*

Manures—Madder—Wheat—Butter.

Pleasant Township, Warren co. near Warren,
Pa. May 5, 1838.

J. Buel, Esq.—I have read the Cultivator from the beginning, and am indebted to it, for much of my limited knowledge of agriculture, having spent the prime of life in other pursuits. So important is this publication in my estimation that I would encourage the circulation not only among farmers, but all others, who have any taste for rural employment.

The husbanding of manures, and a judicious application of them, has been freely discussed, and has led me to turn my attention to this subject.—I am persuaded that many who are esteemed good farmers, are lamentably deficient in this matter. I think I can now save two loads of manure where I formerly saved one, with the same stock and fodder; and in the application, I have gained much useful information. I practice covering the unfermented yard dung under the sod, and with good success. I am a convert to a rotation of crops, and to root culture—both of which were first suggested by the Cultivator. I have better corn crops, and have improved in skill, in the matter of harvesting. I now cut up my corn, as you recommend. I use ashes applied to the hills.

I obtained from Mr. R. Bronson, 14 bushels of madder, *top roots*, which I planted on light sandy river flats, in the spring of 1836. The ground was rich corn ground, from which I had harvested wheat in 1835, yielding 30 bushels to the acre, the stubble being ploughed in the fall, was again ploughed into ridges or beds six feet wide in the spring, and each alternate bed set out with madder; the intervening beds being planted with carrots, onions, beets, potatoes, and some corn. In June, when all had begun to show themselves handsomely above ground, an unusual freshet overflowed a good part of the field; after it subsided, nothing was left except the madder; this was a little faded, but soon recovered its color, and since then, it has grown beyond any thing I could have expected, from the representation of Mr. Bronson. It has had two summers, and bids fair to cover the whole ground next fall, at which time I shall commence digging, and enlarge my plantation; and it is probable I could supply others with top roots, if applied for in August or September, a little before the time of digging. I intend to let the main crop stand four years.

I have this spring sown, (March 27,) two bushels of winter wheat, prepared as recommended in the Cultivator, No. 4, of the 4th volume, page 64. It is now handsomely up, and looks promising, though the weather has been cold and unfavorable. I obtained one bushel of Italian spring wheat, which I sowed in 1837, the produce of which I am much pleased with, and am now sowing several acres. I think it answers the recommendation given it.

It is said that the Russian mode of making butter is, to scald and churn the milk. In the 1st volume of the Cultivator, page 119, is a description of the dairy farm of Robert Smith, Esq. from which I learn "the cream is raised by steam, produces very sweet butter; it sells in market in summer at 31 cents, and in winter at 50 cents per pound." The butter-milk is represented as being more valuable, &c.

I do not practice the Russian, nor yet the steam method. But for fifteen years past have scalded the milk, as taken from the cows—after which it is set in a cool place till the cream rises. We esteem the butter to be much improved—the skim milk and butter-milk, being free from acidity, are more valuable for culinary purposes, and the trouble of scalding is more than paid by the facility of obtaining the butter by churning. On a fair, impartial trial of milk divided and half scalded, the other half not, in the winter, when all was cold—the scalded cream required thirteen minutes, and the unscalded fifty-six minutes churning; one pound of butter was firm and yellow, the other open, frothy, &c.

Very respectfully,
NATHANIEL SILL.

Indian Corn, Spring Wheat, &c.

Ripton, Vt. May 14th, 1838.

Jesse Buel, Esq.—Sir—In the number of the Cultivator for the present month of May, page 59, it is stated that Mr. Thorburn sold corn for Dutton corn which proved not to be Dutton corn, as the stalks grew large and were seven or eight feet, whereas the Dutton corn is of rather a dwarfish growth. This corn was probably sold to Mr. Thorburn, by some honest Vermonter, and was undoubtedly the Dutton corn of Vermont.

Not far from thirty years since, Salmon Dutton, Esq. a respectable farmer of Cavendish in this state, procured a new species of corn, and having raised a crop of it, and as it had a very large growth, and was at the same time earlier than the corn that was then generally raised in this state, and believing that the farming interest would be greatly promoted by raising it, in October of the same year he transported a large quantity of it in the ear, to the place where the legislature was in session, and distributed it to the members and others attending the legislature; it was thus distributed through the state, and took the name of the Dutton corn. I took an ear of it and planted it the next season; the stalks grew seven or eight feet high, and were large in proportion to their height. The ears were longer and much larger than any I had before seen, having from 12 to 18 rows on an ear. The cob was very large and the kernels very small and not so flat as the kernels of other corn; and many of the ears, instead of coming to a point at the out end, were flattened and perfectly covered with very small kernels. I raised the corn for several years, and found it somewhat earlier than the then common corn of the country, which I continued to plant. I never ascertained which yielded the most corn by the acre, but considered there was very little difference. The Dutton corn produced at least a third more corn fodder than the other, and yet after having raised it five or six years, I threw it by, finding it very difficult to prevent its moulding on the cob, by reason of its very great size.

About this time, the farmers generally begun to seek for earlier varieties of corn, and several species were produced; among the rest, a species called Rocky Mountain corn. Where it came from I never ascertained; I raised it for several years. This corn was of a dwarfish growth, but the stalks were rather large in proportion to their height—the cob large and the kernel small—from 12 to 18 rows on an ear, and many of the ears were flat at the end, and covered with small kernels, like the Dutton corn; indeed it perfectly resembled the Dutton in every thing but its size. Is this the Dutton corn of New-York?

A few observations in relation to the crops of spring wheat. You justly remark, in the May number of the Cultivator, page 64, that grain which ripens in cold weather, say late in August or September, will be heavier ordinarily, than that which is hastened to maturity in hot weather. By grain, I presume is meant spring wheat, for I have always considered the earlier oats ripen, the heavier is the grain. From this it might be inferred, that spring wheat should be sowed late, without reference to the grain worm; and yet before the appearance of that insect, it was found by experience, that early sown spring wheat was ordinarily the best. By adverting to certain facts which have been noticed by observing farmers, this may be remedied, and every one may be enabled to render late sown spring wheat a very certain and uniform crop, if not an abundant one. Every attentive observer of the wheat crop knows, that when the wheat grows rapidly with a large straw and a broad leaf, with a peculiar deep green color, having the appearance of that which grows about burnt places, or where the land has been manured for crops instead of the preceding one, the straw will most certainly rust and the grain blast; so that by the time the head appears, it may be ascertained with a considerable degree of certainty, whether the straw will be struck with the rust.

Again—it has been observed by every attentive agriculturist, that grain, whether corn, oats or wheat, put into the ground the last of May or first of June, will be much more luxuriant, and there will be a greater growth of stalks and straw, than when put in the ground early. It follows, as I have found by experience, that so long as we are obliged to sow spring wheat late, to avoid the grain worm, we are much more sure of a crop to sow it not on very rich land, but on a medium soil, which will yield from 15 to 18 bushels to the acre, than to sow it on very rich ground. Since I have pursued this course, my crops have been remarkably uniform, never less than 15 nor over 18 bushels per acre, while others who have sown on very rich ground, have in some seasons had from 20 to 30 bushels per acre, have in other seasons had a great growth of straw, but no wheat.

One other remark in relation to the crop of spring wheat shall close this communication, already much longer than I intended when I sat down to give you the foregoing information relative to the Dutton corn. Since I have sown my spring wheat late, and harvested it in September, it has uniformly made a whiter flour than it did formerly when I sowed it early.—This, however, may be owing to its having been harvested in a greener state than formerly. Wheat ripens so very slowly in September, that we are very sure to cut in a green state. I suspect, however, that when the grain ripens in August, the heat of the sun may darken the colour of the flour.

DAN CHIPMAN.

EXTRACTS.

Science of Gardening—*in continuation.*

ATMOSPHERIC AIR.

All water openly exposed contains more or less of the air of the atmosphere, which consists of two gases, namely, twenty-one parts, by measure, of oxygen, and seventy-nine parts of nitrogen or azote, with, in general, about one thousandth part of carbonic acid gas. It is chiefly owing to the atmospheric air, and a little carbonic acid gas, that common water, though said to be tasteless, is agreeable to drink; for when these are expelled by boiling, it tastes vapid and unpleasant.

That the air contained in the water which enters into plants is important to vegetation, appears from water being found beneficial, in proportion as it has had opportunities of becoming mixed with air. When meadows accordingly are laid under water artificially in the process of irrigation, it is found rather hurtful than beneficial if the water is not kept in motion, but allowed to stagnate.

It is on this account, that the water of rivers which run a long course, is much better for watering than that of springs or lakes, whose waters contain but a small portion of air, though this does not apply so well to the stagnant water of ponds or ditches, whose deficiency as to atmospheric air is compensated by the greater portion of carbonic acid and other substances derived from the decaying animal and vegetable substances usually abundant in such places.

The best water, however, with respect to the quantity of atmospheric air, is rain, which falling in small drops, often tossed about by the wind, has an opportunity of collecting a large proportion of air during its descent to the earth; and hence, the smaller the bore of the holes in the nose of a garden watering-pot the better.

As water becomes mixed with air by exposure and agitation, so does the air become mixed with water by its rising in vapor, and the driest air accordingly always contains more or less water in the state of invisible vapor. The quantity of this vapor is in proportion to the temperature; and hence, the warmer the air the greater proportion of vapor it contains.—A beautiful provision for affording some little refreshment to plants at the very time they are exposed to exhaustion in hot weather, the operation of which we shall afterwards see when we come to consider the use of leaves.

CARBON AND CARBONIC ACID GAS.

Carbon is pure charcoal, which is well known and easily proved to form a large proportion of most vegetable substances,—the oak, for example, contains sixty ounces in a cubic foot; consequently the living plant must have the power of deriving it from carbonic acid gas, for it has been proved by the experiments of Sir H. Davy, that the most finely powdered carbon is not taken up by plants in the solid form.—Nothing, indeed, is more hurtful to plants than smoke, which is carbon mixed with watery vapor; though soot, which is condensed and collected smoke, is useful when spread upon the soil, so that water may derive from it a portion of its gases.

All animal and vegetable substances, in a state of fermentation or putrefaction, give out a considerable portion of carbonic acid gas, and if it is not dissipated by heat, but confined on or beneath the surface of the soil, it will become mixed with the moisture there, and be taken up by the spongelets or the roots of plants. A great quantity of carbonic acid is also produced by the breathing of animals and by burning wood, peat or coal; and being heavier than the air of the atmosphere, it must all descend, in the first instance, to near the surface of the soil, into which much of it must be carried by rains and dews. When it becomes diffused in the air, however, its weight has little influence in causing it to descend.

The carbonic acid gas thus mixed with water, and taken up along with it into the system of plants, is there decomposed, as we shall afterwards see, into its constituent parts of oxygen and carbon, part of the oxygen being given off into the air, and the rest with the carbon remaining in the plant, where it goes to form most of the solid parts as well as the nutrient pulp.

The carbonic acid also exists in soils combined with lime, magnesia, iron, and some other substances in the form of carbonates, which are soluble with great difficulty in very small quantities in water, but readily in humic acid, as we shall immediately see.

NITROGEN OR AZOTE.

This gas, as we have already seen, constitutes by much the largest portion of the atmospheric air, and consequently must enter largely into the system of a plant, though it is not found in general to contribute so much to vegetable as it does to animal substances, in all which azote is in considerable proportion.

Azote is found in larger quantity in cabbages, savoys, cauliflower, brocoli, sea-kale, turnips, radishes, mustard, and cresses, than in any other garden plants, and it is this which in part produces in these the peculiar acrid taste which most of them possess. It is also a chief ingredient in starch and in the gluten of wheat. It is the nitrogen, also, which, escaping from these when boiled, or when in a state of fermentation or decay, is diffused around and produces an odor in general very strong and disagreeable.

It will follow, that as these plants when healthy, contain much nitrogen, it ought, in rearing them, to be abundantly supplied from its two chief sources—the air and decaying animal substances,—in other words, by free air and animal manure. Though when it is an object, as in the rearing of sea-kale, to render the flavor mild, the supply of nitrogen must for the reason be diminished.

HUMIC ACID OR HUMIN.*

This important substance was first discovered by Klaporth in a sort of gum from an elm, but it has since been found by Berzelius in all barks; by M. Braconnot in saw-dust, soot, starch, and sugar; and what is still more interesting for our present purpose, it has been found by Sprengel and M. Polydore Boullay to constitute a leading principle in soils and manures. Humin appears to be formed of carbon and hydrogen, and the humic acid of humin and oxygen,† but the difference between the two requires farther investigation. Pure humic acid is a deep blackish brown, without taste or smell, and water dissolves it with great difficulty and in small quantities; consequently it cannot, when pure, be available as food for plants.

Humic acid, however, which, I may remark, is not sour to the taste, readily combines with many of the substances found in soils and manures, and not only renders them, but itself also, easy to be dissolved in water, which in their separate state could not take place. In this way humic acid will combine with lime, potass, and ammonia, in the form of humates, and the smallest portion of these will render it soluble in water, and fit to be taken up by the spongelets of the root fibres.

It appears to have been from ignorance of the important action of the humic acid, in thus helping to dissolve earthy matters, that the older writers were so puzzled to discover how lime and potass got into plants, and it seems also to be this chiefly which is so vaguely treated of in the older books on gardening, &c. under the names of *extractive vegetable extract*, *mucilaginous matter*, and the like. Saussure, for instance, filled a large vessel with turf, and moistened it thoroughly with pure water; when, by putting 10,000 parts of it by weight under a heavy press, and filtering and evaporating the fluid, he obtained twenty-six parts of what he termed *extract;* from 10,000 parts of well dunged and rich kitchen garden mould, he obtained ten parts of *extract;* and from 10,000 parts of good corn-field mould, he obtained four parts of *extract.*

M. Polydore Boullay found that the liquid manure drained from dung-hills contains a large portion of humic acid, which accounts for its fertilizing properties, so well known in China, and on the continent; and he found it also in peat earth, and in varying proportions in all sorts of turf. It appears probable, from Gay-Lussac having found a similar acid‡ on decomposing the prussic acid,§ that the humic acid may be found in animal blood, and, if so, it will account for its utility as a manure for vines, &c. Dobereiner found the gallic acid convertible into the humic, from which, indeed, it only appears to differ in its water of crystallization.

Young Men's Department.

Hints to Young Farmers—No. VIII.

REMEMBER CONSEQUENCES.

We once read an interesting anecdote of a young man, who went to spend the Christmas holidays among a group of female cousins. Pawn plays having been introduced in an evening party, the young visitor very unexpectedly declined participating in them. On the company retiring, his cousins surrounded him, and insisted on knowing his reason for not joining in the sports of the evening. Why girls, says he, Aunt Elois makes it a rule never to serve cheese cakes to company; for, she says, if she has cheese-cakes she must have custards, and if she has custards she must have pound cake—and he went on to enumerate a dozen superfluities which must all necessarily follow the introduction of cheese-cakes.—Now, cousins, if I play pawns I must kiss, and if I kiss, I must——his further utterance was stopped by half a dozen hands which were pressed upon his mouth.

By way of improvement, we would admonish the young farmer, that his first step in extravagance, beyond what is befitting his business and his means, be it in dress, furniture or equipage, is like serving up cheese-cakes or playing at pawns—the other consequences will follow as certainly as night follows day. Better, by far, take counsel of Aunt Elois,—seek not to entertain company with cheese-cakes, and you may thus reserve to yourselves, for appropriate occasions, both the custards and the kisses.

The natural wants of life are few, and they are most essential to our health and happiness. Our artificial wants are boundless, and the more they are gratified the more they multiply, and the more craving are their demands. He who seeks only to please himself, to study the comfort of his family, and to perform his known duties, depends not, for the enjoyments of life, upon the smiles or favors of others.—But he who, disregarding these, builds his hopes of happiness upon an ostentatious display—upon the applause, mingled as it ever will be with the jealousy and envy, of the multitude, mistakes the true philosophy of life.

While we would caution against extravagance, we are no less opposed to mean parsimony. As men acquire means, they ought to multiply around them the enjoyments of polished—we do not mean by this, fashionable—life. They ought particularly to give to their children those advantages which will fit them not only for usefulness, but for intercourse with the intelligent and respectable classes of society. In truth, the spirit of the age demands, that the children should receive a better education, to qualify them for usefulness, than that which has been bestowed upon the parents.

But in all that may be denominated superfluous expenditures—the man should consult his purse before he consults his wife—or, particularly, his daughters—and, by all means, *remember consequences.*

Maxims for Farmers.

"*Come boys,*" is the best countersign upon the farm. Even if his hands are not employed, the eyes of the master have wonderful efficacy in accelerating labor.

If you would judge of a man's character, look not at his coat, but at his habits. The first may change with the moon,—or what is the same, with the fashion—the latter are generally as abiding as life.—The first may be the property of another—the latter, like the shadow, belongs exclusively to the man.

Men deserve commendation, not for refraining to do evil, for they may not be in temptation—but for the good they do; not for negative, but for positive virtues.

Every industrious man, by his labor, manual or mental, depends upon his personal exertions for fortune and for fame. Every indolent man depends for subsistence upon the labors of others—upon patrimonial resources, upon trick and fraud, or upon—we mean no personal disrespect by the use of this very appropriate term—the "*spoils*" of office. One adds to the common stock of wealth and human enjoyment—the other adds nothing. The last are like the grain-worms, which consume our crops, without rendering any equivalent to society. Yet as nothing is created in vain, the worm may be intended, perhaps, to excite our constant vigilance, and the man as a living example of human folly—and of the perversion of human faculties.

Importance of improving the Mind.

Although knowledge and the improvement of the mind have long been considered least necessary in agriculture of any other occupation, almost, in which men are engaged; there is still good reason to believe that there is no other which can be benefitted by it, to so great an extent. Farmers are now beginning to see the importance of science, and the advantages it affords to agriculture. Almost every operation in tillage depends for its results on the chemical combinations of substance and for the food of plants. No calling in life, hardly, may be so greatly benefitted by a thorough knowledge of chemistry. What manures are best applied to particular soils; what to the growth of particular vegetables; the mode of treatment best adapted to the cultivation of particular plants, depend almost wholly on chemical affinity and chemical combinations.

The farmers' interests depend principally on the operation of natural causes; and science has for its object the investigation of nature; therefore science must be deeply interesting to the farmer. A knowledge of natural physics could be turned to good account every day. A man might not know that he wastes his time and money in trying to make water hotter after it boils, or think that by burning green wood he makes a saving; but the science of heat would learn him better. He might think it anomalous that he could not get water up in his pump higher than 33 feet; but pneumatics and hydrostatics would teach him the reason. He might run to a lightning rod for protection in a thunder storm; but a knowledge of electricity would bid him beware. In short, the advantages which science affords to man in every situation in life, are more than he can enumerate.

But science does not alone affect a man's interest. Man has a mind which it is his duty to cultivate. It is adapted to the study of nature, and was no doubt designed for it by our Creator. It is expanded and ennobled by it. Who can consider the adaptedness of man to his situation—how exactly every thing around him is calculated to promote his happiness, and he to enjoy it—the fitness of the eye to the properties of light, conveying to the mind the most exquisite sense of beauty, together with being so useful that, without it, life is almost a burden; and the wonderful harmony which exists throughout nature, without feeling that his mind is enlarged, and that he is wiser and better for it?

Men ought to possess a spirit of inquiry; or, to use a familiar phrase, to get in the habit of philosophising. It is too common for men who have opportunities for improving by a contrary course, to pass over the works of nature without asking or thinking of the cause of the various phenomena around them. No class of men is so favorably circumstanced to profit by the study of nature as the farmer: and yet, few consider that study of less importance· "It is not leisure that mankind needs, (says Robert Mudin, in his Observation of Nature,) it is stimulus and activity; and study, even the most profound and abstruse study, thrives better in the few snatches of time which the busy man can spare for it, than in all the listless and loitering days of him who has nothing to do." If this be true, we see that the general excuse of want of time, is without validity. We have opportunities for study in our every day labor—in our walks for recreation—in every tree and plant—in every change in the atmosphere—in the clouds above our heads, and in the earth beneath our feet—in short, in every natural object or appearance by which we are surrounded. It is the practice of thinking and investigation—of taking notice of what occurs around us, and trying to ascertain the causes of such phenomena and effects as come under our observation, that the mind is rendered active and stored with really useful knowledge. To observe and think are in the power of every man; it merely requires the activity of the mind while the body is in action. The study of nature and the advantages to be derived from it need cost us but little; no expensive apparatus is requisite; we have only to use our natural senses and our minds to gain the desired end.

Consider a little the results and advantages of such observation and investigation. It was by these, that Copernicus, after thirty years study, ascertained the sublime harmony and simplicity of the revolution of the heavenly bodies. It was by these, that the vast mind of Newton, from seeing an apple fall from the tree, was led to inquire and at length to find out the cause—the same cause which keeps our world and the planets in their orbits, and connects the whole material universe of God. James Ferguson, while a shepherd boy, and entirely unacquainted with the name, even, of the sciences, from his observation of the heavens constructed a celestial globe; and finally became an eminent astronomer. Franklin, by his researches in the science of electricity, was enabled to wield the thunderbolts of heaven; and, by his invention of the lightning rod, the forked lightnings descend harmless by the sides of our dwellings. Fulton and Watt, by their observation and reflection, brought the steam engine to its present perfection. And we may say, confidently, that every acquisition to science, and every invention useful to man, has been made, not accidentally, as a general rule, but by the proper use of his reasoning faculties.

Does it become the dignity of a reasoning mind—one whom God has made to bear his own image—to pass through life ignorant of what is going on around him? Yet this is the case with him who will not take the trouble to think. He may, indeed, see, and hear, and feel, and know the existence of many things. So does an animal. Our minds were given us for use. There can be no harm in trying to find out the reason and cause of things which are constantly occurring before our eyes. We could live, and perhaps get along well enough in the world without knowing that air (for instance) is a material substance—that it is by its pressure that water can be raised in pumps—that by its weight, that of our own bodies are lessened, and clouds are formed which water the earth; smoke and deleterious gases ascend: and were it not a material substance, we could not live. We might not know that the vegetable creation absorbs that portion of the atmosphere which animals throw off, and then purify it, so that without the vegetable creation, other than as a direct means of support, no animal could long exist—that thus these two great divisions of nature are constantly supporting each other: we might be ignorant of these facts, and perhaps, feel no inconvenience from our ignorance. We might be able to look out on the orbs of heaven, and recognize in them nothing but twinkling points—as inconsiderable masses, whose faint glimmerings are of very little importance; and yet our world and sun perform their offices as regular, and we receive as much comfort from them as ever, while innumerable suns and systems of worlds roll in that azure void. But, might we not as well have been formed without the power of studying the works of God, as to neglect entirely the use of that power?—The legitimate use of *all* our faculties is best adapted to promote our happiness; and *happiness*, whatever

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[*] In most chemical books, the terms *Ulmic Acid* and *Ulmin* are used, from the Latin *Ulmus*, elm; but as its substance occurs in most, if not all plants, the name is bad. I prefer Sprengel's terms, from the Latin *Humus*, soil.

[†] The soluble and insoluble *geine* of Dr. Dana.—*Cond.*

[‡] Technically, *Azumic acid.*

[§] Technically, *Hydrocyanic acid.*

subordinate ends we seek, is the ultimate object of man's pursuit.

The improvement of the mind is too little regarded by almost all; especially by those whose avocations lead them to active bodily labor. It is too common for this class of men to excuse themselves on account of want of time. "They have so much active bodily labor to perform, that they cannot find time for reading and study." Now this might be a very good excuse, if, for the improvement of the mind, it was necessary for a man to confine himself exclusively to books. But this is not the case. I venture to say, that the man who has received his education and ideas of things exclusively, or principally, from books, is neither a wise nor a useful man. It is the practical manual laborer who combines the education of his mind with his labor, who is best calculated to be useful to the world; and consequently we find, that those who, on the page of history stand most conspicuous for their usefulness, were of this class. Let it not be understood here that I would derogate from the use of books. No: if any art with which man is acquainted should be considered truly sacred, it is that of printing—thus canvassing ideas for the transmission of knowledge. I would say to every young man, read much; read all you can, consistently with your higher duties. But it is the idea that unless a man can spend the most of his time in reading, it is useless for him to try to make himself acquainted with the sciences, that I would combat. Every man, even the most busily occupied, can find some time for reading, without sacrificing his business. Every man needs some time for relaxation from bodily labor.—This is the time, if he can find no other, to be spent in reading: and it can be spent in this way most pleasantly, as one at least can testify. What I would particularly enjoin on my fellow young men is, not to think of *studying* only while engaged with a book; but study while at your labor—in the fields—the forest—every where, and at all times. Nature is the great field for the exercise and development of our mental faculties.

Perhaps some might object to the course recommended, on the ground of its not affording encouragement for pecuniary gain. "They think they could make money faster, without all this trouble of thinking of matters of no consequence." It is a fact that many men consider the great principles of the operations of nature—principles on which depends their very existence, as matters of little importance.—Those who manifest a desire to search out these great truths, especially if it cost them any time, are stigmatized with the odious name of idlers. True, our investigation or knowledge of these principles would not change, or continue them; but it is very far from being true that a knowledge of them is of little importance. To prove this, it will not be necessary to show the superiority of man over an animal—all of us know it. But in what does this superiority consist? Is it in the structure of his body? No, for then you merely make him the more perfect machine. What then? It must be in his mind. Well, if in his mind, in what quality or qualities of the mind does it consist? Is it that man is a *money making* animal? No: it is in his power of reasoning—of investigating the works of his Creator; and in his moral affections. It is in his capacity to trace through the varieties of nature the marks of design and benevolence which lead him up to nature's God.

But aside from this, the improvement of the mind has a direct and most important bearing on the *pecuniary* interests of mankind. This proposition is so self evident as hardly to need illustration. The progress of the sciences depend on the improvement of the mind, or on the power of the mind to trace effects to their causes—and *vice versa.* And it is evident that our pecuniary interests are advanced by an advance of science. By the science of astronomy, and the application of the magnetic properties of iron to the mariner's compass, our ships are enabled to put out into the vast ocean, thousands of miles from land, thus forming channels of communication between different nations, and exchanging the commodities of different countries. By the scientific application of steam to machinery, we have our steam-boats and rail-road cars; and an engine capable of performing almost any kind of labor. So in instances without number, science contributes to the necessities and comforts of man.

More than this; the improvement of the mind is a positive duty: one of the highest duties enjoined on man. It is a duty we owe, both to our Creator and to ourselves. We owe it to our Creator; He has given us a perfect law and standard of action, and commands us, under the severest penalties, to observe and obey them; while that obedience is its own reward. It improves the moral faculties of the mind, and therefore tends to render us happy. We owe it to ourselves; because we ought so to act, keeping the great object of our existence in view, as best to attain the end. We are commanded to "prove all things." We are not called on in the word of God, or in the works of nature, to believe any thing which is opposed to reason. We *cannot* do it. It is contrary to the constitution of mind. We may be, however, and are, bound to believe many things which reason cannot explain or account for. Therefore it is necessary to be able to distinguish between what is reasonable and what is unreasonable, in order, as the scriptures express it, to "hold fast that which is good."

Thus I have attempted to show the advantages of science to agriculture—the feasibility to the farmer of the improvement of the mind by the study of nature—the results of that study—the degradation consequent on its neglect:—that the improvement of the mind is a matter of interest, and that it is a duty. The object of writing this brief essay was to impress on the minds of young men, particularly those engaged in agricultural pursuits, the importance of the improvement of the too much neglected mental faculties. It is truly the mind that makes the man. It is in the power of almost every young man to make himself distinguished for usefulness to the world: though the usefulness should be the motive, and not the being distinguished. "Nothing is of any value, except that which costs us labor." The improvement of the mind will require some exertion. We must expect it: for, like every thing else valuable, it is not to be attained for nothing. But the results of this labor will fully compensate all those who undertake it.

Albany, May, 1838. P.

Chemical Catechism—Chapter II.

OF ATMOSPHERIC AIR.

What are the obvious properties of atmospheric air?

Fluidity, elasticity, expansibility and gravity.

What do you mean by the elasticity of the air?

If atmospheric air be compressed into a small compass, it has the property of recovering its former state as soon as the pressure is removed, which is called its elasticity.(*a*)

What is meant by the expansibility of the air?

The expansibility of the air is its property of being rarified by heat, so as to occupy a larger space than it would at a lower temperature.(*b*)

How far does the atmosphere extend?

The atmosphere is several miles high, but it is so very much attenuated at considerable heights, that it cannot be ascertained how far it actually does extend.

What are the various uses of the atmosphere?

The atmosphere is necessary for the support both of animal and vegetable life.(*c*) It is indispensable in all the common processes of combustion; it ministers to several of the pleasures which we derive from our senses;(*d*) it gives buoyancy to the clouds, and enables the feathered creation to transport themselves from one part of the earth to another.

But what is the use of the atmosphere being so extended so far above the surface of the earth?

It is this great extension of the air which occasions it *weight;* and the pressure of such a weight produces many important effects in the economy of nature.(*e*)

What are the effects of the weight of the atmosphere?

It is owing to the weight of the atmosphere that we are enabled to raise water from beneath the surface of the earth by the common pump,(*f*) and to perform many other useful operations.

What other advantages do we derive from this extension of the atmosphere?

If we had little or no atmosphere, we should have no cold water; for the waters on the face of the earth would all evaporate at a very inferior temperature;(*g*) besides, the arterial vessels of all organized beings, would be so constantly distended, that animal and vegetable life would be endangered.

How are waters and other fluids preserved to us by the weight of the atmosphere?

The weight of the atmosphere, pressing on the water, binds it down as it were, and prevents the usual heat of the sun from converting this and all other fluids on the face of the earth into vapor.

How does the weight of the atmosphere operate so as to be beneficial to the animal and vegetable creation?

The uniform pressure of the atmosphere on the *exterior* of all organized beings, counterpoises the *internal* pressure of the circulating fluids, and preserves the vessels in due tone and vigor.(*h*)

What is the weight of the atmosphere?

Each square foot of the the earth's surface sustains about 2,160 pounds of atmospheric air. A column of air an inch square weighs about fifteen pounds.(*i*)

What other advantages do we derive from this immense atmosphere?

The great density of the atmosphere gives a proper temperature to the rays of the sun: it also reflects those rays so as to give a lucid brightness to every part of the heavens, and is the cause of those dews and rains which make the earth fruitful.

What is the real nature of the air which forms the atmosphere of this earth?

This immense atmosphere is composed of oxygen and nitrogen, two different airs, which are intimately mixed in certain definite proportions.

Are oxygen and nitrogen the only substances which enter into the composition of the atmosphere?

No; atmospheric air contains also about one part in every thousand of carbonic acid gas, and several adventitious substances.

What other substances are found in atmospheric air?

Besides carbonic acid gas, it holds a portion of water in solution; and sometimes contains hydrogen and carburetted hydrogen gases.

What are the sources of these other gases?

Carbonic acid gas is constantly formed by the respiration of animals and by combustion: and hydrogen and carburetted hydrogen gases arise from various sources, particularly from marshes, stagnant pools, &c. all which are prejudicial to the animal creation.

If carbonic acid air and carburetted hydrogen air are prejudicial to animal life, how are they corrected in the atmosphere?

These airs, which would cause the death of any animal obliged to breathe them, are the proper nutriment of vegetables, and nature has endowed them with organs for their decomposition.

You have spoken of different gases—what do you mean by gas?

When solid substances are rendered perfectly aeriform by heat, the air thus produced is called a gas, (*j*) to distinguish it from those aeriform substances which return to the solid or fluid state when the heat is removed.

Is there any chemical means of analyzing atmospheric air?

By the operation of different agents, the separate gases may be separated from each other, and the quantity of each ascertained.

Do you know the proportions of the different gases in atmospheric air?

There are about 21 parts of oxygen gas, and 79 of nitrogen gas, in every 100 measures of atmospheric air, or nearly 23¼ of the former and 76¾ of the latter, if the calculation be made by weight.

Is there much difference in the nature of these gases?

The oxygen gas in atmosphere air is the principal supporter of combustion, and the vehicle of heat; and is, as was before mentioned, absolutely necessary for the support of animal life.

What is the nature of oxygen gas, when in a separate state?

Pure oxygen gas has the property of accelerating the circulation of all the animal fluids, and occasions the most rapid combustion of all combustible substances; so that it is the most energetic and powerful agent that we are acquainted with.

What is the specific gravity of oxygen gas?

Oxygen gas is a little heavier than atmospheric air, and about 750 times lighter than water.

What are the principal properties of nitrogen gas?

Nitrogen gas, or azote, is chiefly distinguished by certain *negative* qualities, such as its being incapable of supporting combustion and animal life,(*k*) it is uninflameable, and somewhat lighter than atmospheric air.

Seeing that nitrogen gas is injurious to animal life, what is the use of so large a quantity of it in atmospheric air?

Nitrogen gas has the effect of neutralizing, in some measure, the properties of oxygen gas, and rendering it fit for respiration and combustion.

How is this change effected by nitrogen gas?

By the union of nitrogen gas with oxygen gas: the latter is so diluted and modified as to prevent combustion from being too rapid and respiration too stimulating; and by the due proportions in which these gases constitute the atmosphere, the compound possesses properties so different from either of them as to be admirably fitted for every purpose for which it was designed.

How does atmospheric air support life?

By giving out its oxygen and caloric to the blood.(*l*)

What do you mean by caloric?

Caloric is the name which modern chemists have given to fire, or the matter of heat; a large portion of which is intimately combined with atmospheric air.

Is the caloric which is combined with the air we breathe, sufficient of itself, to keep up the necessary heat of the body?

Animal heat is preserved chiefly by the inspiration of atmospheric air. The lungs which imbibe the oxygen gas from the air, impart it to the blood; and the blood, in its circulation, gives out the caloric to every part of the body.(*m*)

How do clothes conduce to preserve the heat of the body?

As the temperature of the atmosphere in this climate is always inferior to the animal temperature, clothes(*n*) are necessary to prevent the sudden escape of that heat from the surface of the body(*o*) which the lungs have separated from the atmosphere.

What becomes of the nitrogen which was combined with the oxygen in atmospheric air?

The greatest part of the nitrogen is thrown out of the lungs at every respiration; and being somewhat lighter than atmospheric air, it rises into the atmosphere to await fresh combinations.

What provisions has nature made for restoring the vast quantity of oxygen which respiration and combustion are perpetually taking from the atmosphere?

The leaves(p) of trees and other vegetables give out during the day, a large portion of oxygen gas,(q) which, uniting with the nitrogen thrown off by animal respiration, keeps up the equilibrium, and preserves the salubrity of the atmosphere.

Is this perpetual renovation of the atmosphere owing to a fortunate concurrence of circumstances, or is it the effect of design and contrivance?

When we recollect the various processes of nature and of art, which concur with respiration and combustion, in depriving the atmospheric air of its oxygen; and that, notwithstanding the atmosphere uniformly contains every where the same proportion of this gaseous substance, we can attribute the renovation to nothing but design, and perceive in it a proof that the laws of nature must be referred, not to blind chance, but to unerring intelligence combined with infinite goodness.

NOTES.

(a) It is now generally supposed that the air owes its elasticity to *caloric,* and that if it could be entirely deprived of the matter of heat, it would loose its elastic form.

The rebounding of a common foot ball would be a familiar instance to explain the elasticity of the air to a child; also the bubbles of air rising from the bottom of a glass of water, which will be seen to dilate as they rise to the surface, owing to the pressure of the liquor becoming less and less upon them.

The air gun and the forcing pump are constructed on this principle of elasticity. It is by this property of the air that fishes are enabled to rise and sink in the water; nature having furnished them with an *air bladder;* which they have the power of contracting or dilating at pleasure. When a fish compresses this bladder, its whole volume becomes less, and it sinks in the water; when the pressure is removed, the air within the bladder instantly expands, and then it is enabled to rise.

(b) If the neck of a bladder, containing a small quantity of air, be closely tied up and held to the fire, the swelling of the bladder, by the rarifaction of the air within it, will afford an idea of the *expansibility* of the air.

Mr. Robins has calculated that the air which is disengaged in the firing of gun-powder, is rarified by the heat so as to occupy a thousand times the space of the whole of the gunpowder employed.

(c) It has been ascertained by experiment that no other gaseous body with which we are acquainted, can be substituted for atmospheric air. All the known gases have been tried; but they all prove fatal to the animal which is made to breathe them. Even water absorbs air when exposed to the action of the atmosphere, and thence becomes a fit element for the various tribes of creatures who inhabit it.

> "The vital air
> Pervades the swarming *seas* and heaving earths,
> Where teeming nature broods her myriad births;
> Fills the fine lungs of all that *breathe* or bud,
> Warms the new heart, and dyes the gushing blood;
> With life's first spark inspires the organic frame,
> And, as it wastes, renews the subtle flame."—*Darwin.*

It is to the presence of air that water is indebted for its agreeable taste. Boiling deprives it of the greatest part of it; hence the insipidity of boiled water.

(d) In the use of atmospheric air, *man* is the only being who gives to it all the modulations of which it is susceptible. With his voice alone he imitates the hissing, the cries, and the melody of all animals; while he enjoys the gift of speech denied to every other. To the air also he sometimes communicates sensibility: he makes it sigh in the pipe, lament in the flute, threaten in the trumpet, and animate to the tone of his passions even the solid brass, the box-tree and the reed. Sometimes he makes it his slave; he forces it to grind, to bruise, to move for his advantage an endless variety of machines. In a word, he harnesses it to his car, and obliges it to waft him over the stormy billows of the ocean.

(e) The pressure of the atmosphere may be shown by a very simple experiment. Place a card on a wine-glass *filled* with water; then invert the glass, and the water will not escape; the pressure of the atmosphere [upwards] on the outside of the card being sufficient to support the water.

(f) In this operation the atmosphere presses equally upon the whole surface of the water in the well, until the rod of the pump is moved; but, by forcing the rod down, the bucket compresses the air in the lower part of the pump tree, which being elastic, forces its way out of the tree through the valve; so that, when the bucket is again raised, that part of the pump tree under the bucket is devoid of air, and the whole *weight of the atmosphere* pressing upon the body of water in the well, forces up a column of water to supply its place; the next stroke of the pump rod causes another column of water to rise, and so long as the bucket fits the pump tree so as to produce a vacuum, a constant stream of water may be drawn from below. A common syringe will show the action of atmospheric air in pumping.

(g) It is the principle of *evaporation producing cold* that occasions the injury which persons sustain by sitting in wet clothes. It is not the water that hangs *upon* them that produces the mischief, but the sudden loss of a large portion of caloric, which is carried off from the body by the evaporation of this water. If a healthy person were closely covered up with his wet clothes, so that no evaporation could take place, he would probably sustain no injury.

(h) Were it not for the weight of the atmosphere constringing the vessels in animals and vegetables, the elastic fluids contained in the fine vessels, would inevitably burst them, and life become extinct.

Persons who have delicate constitutions need not wonder that they are generally much affected by a change in the atmosphere, when they learn, that often in the course of a few hours, there is an increase or diminution of one hundred weight, and from that to half a ton weight, of atmospheric pressure, on each individual, while the *internal pressure* of the circulating fluids remains the same. Supposing a man's body to contain fifteen square feet of surface, (which is near the truth,) he will sustain a body of air of upwards of fourteen tons weight. But it is necessary to remark, that the air presses upwards, downwards and sideways, in every direction, and that it is owing to this equal pressure that we are not injured by the vast weight of the atmosphere; for the equal pressure on all sides resists as much as it is resisted.

(i) A column of air of the height of the atmosphere, when greatest, is equal to a column of water 35 feet high, or a column of mercury of the same size 30½ inches high. Hence water will not rise in a pump more than 35 feet, nor mercury in a barometer stand higher than 30½ inches. A quart measure of atmospheric air weighs about 17½ grains.

(j) All the gases are compounds of solid matter and caloric. It is caloric which separates the particles, and gives to the whole a gaseous form.

(k) Nitrogen forms a part of all animal substances. It is also the base of ammonia, and of the nitric acid. It appears to be favorable to plants, as they grow and vegetate freely in this gas. It seems to be the substance which nature employs in converting vegetables to animal substances, and to be the grand agent in animalization.

(l) By the rise of the breast bone in man, and the descent of the diaphragm, room is afforded for 42 cubic inches of atmospheric air at every drawing in of the breath. A deeper inspiration will give room for more than twice this quantity.

(m) According to Lavoissier, a man generally consumes 32 ounces troy of oxygen gas in 24 hours; that is, the lungs separate this quantity of oxygen from the air which he respires in that time.

(n) Clothes keep the body warm in consequence of the air which they infold within them; all confined bodies of atmospheric air being non-conductors of heat. It is on this principle that double windows preserve the warmth of apartments at an equable temperature. In like manner, double lids for boilers, are found to be very effectual for preserving the heat of the liquor with a very small portion of fuel.

On this principle it is that light spongy substances, such as furs and down, afford the warmest clothing. Hence it is that the carpet of snow which covers the earth in winter, is spread out by nature with so light a hand, that it might hold an abundance of atmospheric air within its interstices, to preserve the warmth of those innumerable tribes of vegetables which it is destined to protect.

(o) We clothe ourselves with wool, because it is a bad conductor of heat, and retards its escape from the body.—The inhabitants of Russia, clothe themselves in fur, because fur is still a worse conductor of heat than wool. Sheep are natives of a temperate climate; but the bear and the ermine of the coldest. The provident care of the Creator is evidently conspicuous in this appointment, and discovers the same undeviating attention to the comfort of all his creatures; hence the clothing of animals in the torrid zone is hair, in the temperate zones wool, in the frigid thick fur.

(p) The *upper* side of the leaf is the organ of respiration: hence some vegetables (as they give out oxygen only in the day,) close the upper surfaces of their leaves during the night. The multiplicity of the leaves of trees indicates the importance of transpiration to a vegetable.

(q) To show the production of oxygen gas from the leaves of plants, fill a glass bell with water, introduce some fresh leaves under it, and place the bell inverted in a flat dish of water. Expose the apparatus to the rays of the sun, and very pure oxygen gas will be disengaged, which will displace the water in the jar and occupy its place. In like manner, a sprig of mint, corked up with a small portion of carbonic acid air, and placed in the light, will absorb the carbon and render the air again capable of supporting life. The plant purifies what the animal had poisoned.

All the oxygen, however, is not given out by plants; part must be retained to form the sugar and acids which are found in vegetables.

Horticultural Association of the Valley of the Hudson.

☞ A meeting was called for the 30th May, to be held at the rooms of the Lyceum of Natural History, 563 Broadway, N. York, to organize an association, under the style of "The Horticultural Society of the Valley of the Hudson." The objects of the association are to facilitate the introduction into our orchards and gardens, and of disseminating, all the choice kinds of fruits and vegetables which are adapted to our soil and climate, and of improving our taste for the rural embellishments and ornamental gardening—objects highly conducive to the comfort and rational enjoyment of all classes of the community. The circular calling the meeting, bears the names of several highly respectable gentlemen and professional gardeners, and invites the attendance of all who are anxious to promote the objects of the association.

☞ Ruta Baga Seed. ☜

A parcel of genuine *purple top* Ruta Baga Seed has been left at the Cultivator office, in half pound papers, for sale, by a gentleman who imported it direct. Price 75 cents per lb.

*Moneys received during the last month, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

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Pleasant Mount	Pa.	5
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PRICE CURRENT.

ARTICLES.		New-York. May 21.	Boston. May 19.	Philadelphia April 18.	Baltimore. May 20.
Beans, white,	per bush.	....	1 20.. 1 50	1 00.. 1 12	1 ..
Beef,	cwt..	8 00..11 00	8 25.. 9	7 00.. 9 00	9 00..10
Bacon, western,	lb....	10..	11.. 12	8 00..10	9.. 10
Butter, fresh,	lb....	22.. 27	18.. 25	14.. 18	20.. 25
Cheese,	lb....	7.. 9	8.. 10	9.. 10	....
Cotton, best,	lb....	7.. 12½	9 ..13	....	11.. 12
Flour, best,	bbl..	7 50.. 8 25	8 .. 8 63	7 87.. 8 00	7 75.. 7 87
GRAIN—Wheat,	bush.	1 25.. 1 62	....	1 37.. 1 40	1 70.. 1 75
Rye,	bush.	1 05.. 1 10	1 .. 1 03	95.. 97	88.. 94
Oats,	bush.	35.. 46	36.. 42	35.. 40	32.. 33
Corn,	bush.	80..	78.. 80	66.. 70	69.. 71
Hams, pork,	lb....	11.. 12	11.. 12	10.. 12	12½.. 13
Pork, in hog,	cwt..	....	8 .. 9	....	6 75.. 7
SEEDS—Red Clover,	bush.	12 00..13 00	14 ..15	10.. 11	8 00.. 9
Timothy,	bush.	....	2 .. 2 12	2 ..3 25	3 00.. 3 50
WOOL—Saxony, fleece,	lb....	45.. 50	48.. 50	48.. 50	40.. 50
Merino,	lb....	37.. 38	36..	45.. 50	30.. 40
1-4 and com.	lb....	28.. 32	32.. 36	33.. 38	25.. 33
Sheep,	head,	....	....	....	....
Cows and Calves,		30 ..45	27 ..35	20 ..38	35 00..40 00

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THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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The Cultivator is subject to common news[illegible]

☞ Price of the published volumes, 50 cents per vol. stitched—the four volumes bound together, $2.75—bounded in two volumes, $3—the four vols. bound each separate, $3.25.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Hints for July.

From a belief of its utility, confirmed by several years' practice, we earnestly recommend a trial, to those who have not adopted the practice, *of curing their clover hay, and such as abounds in clover,* IN GRASS COCKS, instead of spreading and curing it in the old way. It will save labor, save hay, and add much to the value of that which is housed. As soon as the grass has become wilted in the swath, and the external moisture evaporated, and by all means before any of the leaves become dry and crumble, put the grass in grass cocks, as small at the base as possible, not to exceed a yard in diameter, and taper them off, by adding forkfulls, to the apex, which may be four to five feet from the ground. Leave them undisturbed at least 48 hours, and until you are pretty certain of sun or a drying wind; then open the cocks, and if once turned, the curing will be complete in three or four hours, scarcely a leaf will be wasted, and the hay will be bright, fragrant, and will keep well.

Cut small grain before it becomes dead ripe, for the following reasons: 1. If omitted, bad weather may intervene and delay the harvest too long. 2. Dead ripe grain wastes much in harvesting. 3. Early cut grain makes the best flour. 4. When any portion of the culm or straw has ripened, or become dry, there is no further supply of nourishment from the soil; and the grain then gets as much food from the cut as it could get from the standing straw. Hence, when the straw turns yellow under the ear, however green the rest part of it may be, the grain should be cut. And when the straw becomes badly affected with rust or mildew, the sooner it is cut the better.

Do not put the plough into your corn, if you have, as you may have for a trifle, a cultivator or horse-hoe. It severs the roots, which are the mouths of the plants, turns up and wastes the manure, which should always be applied to this crop, and deprives the plants of more than half their pasture. *Hill your corn but slightly.* Hilling renders it more liable to suffer from drought, and induces it to throw out a new set of roots, the old ones being in a manner useless, by being buried too deep, and beyond the reach of the influence of heat and air, the indispensable agents of nutrition and vegetable growth.

Rural Embellishment.

There are few things hetter calculated to attach us to our HOMES,—where the social virtues love to congregate, and to dispense their blessings—than rural embellishments. This is true whether we apply the term to our neighborhood or individual abode.—The public grounds about the great cities of the old continent, some of which comprise an area of five hundred acres, are the theme of general admiration, the theatres of healthful exercise and recreation, and the sources of high intellectual enjoyment. The lesser towns and villages, even of our own country, owe more of their charm and interest to the trees and plants which embellish their squares, streets and grounds, in the eye of a man of taste, than to any ostentatious show of brick and mortar—more to the beauties of nature than to the works of man. Nay, the highest efforts of the human intellect are in vain put in requisition to imitate the handy-works of the Creator. And when we come down to the suburban residence, and even to the unostentatious abode of the farmer, how are their beauties heightened, and their value enhanced, by a screen of ornamental trees, and a well kept garden.

Loudon tells us, that in travelling from Strasburgh to Munich, he passed through a continued avenue of fruit and forest trees, planted on both sides of the highway, for more than one hundred miles. Who that has passed through New-England, in summer, has not admired, in some of the villages, the beautiful trees with which they are in a measure enshrouded. The great objection to planting is, that one may not live to enjoy the fruit or the shade of the trees which he plants. Such an objection is unworthy of [illegible] which [illegible] if it does not, have regard to [illegible] and is, besides, affecting to hold a shorter tenure of life than all of us hope for, and most of us expect.—Twenty years ago, at forty years of age, we commenced the cultivation of what was termed a barren untameable common, not an acre of which had been cultivated, and on which neither a tree nor shrub had ever been planted by the hand of man. We have now growing in our court yard, comprising about half an acre, and in the highway in front of it, fifty species of forest and ornamental trees, many of them forty and fifty feet high, more than fifty speices of ornamental shrubs, not including the rose, besides a vast number of bulbous and herbaceous ornamental and flowering perennial plants—the greatest number of which, in all their variety and hue of foliage, flowers and fruit, may be embraced in a single view from the piazza. Most of our fruits have been raised by us from the seed, or propagated by grafting or budding. Yet we can enumerate more than two hundred kinds, including varieties, which we are now in the habit of gathering annually from trees, vines, &c. of our own planting. We feel grateful to God for these rich and abundant blessings, and for the impulse which prompted our labor. We have adduced our own example, not in a spirit of vaunting, but to convince the young and the middle aged, that there is abundant reason for them to plant, with the hope of enjoying the fruits of their labor. The old *should* plant, as an obligation they owe to society, and for the requital of which they have but a short period allowed them.

Our attention has been particularly drawn to this subject at the present inapposite season, by reading the report and constitution of the Bangor association, termed the Ornamental Tree Society, which has been recently formed, and whose object is the embellishment of their city by planting out forest trees. The constitution requires, that "every member shall himself set out, or cause to be set out, one or more ornamental trees, on such of the public streets or squares of the city as he may elect"—the kind of tree, and distance of planting, to be determined by the directors. Accompanying the report, in the New-England Farmer, are two letters from Gen. Dearborn, on ornamental planting, evincing much experience and good taste in the matter.

The General considers the planting of only one kind of tree as evincing a bad taste.

"The monotony of appearance, which lines, or clumps, of the same tree produce, is to be avoided, and a picturesque and agreeable aspect obtained, by increasing the varieties; for as the periods of their foliation are so very different, as well as the tints of green when in vegetation, and the remarkable autumnal changes quite as dissimilar, they are presenting an ever varying, yet always pleasing and interesting scene. Besides, we have so many magnificent species of native trees, which flourish luxuriantly, even in the most exposed situations, that I have never been able to divine, why one particular tree should be so universally selected, as shades, or for ornament, not only around private dwellings, but for all public places. As well might all flowers be excluded from our gardens, but the rose, or the lilac, and all fruits from our orchards but the apple."

"For your streets I recommend the alternate planting out of rock maples, elms, white ash, white maple, basswood, beech, and red, white and other oaks. [We will add to the list of native trees the button wood, tulip tree, or whitewood, and cucumber tree, (*magnolia accuminata*,) for the city and village, and the black walnut, butternut and honey locust for the country.]—The rock maple is certainly one of our most superb trees, and in my own estimation superior to the elm—Its form and foliage, with the splendid changes of its autumnal aspect, are of surpassing beauty. The basswood, (*Tillia Americana*,) is the American linden, or lime, and much superior, for its size, graceful form, and large leaves, to the much celebrated and favorite European species. It is easy to transplant, and of rapid growth. The oaks are of rapid growth, and one renowned as the name of England, and have been the choice trees of all the celebrated nations of antiquity. The occidental plane, or American buttonwood, is also a finer tree than the oriental variety, which was so much admired and cultivated by the Asiatics and Romans."

For public grounds and squares, the General recommends, also, the white pine, cedar, hemlock, spruce, and we would add the fir, the larch, and a sprinlking of foreign trees, as the English and Scotch elms, lar[illegible] abeel, horse chesnut, mountain ash, &c. w[illegible] be obtained at the nurseries. He recom[illegible] England, that the roots be taken up as entire as possible; that the trees be *not more than two inches in diameter;* that the tops be not cut or mutilated.—"*Do not*," says he, "*cut off a single twig*, save such as may be within four or five feet of the ground."—He also directs that large and deep holes be made for the reception of the trees, and that these holes be filled with the best mould, to be well trod down and watered after the tree is planted. In regard to coniferous and other evergreens, Gen. Dearborn recommends, that they be taken from open grounds—(nurseries are the best,)—all the limbs carefully preserved, and as much of the dirt about the roots retained as possible. "The best time," he continues, "to transplant all the evergreen trees is later than that for the decideous, and is *just before they commence vegation.*" These directions are all good; yet we would amend, or rather add, to the one which regards the *time* for transplanting evergreens. We transplant them *just after vegetation has commenced*—have transplanted in July, with entire success—and our friend Michael Floy, of New-York, a professional nurseryman, prefers the month of August. He showed us the other day, several large firs, which had been planted at that season, in front of his grounds at Harlem, all of which lived and did well. We think evergreens should be planted *when the tree is growing*—as the foliage requires a constant supply of nourishment through the roots; and if the functions of these are dormant, as they are likely to be when evergreens are transplanted when vegetation is at rest, the foliage is apt to wither, and the plant to die: and the only danger to be feared from transplanting these trees at midsummer, is that which arises from excessive evaporation. To guard against this, as much earth should be lifted with the roots as is practicable,—the holes for their reception should be large and deep, filled to the proper height for the roots of the tree with loose mould, and well saturated with water; the surface around the tree should be well mulched with litter, and this well wet, and superficially covered with earth, and the plants occasionally watered if the weather is hot and dry.

As to the effect of planting, *upon the beauty of the landscape*, Mr. A. J. Downing, in a well written article upon this subject, justly remarks—

"Many a dreary and barren prospect may be rendered interesting—many a natural or artificial deformity hidden, and the effects of almost every landscape may be improved, simply by the judicious employment of trees. The most fertile countries would appear but a desert without them, and the most picturesque scenery in every part of the globe has owed to them its highest charm. Added to this, by recent improvements in the art of transplanting, the ornamental planter of the present day may realize, almost immediately, what was formerly the slow and regular production of years."

Mr. Downing is about to publish a work on our forest trees, and ornamental planting, a task for which he is eminently qualified, by good taste, science and practical knowledge.

As to the effect of planting and gardening, *upon the body and mind* of those who engage in these pursuits, we offer the following extracts from Loudon's Suburban Gardener, and we recommend them to the special notice of all gentlemen who are troubled with dyspeptic or hypochondriac affections.

"There is," says our author, "a great deal of enjoyment to be derived, from performing the different operations of gardening, independently of the health resulting from this kind of exercise. To labor for the sake of arriving at a result, and to be successful in attaining it, are, as cause and effect, attended by a certain degree of satisfaction to the mind, however simple or rude the labor may be, and however unimportant the result obtained. To be convinced of this, we have only to imagine ourselves to be employed in any labor from which no result ensues, but that of fatiguing the body, or wearying the mind: the turning of a wheel, for example, that is connected with no machinery; or, if con nected, effects no useful purpose; the carrying a weight from one point to another and back again; or the taking a walk without any object in view, but the negative one of preserving health. Thus it is not only a condition of our nature, that in order to secure health we must labor; but we must also labor in such a way as to produce something useful or agreeable. Now of the different kinds of useful things produced by labor, those things surely which are living beings, and which grow and undergo changes before our eyes, must be more productive of enjoyment than such as are mere brute matter—the kind of labor and other circumstances being the same. Hence, a man who plants a tree, a hedge, or sows a grass-plat in his garden, lays a more certain foundation for enjoyment, than he who builds a wall or lays down a gravel walk; and hence the enjoyment of a citizen, whose recreation, at his suburban residence, consists in working in his garden, must be higher in the scale, than that of him who amuses himself in the plot round his house, with shooting at a mark, or playing at bowles."

A strong illustration of this truth lately came within our knowledge. An esteemed friend, who had become wealthy and retired from active business, at the middle age of life, had become particularly diseased in body and mind. We advised him to recreate himself in horticultural pursuits, as an antidote to both maladies. He replied, that he had no taste, and could not acquire a relish for these pursuits. We thought otherwise; and as he was going to spend the summer with a relative, on a farm which belonged to him, we presented him with half a dozen trees, asked him to plant them on his farm and to report to us in autumn, whether they had afforded him any gratification. When he returned from his summer residence, he confessed with gratitude, that they had been to him a source of high interest and gratification; that they had received his constant care and attention; that the had watched, with a kind of paternal feeling, the development of the leaves, and the growth of the branches; that he had examined them almost daily, sedulously guarded them from injury, and watered them with his hand; and that these cares and labors afforded pleasures without alloy. Had our regretted friend made this experiment two years earlier, he would, in all probability, have been now numbered among the living, and probably among the hale and hearty.

But to return to our quotations from Mr. Loudon—"One of the greatest of all the sources of enjoyment resulting from the possession of a garden," remarks our author, "is the endless variety which it produces, either by the perpetual progress of vegetation which is going forward in it to maturity, dormancy or decay, or by the almost innumerable kinds of plants which may be raised in even the smallest garden. Even the same trees, grown in the same garden, are undergoing perpetual changes throughout the year; and trees change also in every succeeding year relatively to that which is past; because they become larger and larger as they advance in age, and acquire more and more their characteristic and mature form." "Independently of the variety of change resulting from the variety of plants cultivated, every month throughout the year has its particular operations and its products: nay, it would not be too much to say, that during six months of the year, a change takes place, and is perceptible in the plants of a garden, every day; and every day has in consequence its operations and its products."

In conclusion: A bountiful Providence has given the vegetable kingdom for our sustenance, employment and highest intellectual enjoyment,—and has scattered these elements of happiness, with a profuse hand, every where within our reach. It is left with us to enjoy them in a greater or less degree, as we learn to appreciate their value, and exert ourselves to apply them to their proper use. The brute is content to satisfy its animal wants. Man, the lord of the creation, should have a higher aim—because he has higher sources of enjoyment than the brute, and higher duties to perform—he is the husbandman appointed to take care of and nurture the great vineyard, and to carry out the wise purposes of the all-bountiful Giver.

We intend, ere long, to name and describe some of the ornamental shrubbery, and perhaps perennial plants, best adapted for the embellishment of court yards and gardens. In the mean time we advise the young to cultivate a taste for rural embellishment, as a preventive of bad habits, and as the source of substantial and innocent pleasure.

Liquid Manures.

All urine, says Davy, contains the essential elements of vegetables in a state of solution, that is, in a condition immediately to become the food of plants. The Flemings and Chinese save and apply all this fertilizing material, either mixed with earths or dung, or in a liquid form, diluting it first with water. Three hundred acres are kept in a condition of great fertility by the liquids which flow from a part of the drains of the city of Edinburgh. The meadows thus fertilized, says Mr. Oliver, let for £24 to £30 per imperial acre per annum, equal to $106 to $136! and in one case, in 1826, the Earl of Moray's meadow fetched £57 an acre!! Some of these lands were, till lately, absolutely barren—sea-sand—and yielding nothing. Thirty acres were levelled and prepared to be irrigated by the liquid filth of the town, in 1821. They now let for £15 to £20 per acre, and are considered susceptible of much higher improvement.—The great value of liquid manure is particularly illustrated in the following quotation which we make from the veteran in horticulture, Mr. Knight.

"I have shown in a former communication," says this distinguished physiologist, "that a seedling plum stalk, growing in a small pot, attained the height of nine feet seven in a single season; which is, I believe, a much greater height than any seedling of that tree was ever known to attain in the open soil. But the quantity of earth, which a small pot contains, soon becomes exhausted relatively to one kind of plant, though it may still be fertile relatively to others; and the size of the pot cannot be changed sufficiently often to remedy this loss of fertility; and if it were ever so frequently changed, the mass of mould, which each emission of young roots would enclose, must remain the same. Manure, therefore, can probably be most beneficially given in a purely liquid state; and the quantity which trees growing in pots have thus taken, under my care, without any injury, and with the greatest good effect, has much exceeded every expectation I had formed.

"I have for some years appropriated a forcing house at Downton, to the purposes of experiment solely upon fruit-trees, which, as I have frequent occasion to change the subjects on which I have to operate, are confined in pots. These at first were supplied with water, in which about one-tenth by measure of the dung of pigeons or domestic poultry had been infused; and the quantity of these substances, generally the latter, was increased from one-tenth to one-fourth. The water, after standing forty-eight hours, acquired a colour considerably deeper than that of porter, and in this state it was drawn off clear, and employed to feed trees of the vine, the mulberry, the peach, and other plants; a second quantity of water was then applied, and afterwards used in the same manner, when the manure was changed, and the same process repeated.

"The vine and the mulberry tree being very gross feeders, were not likely to be soon injured by this treatment; but I expected the peach tree, which is often greatly injured by an excess of manure in a solid state, to give early indications of being over fed. Contrary, however, to my expectations, the peach tree maintained, at the end of two years, the most healthy and luxuriant growth imaginable, and produced fruit in the last season in greater perfection than I had ever previously been able to obtain from it. Some seedling plants had then acquired, at eighteen months old, though the whole of their roots had then been confined to half a square foot of mould, more than eleven feet in height, with numerous branches, and have afforded a most abundant and vigorous blossom in the present spring, which has set remarkably well; and those trees which had been most abundantly supplied with manure, have displayed the greatest degree of health and luxuriance. A single orange tree was subjected to the same mode of treatment, and grew with equal comparative vigor, and appeared to be as much benefitted by abundance of food, as even the vine and the mulberry tree."

To introduce a comparison between the animal and vegetable, we may compare the roots of the latter to the locomotive power of the former, which enables both to *go abroad for food*—constantly to seek new pasture; and the liquid food of the plant to the chyle in the animal stomach—fitted to nourish and become an integral part of the living organic structure. So that liquid food is more readily converted into vegetable matter, than forage and grain is into the flesh of the animal. And the continued extension of the roots is superseded by giving to the plant this cooked food, in the same way that the locomotive power of the ox is superseded by feeding him constantly at the stall.

The above facts may be rendered profitable to the professional gardener, as they suggest a source of immediate fertility always at his command. They will not fail to indicate to the fair, who mourn at the declining beauty of their parlor plants, a ready means of renovating and imparting to them new vigor. The farmer who has hitherto disregarded his liquid manures, and who has suffered to go to waste, the highly fertilizing matters of his dove-cote and poultry-house, will see, at once, from the preceding statement, that he has lost a treasure to his land from his neglect; and if he is not unchangeably wedded to his old habits, he will at once set about availing himself of these valuable sources of fertility.

A weak solution of soda, (one pound in fourteen gallons,) produces upon soils, (says the Sussex Agricultural Express,) the most admirable fertilizing effects.

Mr. Coleman's Agricultural Report.

We regret that our limits do not permit us to extract liberally from this excellent report; but we are obliged to be content with a brief notice of its principal points. We cannot withhold our admiration of a people who by industry and perseverance, have maintained a high reputation as agriculturists, educated large families, and surrounded themselves with the substantial comforts of life, upon a rocky primitive soil, "no part of which can be advantageously cultivated without manure." The farmers of Essex are richly entitled to this commendation; and yet we consider their husbandry defective in many points, and capable, with their habits of application and close observation, of being doubled or trebled in product. But we resume the thread of the report. The next subject in order, is

Fruit Trees—which are cultivated to a considerable extent, and are a source of profit. The trees of one of their best apples, the Baldwin, were principally destroyed by the severe winter of 1833–4; yet in ordinary years the farmer markets 300 barrels of dessert apples. They are hand-picked, packed in dry barrels, placed in a cool cellar, and not generally sold till May. Eight hundred dollars a year, says the commissioner, is not an unusual product of his orchard. These facts present a strong inducement for the cultivation of orchards; and if we superadd the consideration, that apples are now made to constitute a valuable food for all kinds of farm stock, the orchard cannot fail to be regarded as a source of great and certain profit to the farmer. The commissioner notices a new mode of keeping the apple trees free from the canker worm, which until lately has much annoyed them. It is to surround the collar of the tree, or that part which is at the surface of the ground, with a belt of adhesive clay, and then to cover this with tar—the application of tar directly to the trunk of the tree having been found to be injurious.

We cannot pass over the subject of fruit, without paying a merited compliment to one of the inhabitants of Essex, who has distinguished himself as a pomologist—Robert Manning, Esq. of Salem. Mr. Manning has been indefatigable for years, in collecting the best fruits from European and American nurseries, in cultivating, comparing and testing their relative qualities; and he has just published the result of his labors in a work upon fruits, which is highly spoken of, though we have not yet met with it. A choice selection of orchard and garden fruits, adapted to our climates, is a desideratum with all who know how to appreciate the relative value of those kinds which are intrinsically good.

"A taste for flowers,"—we resume our quotations from the report—"and the external rural embellishments of the houses and grounds, is every where springing up. Besides its strong tendency to multiply the attachments to home, among the best safeguards of virtue, and furnishing sources of delightful recreation, it is highly conducive to intellectual and moral improvement."

To preserve plum trees from being destroyed by what is termed the black canker, Mr. C. mentions the successful mode adopted by the Rev. Mr. Perry, and which we have practised for twenty years. It is to cut off all the affected parts, and immediately to consign them to the fire.

Forest Trees.—The commissioner very properly directs the attention of the farmer, to this subject, and cites several cases to show that the growth of forest trees is a profitable appropriation of land—in one case, an acre yielding 60 cords of wood, the growth of 25 years—worth, on delivery, $5 per cord, or $300 for the 25 years—being $12 per acre per ann. Planting forest trees has but commenced in Essex. Among the trees named as springing up, we presume spontaneously, are the white and yellow pine, white birch, &c. Among the cultivated trees, the locust, Scotch fir, and oak are named, and we venture to recommend the white ash and soft maple—the former for dry, and the latter for moist soils, in addition.—The seeds may be readily gathered in quantities at proper seasons; they vegetate freely; their growth is rapid, and they are excellent for firewood and timber, far superior to the white birch.

Fences are principally of stone. The commissioner suggests, that to prevent their being thrown by frosts, as they are apt to be when laid in a trench, that gutters be made on each side of the wall, at a short distance from it, by which all the surface water which would otherwise settle under it, should be immediately conveyed away.

The *Farm Buildings* are generally of wood. The commissioner recommends stone for buildings, with which the country abounds. The approved mode of constructing barns on the slope of a hill, giving the basement for manure and vegetables, and the second story for hay, grain and cattle, is beginning to be followed. Much benefit is supposed to result to the manure by keeping it from the weather.

Slaughter-house offal, is bought by the managers of the poor-house, at 32 cents for every beef killed, and so husbanded as to be rendered profitable to the establishment. The meat from the head is consumed by the inmates; the heads are then boiled for the extraction of the tallow, and thrown to swine; and after being thoroughly picked, they are sold for animal carbon; the jaw and leg bones are sold to the button maker, the claws of the hoof to the comb maker, the skins from the legs to the glue maker; and from the feet is extracted oil. Hogs are fattened, and manure made in the bargain.

Extensive beds of *peat* exist in Essex; much is used for fuel, and sells ordinarily at $8 per cord. A stratum of two feet in thickness, gives 480 cords to the acre.

Great *improvements* have been made and are making, in dykeing salt marsh, and reclaiming fresh water swamps. The prevailing opinion seems to be in favor of draining, though some are content with mere ditching salt marshes. By the former, the product in hay has been threbled. Breaking up of the old sod is considered injurious; yet grass seeds are sown upon it, and stable manure is sometimes applied with advantage. The swamps are reclaimed first by draining, and then by carting on gravel or sand, and sometimes stable or other dung, mixing these with the muck, and sowing oats and grass seeds. Some of these reclaimed swamps are now considered worth $100 per acre. So far as we can perceive, the excellent plan of under-draining has not yet been introduced—the drains being a main one in the centre, and lateral ones running from it to the borders of the swamp. We think this latter branch of Essex farming is capable of being greatly improved by a better system of draining, and by applying the vegetable matter of the swamps as a fertilizing material to the uplands. An extraordinary instance of improvement is noted upon Cape Ann. A district of 584 acres, which forty years ago exhibited only swamps, "frowning hills of granite, and rolling boulders," which was not capable of keeping a cow, without procuring hay for her support, from a distance of several miles, has been reclaimed, improved, and made to produce as follows:

Hay,....................	854	tons.
Indian corn, ...	690	bushels.
Rye,....................	390	do
Oats,..................	130	do
Potatoes, ...	8,635	do

The mowing land is valued at $300 per acre, because, says the commissioner, it will pay a handsome profit upon that price.

We must close our notice of this excellent report, without adverting to many facts which we should be glad to promulgate. Yet before we dismiss it, we must remonstrate against a custom which has obtained "down east," and which the commissioner has endorsed by adopting in his report—of attaching the significant term *English*, to products which are no more English, in any sense, than they are American or French. Thus they speak of *English* meadow, comprising grasses that are indigenous to the United States; of *English* grain and *English* turnips; of *English* cherries, and of *English* strawberries, which came originally from our continent. The distinctive term, thus applied, may be very well understood *at home*, though we confess, Yankee as we be, we are often much puzzled to *guess* at precisely what it means. The application of it is not, however, conformable to the language of science, or to the spirit of an improving age, and we think it should be discarded at least by those who write for a nation and for posterity.

The Philosophy of Deep Ploughing.

Our best farmers concur in opinion, as the result of their experience, that most soils are improved by ploughing them *deep* during a course of crops, or once in four or five years. We propose to state some of the reasons which present in favor of this practice. And

First. Occasional deep ploughing brings to the surface the fine vegetable matters of the soil, which we all know, constitute its fertility, or the food of our farm crops, and which, by the operations of tillage, and the force of rains, have sunk upon or into the subsoil. These matters, while deeply buried, are inert, and afford no support to our crops; but brought within the influence of the sun and atmosphere, and within reach of the roots of our crops, by deep ploughing, or the subsoil plough, they are rendered soluble, and made to exert their potent energy upon vegetation—they are fitted for the absorbent vessels of plants, and to become integral parts of them.

In the second place, a deep tilth enlarges the pasture of plants—it permits the roots to roam more freely and extensively in search of food—it permits the surplus water to escape*—and it counteracts the influence of drought. A superficial tilth is much sooner exhausted of its moisture, by the influence of the sun, than a deep one.

And in the third place, its benefits are manifest by the increased product which it gives—these being proportioned, in a measure, to the depth of tilth, when this depth does not exceed ten or twelve inches. See our quotation from Von Thaer, in the second number of our current volume.

Science has furnished other reasons for the practice of occasionally ploughing deep, or rather explained to us the causes of results which were before palpable. Vegetable matters are only available as the food of plants in a soluble state, that is, when they are capable of being dissolved by the liquids of the soil. When deeply buried, these matters are often not soluble; but if brought within the influence of the air, and heat, they soon become soluble, are carried by the liquids in which they are dissolved into the absorbent vessels, and assimilate with the plant. "Soluble geine," that is, decomposed organic, or animal and vegetable matter, says Dr. Dana, "is the food of plants. Insoluble geine becomes food by air and moisture. Hence the reason and result of tillage." Earths, taken from depths so far below the surface as to exclude the agency of heat and air, often abound in insoluble geine, and indeed in the seeds of plants, have, when submitted to a temporary exposure upon the surface, developed uncommon fertility, and seeds have been found to grow. The subsoil plough, which opens to atmospheric and solar influence the long hidden treasures of the earth—its insoluble geine—is a new and important implement for developing the bounties of Providence. It is perhaps preferable to trenching with the spade or plough, inasmuch as the lower stratum is not blended with the upper one, until the air and moisture have imparted to it fertilizing properties—until they have converted its insoluble, into soluble geine. There is reason to believe, that in the great secondary formation of the west, the earth, to a great depth, filled as it is with organic remains, would be found to be fertile upon its exposure to the atmosphere.

These principles, which we have endeavored to explain, serve also to illustrate the advantages of alternating tillage with grass crops—of occasionally opening with the plough, to atmospheric and solar influence, the inert vegetable matters—the insoluble geine—of dividing, pulverizing and mixing the soil, thereby giving a free range to the roots, and counteracting the influence of drought.

We all know, that land will wear out under a constant system of cropping, unless more highly and constantly manured than is consistent with farm economy. It is equally apparent that most meadows require to be top-dressed at least once in three years, to prevent deterioration. Well managed young meadows should give at least three tons of hay to the acre; yet after the second or third year they will deteriorate, if not top-dressed, until they yield but one or two tons the acre. Besides, if manure is applied, as it ought to be, in an unfermented state, and to an autumn-ripening corn or root crop, it will yield twice the benefit to a farm, that it will if spread upon the surface of the soil.

The considerations which we have suggested go to show the propriety of occasionally ploughing *deep* in tillage husbandry, and of alternating grain, grass and root crops wherever the nature of the soil and surface will admit the plough.

Vitality of Seeds.

The following remarkable fact, showing the long retention of vitality in seeds when lying upon the ground, has been related to us by Judge Stilwell, of St. Lawrence, as having taken place in his immediate neighborhood and under his own personal observation. Twenty-one years ago, a neighbor cleared and burnt a piece of ground, and harrowed in grass seeds and turnips. The ground lay 12 years in meadow, and 8 years in pasture, when the plough was put into it for the first time, preparatory for a tillage crop. It was soon discovered, after the soil had been turned over, that it promised a crop of turnips, which must have come from seed grown upon the ground nineteen years before, many of the roots having been then left in the ground over winter, and suffered to seed. A part of the plants were left to grow, and came to high perfection.

Theory and Practice.

Mr. Stevenson, the able conductor of the Franklin Ky. Farmer, has commented, at some length, upon our article in the April Cultivator, "*The new lands of Kentucky wearing out;*" and we are very happy to perceive, that in the main, there are no essential points of difference in our opinions. We made the quotation from his paper, not so much to give the character of Kentucky farming, much of which, we are aware, is excellent, but to show that, under bad management—under *common* management—the best lands will soon become poor; and while we concede all the advantages which he claims from science, we must persist in the opinion, that neither the mere theorist, nor the mere practitioner, are so likely to succeed, in profitable husbandry, as the man who possesses both a theoretical and practical knowledge of the business. We have no schools that combine the two requisites; and hence we suggested the propriety of practical farmers instructing themselves in the science.

Account Current.

Thrifty farmers are in the habit of making out a balance sheet for each year, in order to ascertain what they have made or lost by their farming operations, and with a view to profit from their errors.—Now Uncle Sam is at least nominally a farmer, and, like all other farmers, can only expect to prosper in proportion as his sales exceed his purchases; and, at all events, if we find that he has not raised his own provisions, we may set it down as certain, that he does not work it right, and that unless he mends his ways, he must ultimately fail. The business of this nation, to be independent and prosperous, should be to provide breadstuffs, not only for its own population, but a surplus, sufficient to pay for the foreign commodities which we consume. Such would be the course of the prudent farmer; and we should think little of the shoemaker, or the hatter, who should be obliged to buy shoes or hats for his family.

In striking the balance of Uncle Sam's account, we would premise, that our estimates embrace only breadstuffs, the great staples of the northern and middle states, and which constitute the principal means, in these states, of paying for the foreign merchandize which we consume.

By a statement from the treasury department, it appears, that the importations and exportations of grain, flour and meal, during the year 1837, were as under stated, estimated in dollars.

Articles.	*Imported.*	*Exported.*
Flour,..................	$122,691	$2,987,269
Wheat, ...	4,154,325	27,206
Rye and rye meal, ...	333,695	165,467
Corn and meal,..........	3,918	911,634
Other grain. bread, &c. ..	8,837	325,077
	$4,623,466	$3,416,653
Deduct exports, ...	3,416,653	
Bal. against Uncle Sam,..	$1,206,813	

in the commodities which it is his business to raise and sell, and which he never ought to be obliged to buy.

If we add to this balance of............	$1,206,813
the amount which the old gentleman paid last year for foreign silks, viz.........	14,352,823
and for foreign sugar,.................	12,514,504
It will show an annual balance against him, of............................	28,074,140

Twenty-eight millions of dollars, in articles which it is either his professed business to raise, or which he can produce by his own labor, and from his own soil. This balance would however be reduced by the value of the silk and sugar which he exported in 1837, to about twenty millions of dollars. If these facts were applied to the affairs of an individual farmer, we should naturally suppose that his boys were either too proud or to lazy to work, and perhaps both. And wherein does the analogy fail between an individual farmer and a nation of farmers. A diminution of crops was among the causes of the late national embarrassments; and our surplus products have been relied upon to pay the foreign balances against us.

What would be the conduct of the individual farmer who should find his affairs thus going to ruin? Would he not instruct his boys in the science and practice of his business, and stimulate them to labor, by rewards, that the farm might produce enough and to spare, to pay off his debts, and keep something on hand for a wet day? And if such would be the politic course in the manager of a farm, why would it not be wise in the managers of a state, or of a nation? They give millions annually to aid those who add nothing to our national wealth, and which tend to elevate the idler above the man of industry? Why not give for instructing the farmer and mechanic how to double the profits of their labor? We insist, that the higher branches of learning, when blended with practical instruction in the useful arts, and particularly in the business of agriculture, are more profitable to a state, than they are when applied to the learned professions.

Advantages of Draining.

Make your lands dry, if not the first, is the second precept in good farming. We have many thousands of acres of swamp lands, scattered over our country, which are rich in the elements of fertility, and which would yield them readily to our use, if freed from their surplus water. We have other vast tracts, which have been subjected to the control of the plough, but which make a scanty and precarious return, by reason of their level surface, and the water which settles and remains upon their impervious subsoil. Most of these lands are susceptible of a high state of improvement and of profitable culture, by the simple process of draining, a branch of farm economy which has been neither much practised nor duly appreciated in this, nor, till recently, in those countries of Europe from whence we derive our best lessons in farming. Indeed we think it is but imperfectly, or partially, yet practised in England; and we should rather refer to Scotch husbandry for the best examples in this branch of improvement.

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* Of this, we have the best proof: one piece of our land, when we began to improve it, was, in wet times, covered with water, which remained there often days and weeks. Since it has been tilled deep, the water never stands an hour upon the surface, except the soil is frozen.

We are aware, that many think, as we did when we *commenced* draining, that they understand all about it, and that they practise it on the most approved, or at least most economical system. But they may learn, as we have learnt by experience, that draining is only economically done when it is *well* done—when the lands are laid dry, and the drains so constructed as to be rendered efficient and permanent. In swamps, the source of the evil,—the fountain of living waters, which flow into the morass, must be sought out, and the waters conducted off before they enter the swamp, or before they approach its surface. On level tenacious soils, or soils reposing on an impervious subsoil, where the rain and snow water settles and stagnates, and where its existence, is generally indicated by the growth of coarse grass, or marsh plants, *furrow* draining must be resorted to, that is, parallel drains must be opened, in a moderately inclined direction across the field, to receive these waters as they settle down, and to free the soil from their incumbrance.

We have published our own opinion, and the opinions of others, repeatedly, as to the best manner of constructing drains—of the materials which are most suitable for making them, and of the situations where under drains are preferable to open ones. The expense of thorough draining seems formidable; but yet, if it is compared with the enhanced value of the land operated upon, and its vastly increased products, it will be seen that the outlay is better than capital at compound interest. If the outlay in draining will nett a return of only seven per cent in the increase of product, it should be gone into; but in almost every case where the operations are judiciously and thoroughly performed, the return in the increased value and products of the land, is generally twice or thrice this sum, and often fifty and a hundred per cent.

We present below a statement of the mode and advantages of improving a wet meadow, in a communication addressed to the trustees of the Essex agricultural society. The writer stated to the trustees, that the whole cost of the land and improvements, up to the time of taking off the first crop, did not exceed $26 per acre; and yet a part of it afterwards produced, in one year, the sum of $100.50 per acre. The communication which we insert below, is accompanied, in the New-England Farmer, by one from Moses French, giving his mode of reclaiming six or seven acres of swamp land, covered with "bushes, flags and rushes," for which he paid $70, and for which he refused $200 after he had made his improvement. But to the statement.

" *To the Trustees of the Agricultural Society of the county of Essex.*

"Gentlemen—In my farm in Lynn, I have a meadow of 70 acres, which eight years ago bore nothing but meadow hay, and produced about one ton to the acre, of a poor quality. The meadow was mostly filled with hassocs. I cut a ditch of eight feet wide and four feet deep, through the centre of the meadow, and many other smaller ditches to drain the water into the large ditch. The length of all the ditches is about four miles. The whole meadow is covered by a soft black mould, from six to nine inches, and then a greyish substance, I call peat, from nine to fifteen inches deep, upon a pan of clay and sand.

"Eight years ago the last fall, I ploughed seven acres of this meadow, and in the following spring I sowed three acres with oats, three and a half to four bushels, half a bushel and one peck red top and one pound clover seed to the acre. In the summer following, I harvested fifty bushels of oats to the acre. In the winter following, when the ground was frozen, I carried on ten cords of compost manure to the acre. This compost contained two cords of night manure, four cords of yellow loam, and four cords of gravel, and was spread evenly over the ground in the spring, as soon as the frost was out. The following summer I cut on an average, three tons to the acre, of good, merchantable English hay. The following year the seven acres produced two and a half tons to the acre, and the third year two tons to the acre. The winter after the third cutting, I top dressed the same land with the like compost, ten cords to the acre. The next year the grass was equally good as the first year's mowing, but decreased in quantity the two following years, in the same ratio as at the first manuring.

Two years after my experiment upon the seven acres, I went over about three acres of the same meadow, while frozen, and cut off all the hassocs, so as to leave the ground smooth, and hauled off the hassocs. In the winter I carried on to the land, ten cords to the acre, of manure from the slaughter house yard, where I kept eight or ten hogs. Early in the spring, this manure was well spread upon the land, and I then sowed to the acre the like kind and the same quantity of grass seed as I did on the seven acres. The following summer I mowed the three acres twice. On one acre which I measured, and about as good as any of the three, I cut the first time three tons of hay, which I sold at $25 the ton, the second cutting one and a half ton, which sold at $17. The whole quantity of hay upon one acre that year, amounted to $100.50. The second year I had an equally good crop on this land as the first, but I did not cut the second crop. The third year the crop decreased, as the crop of the third year upon the seven acres. The winter after the third summer I carried upon this land ten cords to the acre of the like compost as upon the seven acres. The next summer the crop was equally good as the first crop upon the seven acres, but decreased the two following years, and kept pace with the seven acres. I am well satisfied that my meadow should be manured, as I have done, and with like quantity of manure, every winter after the third cutting or third summer, and by this management my meadow will continue to produce good crops of grass without any other cultivation, except keeping the ditches well cleared out. I consider this experiment upon the three acres the best, considering the amount of labor; and should have continued it upon the remaining portion of my meadow, had the surface been smooth and even, but it was very rough and uneven, so that I was compelled to plough it.

"In the exact manner I treated the acres, the three excepted, I have my whole meadow of 70 acres in good grass cultivation, all but fifteen acres, which I ploughed last fall in order for sowing in the spring. My crops of oats and grass have been uniformly good as upon the seven acres. The last summer my oats were sown late, and I cut them for fodder.

"I am, gentlemen, with due respect, your humble servant, ORIN DALRYMPLE."

We beg the reader to remark, that although the lands drained were covered with "a fine black mould, six to nine inches deep," it required a top-dressing once in three years, to maintain its productiveness in grass; and that under this treatment it yielded an enormous profit, in one case exceeding $100 per annum on an acre. We here have a demonstration of the exhausting effects of constantly mowing the same field—of annually carrying off the crop of grass, and returning nothing to the field to maintain its fertility—and we have a strong argument in favor of the alternating system, wherever it can be introduced. Old meadows will not yield more than half a crop, unless they are triennially top-dressed with dung or compost, as practised by Mr. Dalrymple; and to do this, in ordinary cases, is wasting manure. The manure will do twice as much good if it is buried in the soil, in an unfermented state, and first used as food for a hoed crop; and the operations of tillage divide and loosen the soil, and render it more permeable to air, heat, dew, and the roots of the grasses. Those who must, or will have permanent meadows, should follow the example of Mr. Dalrymple, top dress them once in three years, if they would reap the full profits of their labor.

The above will serve to show the advantages arising from draining and reclaiming swamp land, as practised by a Yankee Dalrymple. And it is a singular coincidence, that the evidence of the expense and profits of furrow draining, which first presented for illustrating this subject, is from a Scotch farmer of the name of Dalrymple. We copy in his own words from the Edinburgh Quarterly Journal of Agriculture.

"I am clearly of your opinion," says Mr. Dalrymple, "that well authenticated facts on economical draining, accompanied with details of the expenses, value of succeeding crops, and of the land before and after draining, will be the means of stimulating both landlords and tenants to pursue the most important, judicious and *remunerating* of all land improvements. The statements below will prove the advantages of furrow-draining; and as to the *profits* to be derived from it, they are *great*, and a farmer has only to drain a five acre field to have occular proof upon the point.

"1832, No. 1, Easter, Ladywell and Whinny fields, containing 54 acres, cost £303.17s. for draining; average say £5.12 per acre. These fields were *not* furrow-drained, but cross-drained, and are *not dry enough.* The wheat sold for £11 an acre in the Easter field, the turnips in the Ladywell field at £20.13.4. The drains were all built and covered with small stones, which were obtained quite at hand. The land was formerly completely covered with rushes. Soil stiff (provincial *chattery*) clay, and used to let in pasture at 20s. an acre. Last summer, 1836, the Easter field fed five Cheviot ewes and lambs to the acre.

"1833, No. 2. Horseless and Jennyside fields, 16 acres, cost for draining £98.7s; say average £5.9s per acre. These fields were furrow-drained, 18 feet between each drain, 30 inches in depth, cut with the common and narrow spades, and filled 18 inches with slag, (scoriae,) from an iron furnace contiguous. All the mouths of the furrow drains terminated in main drains, 36 inches in depth, laid with tiles and soles. The fields are *now perfectly dry.* There was a very fine crop of wheat, about 8 acres, which sold for more than £13 an acre. The potatoes brought 15 guineas, and the turnips £21. The land was formerly occupied with whins and rushes, and let for 12s. an acre. When let for pasture I expect to get 50s. an acre for the land. [An increase in value of more than four hundred per cent, and of rent more than sufficient to pay the heavy expense of draining in three years.]

"1836, No. 3. Longbog, nine acres. Cost for draining £69, say average £7.13s. per acre. This field was furrow-drained 16 feet between each drain, 30 inches deep, and cut as in No. 2. The field *is dry*, and bore a good crop of oats. The land was previously drowned with water, and covered with rushes, and brought about 25s. an acre for grazing. A large portion of this field was very stiff clay; but now (Feb. 1837,) that it has been twice ploughed, the soil is quite changed, both in substance and color. The reason why this field cost so much more for draining than No. 2, was, that it was drained in very wet weather, when the land became so poached with carting, that I was nearly beaten with it."

We now transfer, from the work just quoted, the testimony of Mr. Howden, another Scotch farmer, in favor of the great advantages of furrow-draining.

"I have practised the system of furrow-draining," says Mr. Howden, "to a considerable extent, and am fully satisfied that it is one of the greatest improvements ever introduced into our agriculture. It is not easy to say, with certainty, as to the exact increase of produce which may be derived from it, so much depending on the nature of the soil and seasons. The farm which I at present occupy, consists mostly of a clay soil, resting in general upon a retentive sub-soil, and, consequently, was much injured from the retention of rain-water, and, in some places, from water springing from below. The method I am adopting for laying it dry, is, where the subsoil is very retentive, to put a two feet drain into each furrow [dividing the ridges] the breadth of the ridges being 18 feet. Where the subsoil has a tendency to draw under-water, I lay two such ridges together, and put a drain into each furrow, [thus making the distance between the parallel drains 36 feet,] the depth of which is regulated by the nature of the subsoil; but in general they are 2½ feet in depth. There being but few stones on my farm, I use tiles, which I find answer uncommonly well; indeed I would prefer them to stones, even admitting that I had them upon my farm, for these reasons:—Drains are cut in winter, and in most seasons, and particularly the present, it is almost impossible to get stones brought forward to the drains, and to induce women to fill them; besides, the injury which the land sustains by poaching with carts is considerable. Where land has a good declivity, stones, *when well broken*, will admit the water for a considerable time; but when land is nearly flat, tiles have a decided advantage for durability of drain. In covering in the tiles, I either put in some brush wood or mix a little of good earth with the subsoil, in order to allow the absorbed water to sink more freely into the drain. I am aware that some people have a prejudice against tiles, and allege, that in a few years, the earth above them will consolidate so much as to become impervious to water. I can only say, that I have used them for twelve years, and find the water making its way by them as freely as when the drains were first executed. With regard to the expense of draining a Scotch acre [four Scotch being equal to about five English acres,] with the tile drains at 18 feet asunder, and two feet in depth, it will cost for cutting and filling 3½ pence per rood of 18½ feet, or £2.6s. per acre. Prime cost of tiles is 40s.* per thousand, [which the editor says is too high.] Being seven miles distant from the kiln, I must add 8d. per 1,000 for carriage. Say that 2,700 tiles are required, their cost will be £6.9.6, making the total expense of draining £8.15.6 per acre. The expense no doubt is great, still I am of the belief, that upon all damp, heavy lands furrow-draining will repay, on an average, from 15 to 20 per cent on the outlay."

The lands, with us, which it would most profit the farmer to drain, are such as are marshy, and have not been exhausted of their fertility, of which there are vast tracts. Let us assume as data, the highest estimate of expense stated by Mr. Howden, which would be about $31 per English, or common acre.—The lands we refer to are now virtually unproductive. The outlay would bring them into the most productive state, say three tons of hay per acre, or its eqivalent in grain or roots. Almost any where in the valley of the Hudson, or near a market, the average price of the hay may be stated at $10 per ton, and the product of the acre at $30. Deduct from this 33 per cent, or one-third, for making and carting the hay, fencing, &c. and the nett profit of the acre would still be $20 per annum. Suppose there are 20 acres thus reclaimed from waste. In twenty years the nett profit would amount to 8,000 dollars. Deduct from this one half for triennial manuring, the outlay of the $620 for draining, and for incidental charges, and there remains the snug sum of four thousand dollars, or two hundred dollars a year, as a reward for the improvement. We honestly think this estimate is a safe one. In a field we last year lost an acre of potatoes, besides our labor, by reason of the water, coming from spouts and springs, keeping the ground wet, although it had been already imperfectly drained. Tile drains laid in autumn, have rendered it so dry, that the corn now growing upon it, received no particular injury from the heavy and continued rains with which we were drenched in the month of May.

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* Draining tiles are made by Mr. Jackson, in Albany, and sold at $15 per thousand, with an extra charge of $7.50 per thousand for soles, if required. For the latter, however, hemlock boards are a good and cheap substitute.

Experiment with Corn.

"I have succeeded with the Dutton corn admirably," writes a Dutchess correspondent, "and have planted it this year exclusively. I planted last year four different varieties,—the Dutton, early Canada, (seed from Poughkeepsie,) eight rowed white, and corn said to be Egyptian, eight rowed. The Dutton ripened two weeks before the others, and yielded better. The cob is very large, and that would be objectionable, did it not take a good deal of corn to cover it."* It is well to remark, that after raising this corn eighteen years—the seed having been obtained from the gentleman whose name we gave it, we do not perceive any diminution in its early ripening property, which we ascribe to the fact, that we have always selected the earliest ripened ears for seed.

The Main Objects

Of farming are, or should be, two fold, viz: 1st. The greatest nett profit, with reference, however, 2dly, to the improvement, or at least to the preservation of the fertility, of the soil. He that wears out his land, by a parsimonius stinting of manure and labor, and close cropping, with a view to *present gain*, may be compared to the intemperate man who parts with his last cow, that fed his family, to gratify intemperate indulgencies. While good land pays always a liberal reward to labor, poor land often beggars its proprietor. The fault is often admitted, that our farmers cultivated *too much* land to cultivate it well; that they are parsimoneous of their expenditure to put it and keep it in good order; and that they rely more upon propitious seasons, good luck, and the special bounties of Providence, for good crops, than they do upon judicious management—upon the capital and labor employed in the improvement of their grounds. There is no sounder maxim for the guidance of the farmer, than that which teaches—"WHAT YOU DO, DO WELL."

Among our extracts in this day's paper, will be found a communication from "A Hampshire Farmer," which we copy from the Farmers' Magazine, contrasting the profits of the old and new system of husbandry, not only as verified in his own practice, but in that of Von Thaer, whom we agree with the writer in pronouncing pre-eminent in both the theory and practice of agriculture. And we beg our readers to mark the result:—"On the improved system the expense of cultivation is *double*; the gross product is TRIPLE; the nett produce is QUADRUPLE!

The great danger in the West,

Is, that the soil is so fertile, and so remote from the ultimate market for its produce, that there will not be sufficient inducements to industry, to ensure moral and physical health to its population. Where men can earn enough in two days to support them seven, they are too much inclined to spend the five in indolence, especially when the time comes, as come it may, that the many are sellers, and the few only buyers, of the products of the soil. And when a people are idle, from whatever cause, they readily, though often imperceptibly, slide into indulgences and habits which are the bane of individual and public virtue—unless their idle hours are appropriated to the improvement of the mind, and to the cultivation of a taste for rural embellishments, and the higher intellectual pleasures which emanate from literature and the science of agriculture. It requires far more philosophy and fortitude to resist the smiles of prosperity, than it does to bear the frowns of adversity. The latter is matter of necessity—while in the first we are left to exercise our own discretion. We have been led to these remarks, at this time, by the receipt of a letter from an esteemed friend in West Wisconsin, (Ioway) an extract of which we subjoin.

"With us in the west," says our correspondent, "the lands are rich and productive, with but little labor. A bountiful Providence has bestowed upon us one of the most fertile and delightful regions of the earth. Yet what are the bounties of Providence when unemployed by the labor and science of man? The mind is fallow, and the 'Garden of God' lies barren and overrun with weeds, and the rose and lily are choked by brambles, unless the assiduity and skill of man are exerted in developing the riches and beauties of nature.

"Until the recent *healthful* check of the 'times,' the west was intoxicated with the fell spirit of speculation. Labor and industry were looked upon as too slow and tame a way of making money. The 'royal way' of making a fortune by speculation infested all classes; and, as a consequence, the main pillar and ornament of a state was almost entirely neglected.

"But it is to be hoped, that these times for sober reflection may correct the delusions of the day, and impress upon the minds of the community this fact, that *there is no accretion to individual or national wealth, without the exercise of labor and skill*; and that that pursuit which 'feeds all,' and which can employ all, is at once the most independent and honorable."

This mention of the mania of speculation calls to mind the facetious relation of a brother Yankee, who made the grand tour of the "Far West" in 1836. After describing the fertility and beauty of the country, in glowing terms, he added, after a pause—"but, the *inhabitants* will starve! their work is altogether of the *head*, and not of the *hands*—they are trying to live by speculation more than by labor. Why, if you accost even a farmer in those parts, before he returns your civilities, he draws from his breeches pocket a lithographic city, and asks you to take a few building lots, at half their value, and earnestly presses you to buy as a personal favor conferred on you."

We are heartily glad to learn by our friend's letter, that the times are mending beyond the Mississippi, and that the public attention is being turned to our parent art, and a strong evidence of the truth of his declaration came enclosed, in the form of a twenty dollar bill, being the subscription money for twenty-two copies of the Cultivator.

Advantages of Science.

The British Farmers' Magazine abounds in communications, urging the establishment of a national agricultural institution. Scotland is particularly referred to as affording a striking illustration of the utility of such associations. Forty years ago, says one of these writers, Scotch husbandry was far inferior to that of England; but now, he says, it is manifestly superior. This is ascribed mainly to the influence of the Highland Agricultural Society, to the interest which the nobility and gentlemen of wealth have taken in diffusing agricultural science, and promoting agricultural improvement, and the establishment of museums for the exhibition of agricultural products, and models of agricultural implements.

Among these writers is a Mr. Handley, who has addressed a very able letter to Earl Spencer, who seems to be regarded as the pioneer in this praiseworthy project. The following extracts from this letter will not fail to interest the reader.

"Science—by which is to be understood, that knowledge which is founded upon the principles of nature, illustrated by demonstration—is the pilot that must steer us into those hitherto unexplored regions, where I am well convinced a mine of wealth is still in store for British agriculture. Chemistry, botany, entomology, mechanics, require but to be invited, to yield a harvest of valuable information to guide and to warn us.

"What has been the course adopted by our enterprising manufacturers? Had they been satisfied with the inventions which chance or the intelligence of their artizans might have discovered, in vain would they have struggled for the proud ascendancy which they now hold in the scale of the manufacturing world. How truly has it been said, that a Manchester manufacturer, who had been absent from England for the last seven years, would be ruined, if, on his return now, he endeavored with his former processes, to compete with the almost daily improvements of his indefatigable and intelligent rivals. How many thousand acres of land would the bleaching operations of Manchester alone require—what enormous capital would lie stretched for weeks unproductive on the sward—and how impossible would it have been to have completed the accumulated orders from foreign customers, had not chemistry furnished a cheap and rapid substitute?" * * *

The writer then adverts to the still disputed and unsettled questions, whether it is better to apply manure in a fermented or unfermented state? What are the principles upon which lime proves beneficial to lands? That nothing has been definitely settled upon the latter point, is evidenced by the fact, that "vast sums of money have been, not only uselessly expended, but much labor has been thrown away, in anticipation of beneficial results from the use of lime, which had the subject been better understood, might have been saved, but positive injury has resulted, which in thousands of acres has proved irredeemable." The same uncertainty is then pointed out in regard to the operation of gypsum, of salt; and also in many other interesting and important branches of agriculture, which can only be settled by chemical and philosophical research.

"*Botany*"—continues Mr. H.—"by which I would be understood to mean, not that branch of the science which is confined to nomenclature and classification, but which treats of the structure, the economy, the properties, uses, and diseases of plants, a correct knowledge of which tends to increase their number, and improve their quality, offers to the farm not less valuable truths than it imparts to the garden. The important labors of Mr. Knight, for instance, uniting as he does the ablest practice with the most profound science, and who has successfully cultivated the principles of the philosophy of vegetation, and thus improved the practice of horticulture, are alone sufficient to stimulate the agriculturist to extend his inquiries into the same field of interesting and useful discovery.

"The diseases of plants, whether arising from a superabundance or deficiency of juice, from its impure qualities, or from external causes, though at various times treated of by practical and scientific writers, are as yet very imperfectly understood.

"*Mildew*, *rust*, *smut*, and a variety of diseases familiar to every farmer, continue prevalent, and baffle all attempts to guard successfully against them, notwithstanding the numerous nostrums quoted as infallible.

"How they are originated or propagated is still matter of doubt; yet this knowledge is essential to the cure. The preparation and choice of seed, the manures applied, their nature and quantity, and the culture of the soil, are probably all, more or less, intimately connected with their existence, and, if carefully and scientifically considered, might furnish the remedy.

"The rotation of crops, and their comparative tendency to exhaust the soil on which they grow; their effects upon each other, in either furnishing or extracting the nutriment requisite for their successor; the theory of their excrementitious operation; the facilities they respectively afford to the propagation or destruction of noxious weeds; the still more important investigation as to the value of different plants and grasses as food: the most advantageous methods of cultivating them; their power to withstand seasons; the disposition of seed grown in southern latitudes to retain its propensity to early vegetation and maturity, though sown in the north; the benefits derivable from change of seed under all circumstances; the rules for selecting and improving new varieties, a subject so ably treated by Col. Le Coutier; and the habits, modes of growth, and peculiarities of weeds, which affect agriculture, and the most effective means of extirpating them; with many other similar subjects which it is unnecessary to enumerate, come within the legitimate range of the botanist's inquiries, and would render his co-operation invaluable to the agriculturist.

"*Entomology*, and that branch of *Zoology* which appertains to worms, furnishes another subject for scientific research, most interesting and important to agriculture.

"Lastly, I would refer to the benefits which would accrue to agriculture, were the *mechanism* of our implements more scientifically attended to. Mechanical men, possessed of talent competent to the production of the highest class of machinery, cannot be expected to draw upon their invention, unless, as in manufactures, they are stimulated to exertion by the assurance, that success in the improvement of old, or the invention of new machines, would ensure their reward, from premiums or general demand. Were such the case, it may be safely predicted, that the construction of even our simplest implements, which in fact constitute the mechanism of agriculture, would not be left to the contrivance of village smiths, but would command the attention of men whose intelligence would lead them to calculate the nature and amount of the various and frequently conflicting forces to be overcome, and whose mechanical skill would give to every implement its most effective shape."

Insect Enemies.

An interesting paper on the insects most injurious to our crops, by James Duncan, is published in a late Quarterly Journal of Agriculture. Mr. Duncan states, on the authority of Mr. Spence, the entomologist, that on a fair computation, 60,000 bushels of seed wheat are annually lost to the British farmers, by the ravages of the wire-worm, (*Cataphagus obscurus*,) and an expense incurred in dibbling and harrowing in where the seed is destroyed, of £15,750. The hop-fly (*Aphis humuli*,) sometimes occasions an annual loss of £415,000 to the British revenue, in the tax which the government imposes upon this article; and the turnip fly, (*Haltica nemorum*,) according to the Linnean transactions, has occasioned a loss, in the single county of Devonshire, of £100,000 in one year. The depredations of the grain-worm, in all probability, will this year cause an immense loss to the farmers of New-York.

As a preventive of the ravages of the turnip fly, Mr. Duncan says, "soot, ashes, &c. have been used for this purpose, but there can be no doubt that by far the most useful application of this kind is quicklime," strewed, we presume upon the young plants in the morning, while the dew is upon the leaves. Upon garden plants, as radishes, cabbages, &c. which are liable to be destroyed when in the first leaf, Mr. D. says that strong soap suds, thrown with a garden engine or syringe, is destructive to the insect; indeed that any liquid, even pure water, often thrown upon the plants, serves as a preventive—as moisture is prejudicial to them, they not attacking the plant but when the leaves are dry.

Five Hundred Sovereigns.

The Highland Agricultural Society have offered a premium of 500 sovereigns, "for the first successful application of steam-power to the cultivation of the soil," that is, to ploughing, harrowing and preparing the ground in an efficient manner. The total premiums to be awarded by the society the current year, amount to about 3,500 sovereigns, equal to $15,000, exclusive of more than fifty gold and silver medals.

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* See letter of Mr. H. Clark, under Extracts.

Mulberry and Sugar Beet.

Mr. Randolph, chairman of the committee on agriculture, has made a report to congress, on the subject of giving governmental encouragement to the culture of the mulberry and the sugar beet, which embraces letters, upon these subjects, from gentlemen in different parts of the Union, and recommends the adoption, by congress of a resolution—

> "That the President of the United States be, and he is hereby, authorized gratuitously to lease, for the cultivation of the mulberry or sugar beet, for the term of ten years, any lot of land belonging to the United States, and not included in the unlocated or public lands."

Trifling as is the encouragement proposed, we are doubtful whether it will be granted. Agriculture is of no party, and has nothing to proffer to subserve the political or personal aggrandizement of legislators; and she is too humble in condition, and too modest in her demands, to expect aught from their liberality or foresight. She shares least in public bounty and patronage, though she contributes most to national wealth and national character. She cannot fawn, and will not menace, and consequently is neither favored nor feared.

The letters appended to the report, however, contain much valuable information on the choice of the mulberry and the management of the silk-worm.—We propose to notice some of the prominent and useful facts which these letters contain, for the benefit of those who are engaged in the business.

Joseph C. Parsons, of Northampton, cultivates five kinds of the mulberry. He prefers many varieties to the multicaulis, and gives a preference to the Canton, which he thinks will stand our northern winters, though we are somewhat constrained to doubt it.—From 100 of the Florence he produced, by layers, in one season, 1,747 plants. He laid in April, and laid the largest of the spring growth late in July. The plants were 18 to 24 inches in height. He thinks the multicaulis will not answer so far north; and that the mulberry should have a western, not a southern exposure. It seems he takes up and buries his seedlings in autumn. In regard to the beet, we learn from Mr. Parsons's letter, that the legislature of Massachusetts have proffered a bounty of three cents per pound for all sugar made in the state, from the beet root, for five years; he thinks the product can be made to equal 50 tons per acre—a pretty liberal calculation—which will yield, at only 4 per cent, in sugar, 4,000 lbs., and will entitle the manufacturer to a bounty from the state of $120 per acre. If we estimate the sugar at 6 cents per lb., its value will be $250, which, added to the bounty, will give $370 as the product of an acre, besides the beet cake!—the culture and manufacture to be deducted. A large profit, if half what is here stated should be realized.

George Green, of Belvidere, N. J., prefers the multicaulis, even though it should not withstand the winter, a fact of which he seems to admit there are doubts; "for," says he, "the roots may be taken up and buried in pits, like potatoes or turnips, or thrown into cellars until spring, and then replanted." He seems to depend upon the annual growth from the roots, and not upon trees or hedges; and he terms this "summer-cropping."

Hervey Hammond, of Lewisburg, Pa., prefers the multicaulis, as being easily propagated, tenacious of life, affording an abundance of foliage, which is gathered with facility, liked by the worm, and producing good silk. He recommends a light, high, sandy soil. Plant, he says, "in rows, six or eight feet asunder, and 12 or 14 inches in a row, and cut off the trees or tops within five or six inches of the ground, late every fall, and cover the stumps with earth, *so as to protect them from cold in winter*." Thus it would seem, that in Pennsylvania, three degrees south of us, it is recommended annually to cut down the multicaulis, and to cover the stumps with earth, *to protect them* from cold in winter—a practice which will at least be irksome and inconvenient to a northern farmer.

Jacob Corklin, jr., whose residence is not indicated, cultivates the white mulberry in hedge rows, and from the leaves on forty rods of hedge obtained three bushels of cocoons, which were worth $9. An acre, he says, will give 24 bushels of cocoons, or $72.—Mr. C. has raised the sugar beet. He estimates the expense of culture, including manure and rent, at $25 per acre, and the crop at 1,452 bushels of 50 lbs., and he considers them as good for farm stock as any other roots.

The fifth letter is from Daniel Stebbins, of Northampton. It goes largely into detail in regard to the mulberry and silk business. Mr. Stebbins recommends a poor, light, dry soil, for the mulberry. He thinks the multicaulis does not ripen its wood well, and is liable to be injured by the winter. He prefers the Canton, the seed of which came from the Canton mission, and which Mr. S. terms the *Canton* multicaulis. In the same soil and exposure in his garden, during the winter, the Manilla (common multicaulis) was much injured, the Canton and Asiatic unhurt, and the Chinese and Smyrna uninjured. The seed of the multicaulis does not produce its like, but plants with inferior leaves. A gentleman who kept an accurate account, ascertained that his silk cost him *two dollars* a pound, and it was worth in the market from six to seven dollars per pound. The bounty given by the state is about sufficient to cover all the expense of gathering the leaves, feeding the worms, and reeling the silk.

The 6th letter is from Chauncey Stone, Burlington, N. J., who recommends a loose dry soil, and an undulating or hilly surface, for the plantation. He prefers the multicaulis. He recommends planting in rows eight feet asunder, and the trees four feet apart in the rows—to manure and cultivate the ground, and when the season of growing is over to cut them down near the ground, to induce them to "send up seven stalks where one grew the prior year." An acre is estimated to produce 5,000 lbs. of leaves in a season, and a nett annual profit of $50.

C. F. Durant, we believe the celebrated æronaut, writes the seventh letter from Jersey city, Mr. Durant gives a decided preference to the Brussa mulberry—the kind introduced by Mr. Charles Rhind, from Brussa, in Turkey. He thinks the genuine cannot be propagated by seeds, but only by scions from the *same parent stalk*, produced by cuttings, inocculation or engrafting. Mr. Durand, we think, carries his theory too far. Seed will produce like the parent tree, if there be no other variety or species of the same genus growing in the vicinity, to affect the blossoms, or seed. And besides, *Mr. Rhind's trees were all produced from seeds*, and they certainly exhibit a sameness in wood and foliage. We are glad to find Mr. Durant concur with us as to the merits of our native mulberry. "The native black [red, rubra] is equal in quality," says Mr. D. "to the best in the world; the leaf is *smaller* than the Brussa, and is therefore inferior in *quantity*, because one hundred pounds of large leaves can be stripped at less expense than the same weight of small leaves." In propagating by the bud, Mr. D. recommends, that in the spring, when the buds have swelled almost to bursting, cuttings be made, of three eyes to each, and planted one foot asunder, in rows three feet apart. "Every farmer in the states south of 45° N. lat." says Mr. D. "can raise from 100 to 800 dollars worth of cocoons in the *spare room* of an ordinary barn or dwelling, and this would be considered *all profit*, if the silk is considered, like poultry, a collateral branch of farming." The total expense would then be the price of the trees, and the transporting the cocoons to market, which Mr. D. puts at $5.28, and leaving a nett balance of $105.72, which he considers a low estimate for a "small farmer." We agree with Mr. D. that the silk business should be a collateral branch of farming, and not a joint stock concern.

The next letter is from E. P. Roberts, editor of the Farmer and Gardner, Baltimore, who has been long engaged in the culture of the mulberry, particularly the multicaulis, and has grown the beet, though not manufactured sugar from it, to a considerable extent. Mr. Roberts recommends a sandy or gravelly loam for the mulberry, a high situation, and a southern aspect. He considers the multicaulis "beyond all comparison the most valuable species of mulberry grown;" and he would plant it on high ground, because there "the wood ripens better, and the *frosts* do not affect them so much as in *low* situations." Thus we see this inveterate enemy of the multicaulis, *Jack Frost*, pursues it even to the mild climate of Maryland.—And even the morus alba, which is generally affected by *our* winters, does not escape in Maryland: Mr. Roberts says he lost 70,000 plants of it in one winter. Mr. Smith propagates the multicaulis by cuttings of one bud, placing all but the tip of the bud in well prepared soil, inclining the upper end to the south in an angle of 45, pressing the earth around it, and watering if the weather is dry. As to the profits of the silk culture, Mr. R. estimates the expense of managing an acre at $203—the product at $1,333.33½—and the nett profit at $1,129.48½.

The 9th letter is from an esteemed friend, J. A. Downing, of the Botanic Garden and Nurseries, at Newburgh. Mr. Downing gives the preference to the "Chinese (*morus multicaulis*) and the Brussa,"—the first south of lat 42°, and the latter in all parts of the Union too cold for the Chinese. As the Brussa was first raised, on this continent, in Mr. Downing's immediate neighborhood, his opinion of its value is entitled to great weight. "The Brussa mulberry," says he, "is remarkable hardy, and produces a great abundance of foliage, larger, finer, and of superior quality to that of the Italian. It is yet rare in the country, having been introduced by Mr. Rhind, from Turkey; and the principal stock of trees (about 20 or 30,000) is now growing in this town. Silk has been manufactured from it of most excellent quality, which took the premium at the late Institute fair, at New-York. Mr. Downing recommends the cultivation of mulberry hedges, sufficiently wide apart to admit the free passage of the plough for culture, and of a hand-cart for gathering the leaves. Plants from 18 to 24 inches apart. In propagating by cuttings, Mr. D. recommends that pieces be taken from 6 to 18 inches long, and inserted in the ground the whole length, up to one or two buds.

Then follows a letter from Charles Kaigne, and one from Andrew T. Judson, of Connecticut. Mr. Judson's letter contains a compendium of all the information he had collected in relation to the silk business, in answer to queries which he had sent abroad. It is too long for our present purpose, and it cannot be abridged without doing it injustice.

Extracts from Mr. Pedder's report, which we have formerly noticed, on the culture of the beet, and the manufacture of beet sugar, closes the documents, saving an official statement exhibiting the imports and exports of silk and sugar from 1832 to 1837. From the latter it appears that the value of silk imported in 1837,—

Amounted to.......... ..	$14,352,823	
Do. exported,...........	1,207,802	
Home consumption,......		$13,145,021
Sugar imported, value, ...	$7,802,668	
Do. exported, ...	2,650,052	
		4,652,616
Amount retained in both, ...		$17,797,637

This pamphlet has confirmed us in the opinion, that the multicaulis is not suited to our northern climate; that the Brussa and native red must be our main reliance, if the latter proves hardy, as we think it will. It is unquestionably excellent for silk; and the reason it is not noticed by most of the gentlemen who wrote to the committee, is, that it was unknown to them, except by reputation. On the subject of the multicaulis, we subjoin an extract from the Southern Agriculturist, being a paragraph from a letter from a citizen of Charleston, J. H. May, Esq., to Dr. Johnson, without any view other than that of apprising our readers of the matter it contains. The letter is dated Sept. 1837, at Paris. The extract is as follows:

> "*Silk-worms.*—This is a subject of deep concern to our country. Prince and others have propagated and recommended the 'morus multicaulis,' as the best subject for that 'purpose—do all you can to destroy this opinion. Noisette, who has studied the morus more than others, tells me there is none equal to the common white, (morus alba); that the multicaulis, after four or five years, dies, or vegetates badly. This is experience—profit by it."

It is proper to say, that the causes of its dying, or vegetating badly, in France, may not exist in the United States.

Mode of analyzing Lime, and interesting facts in relation to its application.

"In eastern Pennsylvania, lime is the great source of improvement; and of this we have all the different varieties, I suppose, that can be named. We want some plain simple rule, by which any farmer may analyze lime, and be able to judge which of the different kinds is most useful to agriculture. We have primitive and secondary lime stone, also that which contains large quantities of magnesia, which we find very injurious to vegetation, and which I should like to detect before using it. Send us rules, in the Cultivator, to try lime, and you will oblige yours, &c.

"BENJ. F. BADOLET.

"*Pugstown, Chester county, May 25.*"

Before we reply to our correspondent, we cannot but repeat our regrets, that chemistry, so important in all the arts of productive labor, is not made a branch of instruction in the schools of farmers' boys, as it is in Germany, France, and elsewhere; and that we have no schools of instruction for them, in the theory and practice of husbandry, like those of Hoffwyl, Moegelin, Templemoyle,—of France, and of most of the German states. The benefits that would result alone from teaching the young farmer, scientifically, to determine the qualities of his soil, its defects, and the proper means of improving it by lime, marl and manures, would more than remunerate the public for twenty agricultural schools; or for suitable books of instruction in these matters, to every school in the nation. Science is almost indispensable to good and successful husbandry. See our *extracts* to-day. Orfila says—

> "It is impossible to lay down any general rules respecting the fitness of lime for the purposes of agriculture, because much must depend upon the peculiarities of soil, exposure and other circumstances. Hence a species of lime may be extremely well adapted for one kind of land, and not for another. All that can be accomplished by chemical means, is to ascertain the degree of purity of the lime, and to infer, from this, to what kind of soil it is best adapted. Thus, a lime which contains much argillaceous earth, [clay] is better adapted than a purer one to dry and gravelly soils; and stiff clayey lands require a lime as free as possible from the argillaceous ingredient.
>
> "To determine the purity of lime, let a given weight

be dissolved in diluted muriatic acid. Let a little excess of acid be added, that no portion may remain undissolved, owing to the deficiency of the solvent. Dilute with distilled water; let the insoluble part, if any, subside, and the clear liquor be decanted. Wash the sediment with farther portions of water, and pour it upon a filter, previously weighed. Dry the filter, and ascertain its increase of weight, which will indicate how much insoluble matter the quantity of lime submitted to experiment contained. It is easy to judge, by the external qualities of the insoluble portion, whether argillaceous earth abounds in the composition."

The diluted muriatic acid dissolves the lime. The insoluble residuum is clay or sand.

To detect magnesia in limestone, which, according to Tennant, renders the lime, when applied in large doses, prejudicial to lands, Orfila directs as follows:

" Procure a Florence flask, [a common half pint olive oil flask,] clean it well from oil, by a little soap-lees or salt of tartar and quick-lime mixed, and break it off about the middle of the body, by setting fire to a string tied round it, and moistened with oil [spirits] of turpentine. Into the bottom part of the flask, put 100 grains of the lime, or lime-stone, and pour on it, by degrees, half an ounce of strong sulphuric acid. On each effusion of acid, a violent effervescence will ensue; when this ceases, stir the acid and lime together, with a small glass tube or rod, and place the flask in an iron pan filled with sand. Set it over the fire, and continue the heat till the mass is quite dry. Scrape off the dry mass, weigh it, and put into a wine glass, which may be filled up with water. Stir the mixture, and when it has stood half an hour, pour the whole on a filtering paper, placed on a funnel and previously weighed. Wash the insoluble part with water, as it lies on the filter, and add the washings to the filtered liquor. To this solution add half an ounce of salt of tartar in water, when, if magnesia be present, a very copious white sediment will ensue; if lime only, merely a slight milkiness. In the former case, heat the liquor by setting it in a teacup near the fire; let the sediment subside; pour off the clear liquor, which may be thrown away, and wash the white powder repeatedly with warm water. Then pour it on a filter of paper, the weght of which is known, dry it and weigh. The result, if the lime *stone* has been submitted to experiment, shows how much carbonate of magnesia was contained in the original stone; or, deducting 60 per cent, how much pure magnesia 100 parts of the lime contained. If the burnt lime has been used, deduct from the weight of the precipitate 60 per cent, and the remainder will give the weight of the magnesia in each of the 100 grains of burnt lime."

The sulphuric acid dissolves the lime and magnesia, which pass through the first filter with the liquid. The salt of tartar precipitates the magnesia, leaving the lime in the liquid. The magnesia is the residuum upon the second filter.

We add some relevant facts in regard to lime, from the Domestic Encyclopædia.

In burning lime, a ton ought to be reduced in the kiln to 1100 weight; otherwise it is not sufficiently burnt. It will regain two-thirds of the lost weight, by exposure to air for a week or ten days—100 parts of lime absorb [and solidify] about 28 parts of water; and to regain its full proportion of air from the atmosphere, it requires a year or more, if not purposely spread out. All limestone of *primitive* formation, contains magnesia; all white *marbles* contain about ten per cent of magnesia. Put less of the magnesian lime upon your land, by about one-third, than of common lime.

The lands most benefitted by lime, are, 1. Rich black or brown friable crumbling loams, which abound with vegetable matter. 2. Low, rich drained meadows, that have formerly been bogs, and the black soil of which abounds in vegetable fibre. 3. Old pastures and commons, which have been under grass for time immemorial, and are first to be converted into arable land; but upon these, lime should not be repeated. 4. On moory, boggy, mountainous land, and on black peat earth. 5. On all other waste soils that have been overrun with fern, briars, bushes or wood, and which, though richly stored with vegetable food, have contracted an acidity, in consequence of their long rest, and the spontaneous growth of roots.

Mild lime, carbonate of lime, and marl, improve the texture of clays and sands, rendering the first less stiff and adhesive, and the latter more compact and retentive of moisture; and they improve all soils, not already charged with calcareous matter, by fitting them better to hold manures, and constituting a necessary constituent of most plants.

The soils which are not benefitted by quick-lime, are those which are poor, light and thin; those destitute of inert vegetable matter; strong stony lands; wet cold loams, and all lands which have not been sufficiently drained; and on stiff clays that are tenacious of moisture. Lime is only a manure of stimulus—not of nutriment.

Humus, Ulmin and Geine, are only different terms applied by philosophers to organic—to decomposed animal and vegetable matters, which constitute the fertility of soils, and the food of plants. In common language, they are MANURE under some of its modifications.

The Forty-fold Potato,

Derives it name, we believe, from its reputed prolific property. It is an esteemed variety for the table, and of recent introduction. An objection to its culture has been made, on account of the small *size* of the tubers, though they are not lacking in numbers; and this circumstance has induced us almost to discard them. A communication of Mr. Burns, in the May number of the Magazine of Horticulture, explains a common error in the culture of this variety, and suggests a remedy for the evil complained of.—This potato has many eyes, each of which produces a stalk; and where two or three tubers are planted in a hill, they give *too many stalks*, and *too many potatoes* for the ground they occupy. The consequence is, that the stalks are feeble and the roots small. The remedy is, to plant only one tuber of a medium size in a hill, the seed end of which, abounding in eyes, is first to be cut off and thrown away, when the residue may be divided into three parts, and planted in a hill. By this mode of management, the stalks will be few, have abundant pasture to feed upon, the tubers large, and the crop good. Such are Mr. Burns' directions; and to us they appear plausible, from the fact, that in the culture of the Rohan potato, a set with one or two eyes is found to be sufficient for a hill. We have counted forty-seven eyes in one Rohan; and we can readily believe, that this number of stalks in a hill could not produce many large potatoes. These hints may be useful in improving the product of other varieties of this valuable root.

Striped Bug and Turnip Flea.

At this season, our melons, cucumbers and other vines, are liable to be destroyed by the striped bug, in a few hours, and our young cabbages, radishes, turnips, &c. are liable to a similar fate from a small black flea. On visiting our garden a few days since, after several wet and cloudy days, we found many of our young vines, then in the first leaf, almost literally covered with the yellow bug, and our young cabbages also in the first leaf, in a fair way of being lost, in a few hours, by the black flea. We immediately sprinkled lime upon the vines and plants, and on the former took pains to put it on the under side of the leaves, and thereby saved our plants. Mr. Gordon, in the Tennessee Farmer, gives the assurance, founded on repeated experiments, that the sowing of two or three bushels of wheat bran, upon an acre of young turnips, will effectually secure the crop, as the fly prefers the bran to the turnip.

In the German and French Schools,

Are taught geography, history, chemistry, and several branches of natural science, drawing and music. These are taught in the common schools to the sons of farmers and mechanics. Upon these seminaries, well remarks Lord Brougham, "far more reliance is to be placed, [for the prevention of crime,] than upon all the provisions of the penal code, amend it as you may, and execute its amendments with whatever firmness and discretion you can bring to the administration af criminal justice." We pride ourselves as *freemen*—as being of a higher order than the *subjects* of the German and French monarchies, and yet we fall far behind them in what most ennobles our nature, and fits us for the greatest usefulness—*in the improvement of the mind.* Lord Brougham is right. Nothing tends more to prevent vice than habits of industry; and nothing serves to wed us to these habits—to give us pleasure and delight in them—so strongly, as a taste for, and advancement in, useful knowledge.

Axiom in Husbandry.

Plants, in general, will be found to deteriorate the soil, in proportion to their natural facilities of establishing a new progeny, [by stollens, suckers, or winged seeds,] at a distance from the deteriorated soil; consequently, such facilities, or the want of them, furnish good indications to the cultivator, of the extent or rapidity of the deterioration caused by particular species."—*Edin. Q. J. of Ag.*

As evidence of the correctness of the above, it is said, that young trees seldom send up succors till the soil has become exhausted of their peculiar food; but that when the soil becomes deteriorated, this is found to take place with the plum, pear, &c.—that the rose, to be kept in pristine health, should be removed to new earth at least every third year; that the removal of the raspberry is necessary every fourth year to preserve its vigor and fruitfulness, notwithstanding its propensity to send up succors; that the impatience of the strawberry to shift its location by runners, is demonstrative evidence of its deteriorating influence upon the soil. The necessity of alternating crops is further illustrated by the failure of the potato and the red clover, when returned too often to the same field.

The practical instructions suggested by these data, urge to the alternation of farm crops; to the change in pasture, or soil, of perennials which are found materially to deteriorate on the same site, as the strawberry, raspberry, currant, gooseberry, rose, &c. They teach, that the finer flowers of the florist, as tulips, hyacinths, &c. should be planted in fresh undeteriorated soil, at least every second year; that the soil should be rich and light, that their roots may extend themselves into fresh pasture, and that they should not be planted close, lest they rob each other of essential food. The deterioration of the potato in Ireland, a fact which the writer affirms, is ascribed to the repetition of the crop, on the circumscribed limits allowed to the peasant; and the diseases of the potato in Scotland, which, in some seasons, have been serious and alarming, are ascribed to over cropping.

Blasting Rocks.

We are not sure we are not retailing "*John Thompson's news,*" by inserting the following, from the Domestic Encyclopædia. It will nevertheless be new to some.

"Quick lime is of great utility in rending rocks and stones, when mixed with gun-powder, in the proportion of one pound of the former, well dried and pulverized, to two pounds of the latter. This singular property of lime was discovered, and is related, by H. D. Griffith, Esq. in the 8th vol. of the Bath and West of England Society, where he states, that the mixture above specified, caused an explosion with a force equal to *three pounds* of gun-powder; hence in those operations, one-third of the expense may be saved."

Agricultural Libraries.

W. H. Richardson, Esq. has sent us from Richmond, a printed list of about 100 vols. of agricultural and horticultural works, belonging to the State Library in that city, and asked us to give a catalogue of such others as in our opinion ought to be added. A State Library should contain all the standard works which appertain to rural affairs, especially if husbandry is the great business of that state. But as this description of books might comprise too large a catalogue, we will confine our recommendation to a limited number, with which, with the exception of the three last we shall name, we have a personal knowledge; and the characters of the latter stand so high, that we have no hesitation in recommending the entire list. And we prefer giving our answer through this channel, that others who wish, may avail themselves of the information which it contains.

We recommend, as suitable for a state or agricultural library, *besides the books now in the State Library of Virginia*, Chaptal's Chemistry, 1 vol.; Loudon's Encyclopædia of Plants, do.; Farmers' Series of Library of Useful Knowledge, not completed; Michaux's American Sylva, 3 vols.; Quarterly Journal of Agriculture, (Edinburgh,) 40 numbers received; Farmers' Magazine, (London,) 8 vols. published; Low's Elements of Practical Agriculture, 1 vol.; Domestic Encyclopædia, Cooper's revision, 3 vols.; Kenrick's Orchardist, 1 vol.; Manning's Book of Fruits, 1 vol.; Lorrain's Husbandry, 1 vol.; Memoirs of the N. Y. Board of Agriculture, if they can be had, 3 vols.; Transactions of the Society for the promotion of Agriculture and the Arts, 4 vols.; Massachusetts Agricultural Journal and Repository, 7 or 8 vols.; Foster's Atmospheric Phenomena, 1 vol.; Lindley's Guide to the Orchard and Kitchen Garden, 1 vol.; Entomology, by Kirby & Spence, 2 or more vols.; Ronalds on the Apple, 1 vol. 4to.; Williams' (or some other,) Agricultural Mechanism, 1 vol.; the agricultural works of Von Thaer, and of Sprengel (German) and Dick's, on the Veterinary Art. The Bath papers, British Agricultural Surveys, and the Georgical Essays might be added. They contain much that is useful, but more that is either irrelevant to our practice, or that has been rendered valueless by modern discovery and improvement.

M. Jauffret's discovery of a new mode of making manure, noticed in our last, turns out to be a humbug. The Farmers' Magazine for March, states, that after having for two years duped dozens of mayors, prefects, and other functionaries, and taken the cash of hundreds of subscribers, the patentee died one day, and it was *then* discovered, that manure cost twice as much by the new as it did by the old process.

Harvest beverage.—Put a tea-cup full of fresh oatmeal into a gallon of cool water—stir it previous to drinking, and renew the water when it is exhausted. It will keep the bowels and the skin in order, preserve a due temperament of animal spirits, and nourish and invigorate the whole system. It is both food and drink. Try it! N. B. Kiln-dried Indian corn meal may be substituted for oat meal.

To Correspondents, &c.

DISEASES IN POULTRY.

"A Subscriber," at Morristown, N. J. loses most of his poultry. "They thrive well for the first three weeks," after being, we presume, shut up to fatten; they then sicken, and in two or three weeks die. "On examination," says our correspondent, "I find the wind-pipe filled with small red worms, from very small to the size of a coarse thread." The disease is new to us; and in prescribing, we refer rather to preventive than cure. We would change the food, occasionally mingle salt with it—give a bath of sand and lime rubbish, and clean and whitewash thoroughly the inside of the poultry-house, a measure that should be adopted at least every spring.

CAPONS.

To capon cocks (we write in answer to the request of a Long Island correspondent,) make an incision with a sharp knife, under the lowest rib, with your fingers lay hold of the parts to be extirpated, and cut them away with sharp scissors. Put a stitch or two in the wound. So Mr. Willich directs. The effect of the operation is to increase the delicacy and fatness of the meat, and the size of the bird.

R. E. Russell, of Camden, S. C. asks us, among other questions, what crops or shrubs will grow under the shade of two oaks in his garden, which he is not willing to spare? What is the best compost for a coarse sandy soil which "bakes very hard in dry weather?" What quantity of seed should be sown per acre, of red and white clover, lucern, timothy, herds grass, orchard grass, ruta baga, carrot, &c.? And we give the subjoined brief answers. For the shade of the oaks, select the handsome native or other shrubs which are found growing, or are known to grow in the shade of other trees, including the common and variegated holleys, laurels, &c. or sow orchard grass, or plant strawberries—having first made the soil mellow and rich. From the sand "baking," it probably has much clay in it. Lime or manure, or vegetable mould, will tend to improve its texture and increase its fertility. Sow on an acre 10 lbs. red and 1 lb. white clover; or a peck to a half bushel of timothy, if with clover; or a like quantity of herdsgrass; 2 bushels of orchard grass; or 15 lbs. lucern; or 1 lb. ruta baga; or as much carrot seed as will furnish plants to stand four to six inches apart, in drills 18 inches asunder.

TO KEEP FRESH MEAT.

What is the best method of preserving meat, say shoat, beef and mutton, during warm weather?—*Tennessee correspondent.* Answer. Keep it in a refrigerator, an ice-house, well, or other place, where it will remain dry and in a low temperature.

QUESTIONS PROPOUNDED BY A. SUMNER, OF S. CAROLINA.

1. What would be the proper season, in lat. 34, for sowing ruta baga, to produce the best crop? Can best be decided on trial. We suggested sowing at the far south in the month of August, that the crop, congenial to a cold climate, might come to maturity late. But Mr. S. Weller, of N. Carolina, (see Cult. vol. III. p. 144,) prefers sowing the middle of July. His crop was more than 600 bushels to the acre.

2. Is a crop of ruta baga of more advantage to stock than sugar beet? That is best which is found best adapted to the soil and climate. If the sugar beet does well, be content, till it is found, by limited experiment, that the ruta baga will do better. They are about equal in nutrient properties. The Swede prefers a sandy, the beet a loamy, and both a rich soil, and good care.

ILLINOIS FARMING.

We have received, from a valued correspondent, a rather facetious account of the popular mode of farming in Illinois, which we take to be rather a caricature than a true portrait; and we are partly confirmed in this opinion from the fact, that our correspondent has sent us twenty-two subscribers from the neighborhood upon which he indulges his sarcasm. If the farming is as bad as he represents, we hope the Cultivator will help to improve it.

RENOVATION OF OLD MEADOWS.

A Dutchess correspondent asks what is the best mode of renovating old meadows, the soil of which is clay; and what crops are proper for a rotation upon such soils? He will find these questions as satisfactorily answered in our March, May and present numbers as we are able to instruct him here. Peas, oats and potatoes will serve as good fallow crops upon his clay, to precede wheat; and we would not advise that the land be restocked with grass seeds until the sod is perfectly rotted, the ground ploughed deep, and well mixed and pulverized. The beans extensively cultivated on clays in Great Britain, are the horsebeans, neither adapted to our climate nor our wants.

APPLES OF 1836.

We have received from D. B. King, of Waterford, two apples, sound, and of pretty good flavor, of the growth of 1836, and raised by E. Howland. What gives particular interest to the circumstance, is the mode in which these apples have been preserved. In the summer of 1837, Mr. King kept his apples *in charcoal;* and in overhauling this in May, 1838, he discovered the sound apples, which had escaped notice the preceding year. Charcoal has long been noticed for its antiseptic or preservative properties; and it has been particularly recommended to pack seeds in it, to preserve their vital principle, in passing the equator. Might it not prove an excellent material for packing apples in that are to be shipped to Europe, or the south?

A LARGE CALF.

Thomas Coleman, of Lewes, Del. writes us, that he has a calf which, at six months old, weighed *five hundred and forty-five pounds.* It was fed upon ruta baga, potatoes and the milk of its dam.

MAPLE SUGAR.

We have received a sample of beautiful maple sugar, from M. E. Vail, of Bennington, Vt. white, dry, and well granulated, about equal to second quality Havana clayed. "I made from *eight* trees," says Mr. Vail, "*one hundred pounds* of the same I send you." This is an average of 12 lbs. the tree. If this sugar is made, or refined by any new process, we would thank Mr. V. to apprize us of the mode. If our maple sugar was purified with animal carbon, a material now extensively employed in sugar refineries, and which may be produced any where with little expense, and clayed, the process of doing which we have published, it would be equal to the best Havana.

ANIMAL CARBON AS A MANURE.

We have received a hogshead of pulverized burnt bone, from the Mess. Stuarts, corner of Greenwich and Chamber-streets, New-York, to make trial of as manure. We noticed sometime since, that this article had been imported into Scotland from Sweden, and profitably applied to the soil. That which we have received has been enriched by having been used in the sugar refining, and is of course charged with mucilaginous matter. We have little doubt of its utility; and the price we understand it is sold at—25 cents the barrel—is certainly low enough.

BRUSSA MULBERRY.

We have received from N. Haight, Esq. of New-York, a compliment of four ounces of seed of the Brussa mulberry, imported from Smyrna. If our predictions should be verified, that this variety of the mulberry is more hardy than any other foreign kind, even the common white,—and that it yields a silk surpassed by none, it will be a great acquisition to the northern section of the union. We are in a fair way to have a good stock of plants. The 6,000 sold belonging to Mr. Ruggles' estate, and an equal quantity retained by Mr. Rhind, will probably make 100,000 plants the current year; and add to this ten thousand plants sold and retained by Mr. Haight, and the seed furnished by him, and it will be seen that our supply will soon be abundant, if on further trial it shall be found to realize the high expectations which some have formed of its hardiness and excellence.

ROHAN POTATO.

We received several recent applications, by letter, for a tuber or two of these potatoes, which we could not grant, for the reason that we had planted our whole stock. This potato may be had of us, in autumn, in quantities.

ITALIAN WHEAT.

Our friend, Mr. Hathaway, of Rome, persists in cautioning the public, against soaking the Italian seed wheat more than 20 minutes in *strong brine,* lest it destroy the germinating principle. He cites five instances in proof—in one 100 grains were soaked 1 hour, and 42 only germinated; of that which was soaked 3 hours, nine-tenths failed; and of two other parcels soaked 6 and 9 hours, all was killed. Mr. H. ascribes this result to the thin skin of this grain. We repeat that the practice of steeping seed wheat in pickle is common in both Europe and America—that we have practised it nearly twenty years, and that the cases cited by Mr. H. of its injurious effects, are the first that have come to our knowledge.

PEAT OR TURF.

We have sundry inquiries from O. C. Freeman, of Detroit, on this subject, which it is difficult for us to answer, without a better knowledge of the material he describes. The swamp, Mr. F. informs us, has an upper stratum of 14 to 18 inches of what he terms peat, which is underlaid by 3 or 4 feet of muck. He has cut a drain two feet deep. The drain should be three or four feet deep, and below the muck, if practicable; and if this does not lay the ground dry, drains should be made round the borders, and others diagonally from the main one, if necessary. When laid dry, the upper stratum, which we suspect is a compound of ligneous matter, roots and muck, may be either cut and dried, and used as fuel, or converted into manure, by burning, mixing with lime or stable manure. We refer Mr. F. to the three last numbers of vol. IV. for ample instructions upon this head.

SUCCORING CORN.

"Should Dutton corn be succored?" We answer—the same rule will apply to the Dutton that applies to other corn—it increases the *proportion* of sound grain, and somewhat accellerates the ripening process—though it does not, we think, increase the *quantity,* while it sensibly diminishes the *good* forage, and causes additional labor. We do not succor our corn.

STRAWBERRIES.

Some of our correspondents complain, that their strawberries do not fruit, though they flower finely.—R. Hoyt, of Danbury, Ct. has asked us to suggest a remedy. Most of the species of this fruit possess both sexual organs in the same blossom, like the apple; but there is one kind of the hautboy, at least, and perhaps more, that bear these organs in separate flowers, and on separate plants. The male, bearing the stamens, never produces fruit; and the female, bearing the pistil, will of course not fruit, unless within the fruitifying influence of the male, the blossoms becoming abortive.—To prosper well, the two sexes should be planted together, in the proportion of one male to about ten female plants. The selection is most readily made when the plants are in flower, and they should then be marked, to be able to take the due proportion of each from the stole. The male flower is larger than the female, and on examination will be found to be devoid of pistil. As August and the early part of September is the best season for planting beds of this delicious fruit, we propose in our next to give directions for their culture, and to notice some of the most esteemed species and varieties of this fruit.

Mr. Myers, of New-Brunswick, will please forward the *explanation* of his drawing of the *Centrifugal Dessiminator.* We refer to the parts—the letters in the drawing—and the price of the machine.

Acknowledgements.—A bundle of Chinese mulberry plants, and six ounces of Chinese mulberry seed, from D. Hagguston, Watertown, Mass.; Portuguese spring wheat, from L. Ashburner, Stockbridge, Mass. water melon seeds from J. N. Pallain, Georgia; Small's improved plough, from W. Small; Bushnell's improved drill-barrow, from the patentee; gigantic wheat from G. C. Thorbun, New-York; seeds of prarie flowers, from E. Dunn, Esq. Little Rock, Arkansaw.

CORRESPONDENCE.

Freaks of Nature.

Mendon, Ill., May 9, 1838.

Sir—As you are endeavoring to collect and distribute among your numerous patrons, not only all that which is useful and instructive, but also that which is curious and entertaining, I send you the following, not that it possesses either of the above characteristics, but is simply one of those freaks of nature, which so often occur in the distribution of the different varieties of plants in the vegetable kingdom, and which are seldom noticed.

In the month of September last, while engaged in cutting up corn in a field in which the prairie was broke two years before, I observed that there was occasionally a bunch of prairie grass growing, which is often the case if the prairie is not well broke at first, and the future crops well taken care of. On one of these bunches I noticed a number of dwarf ears of corn growing, which excited my curiosity. The bunch of grass grew near a hill of corn, and differed not from other prairie grass, and the corn grew where the grass seeds, if it can be said to seed. The ears were six or eight in number, three or four inches long, rather imperfect in their formation, kernels smaller than those on perfect ears I regret it much that I did not preserve some of the ears and plant this year with prairie grass, out of curiosity, to see their progeny, but it was set up with the other corn, and before I thought more of it, was carried away, and I saw no more of it.

TIMOTHY DEWEY.

To prevent the ravages of Rats in Grain.

How to prevent the ravages of rats in grain after it is housed, has been an inquiry of long standing. We can never exterminate them to such a degree as not to apprehend their incursions, for a horde of these troublesome visitors will often make their appearance when we least expect them. Instinct points the way to where that provision best suited to their nature is found most plentiful. We have often found, when we went to thrash, our oats cut and cleaned by them, and the straw rendered unfit for any purpose whatever, even the subservient one of litter.

But every evil has a cure; and I have found common elder to be a preventive, and have tested its properties as an anti rat application. When the grain is to be packed away, I scatter a few of the young branches over every layer of bundles, being mindful to have them in greatest abundance on the edges of the pile. The drying of the twigs will give the grain an odour not relished by the vermin—which scent in no wise detracts from the quality of the straw for horses, as it makes no difference with them. I have tried it successfully, a number of years, in wheat, oats and corn.

RUSTICUS IN SOLEA.

Improvement of the Mind.

Watertown, May 18, 1838.

Dear Sir,—I read the letter of Mr. Robinson to Judge Buel, to which you referred me, with pleasure; the object is highly praiseworthy, particularly in a government like ours, where all power is vested in the people. Whatever has a tendency to elevate the character of the working, or productive class of men, adds stability, and a fair promise of durability, to our institutions. Had Adam not eaten of the forbidden fruit, I think each individual of our race would have been engaged in promoting the common good. But it is not so; we are selfish, and all we hope or look for in the best of men, is, that in pursuing their own interests they may select such objects as may also be useful to others, and have a tendency to raise the standard of human character; but I doubt if persuasion only will, or can produce the desired effect.

Men are apt to arrange themselves into two classes: one live by their labor, the other attempts to live by their wits; or, the one earns, and the other appropriates the earnings of the former to their own use, availing themselves of the follies and vices of their neighbors, as a legitimate means of the appropriation. Nothing would be less like a good general than to trust to his eloquence to persuade the enemy not to invade his territory; his true course would be to make himself strong; and if labor should become honorable and popular here, it must be effected by raising the mental condition of that class who labor. Many benefits would result from such a change. You want to bring to the aid of the farmer and the mechanic a most powerful auxiliary, by enabling him to apply more science and skill to his every day business; you would create in him a consciousness of his own true dignity; you would raise him above petty tricks and frauds, and greatly lessen the drafts upon his earnings to pay the price of litigation. I am well convinced that increased intelligence with the laboring class of mankind, is the only true remedy. For one, I have always considered that man the greatest, and the best, who, by his own exertions, adds the most to the aggregate of human happiness, and I regret with you, that modern habits seem highly to encumber the earth with a very useless set of men. You well say that labor is the origin of wealth. Every thing that administers to the necessities, the comforts, the pleasures and luxuries of men, results from labor. Extend then the benefits of education to the farmer, the mechanic, and producer; and if any man has a child endowed by nature with more than ordinary mental powers, let him early encourage that child in the pursuit of useful industry, and bestow upon him all the advantages of education that his situation permits; the more equal the distinction of wealth, the greater the sum of happiness. Wealth and character are usually more equally distributed where idleness is considered a vice and industry a virtue. I am, dear sir, yours truly,

WM. SMITH.

To preserve Roots in Winter.

Leesburg, Loudoun Co., Va., May 22, 1838.

Sir—The farmers of this county have for the last two years turned more of their attention to the example set by their northern friends, in raising roots. I, for one, was quite successful in *raising* the last year, but lost nearly all during the winter, for the want of a *properly* constructed root-house. My motive in writing this, is to beg the favor of you to give, in your next No. an approved plan for one, on a small or large scale, as your judgment may suggest. Two winters ago I used my cellar for the purpose, but during all damp weather the smell from the turnips was disagreeable, and caused a constant apprehension of sickness.

I am quite a convert to the profitable use of potatoes in feeding milch cows and hogs, and am now preparing for a large crop, which I hope I may be enabled to keep, from the information I may derive from your valuable paper. Very respectfully, your ob't serv't,

W. C. SELDEN.

Remark.—Root cellars should be constructed under barns, or other out-buildings, with a view to occasional ventilation. When the out-building is upon the slope of a hill, the entrance may be made large enough to admit a cart, or otherwise the roots may be deposited through a hatch-way, or a trap-door in the floor. But the main crop may be best deposited in pits, in dry situations, of three feet or less in width, the roots to be raised to a ridge in the centre, well covered with earth, and ventilating holes made in the crown of the pit with a bar, to let off the rarified air. Roots should not be housed or placed in a pit when wet with rain.—*Cond.*

Rotation of Crops.

Clinton College, Tenn., April 27, 1838.

Hon. Jesse Buel—Dear Sir,—Under the head of "Rotation of Crops," in the last number of the inestimable Cultivator, you remark, "We would accept it as a particular favor, and the public would no doubt be greatly benefitted, if some gentleman in the south or west would furnish us with the courses adapted to those sections." Fully impressed with the importance of the motto, "Help one another," and conscious of the *great value of free inquiry and communication*, I am prompted to comply with your request as far as I can; though I should much prefer that the spirit of agricultural improvement in this quarter were sufficiently up to stimulate some one better qualified than myself to give you the desired information.

Indeed, agriculture in this part of the Union has heretofore been so little studied, that the rotation of crops *best* adapted to the nature of our soil and climate is perhaps yet unknown among us. We have, however, some who wish "to improve the soil and the mind," and who have devoted some attention to the improvement of our agriculture: consequently, I am able to give you what I deem our *best rotation*, which has yet been practised here. And here it is but justice to remark, that for improvements of this kind, our people are almost, if not entirely, indebted to the Cultivator and Tennessee Farmer.

In the outset, it may be stated, that experience has sufficiently proven, that the articles of cotton and tobacco cannot be cultivated to much advantage in any part of our state, and that in most parts they are of no profit at all; hence they may be left out of our rotation of crops. Our surface is vegetable mould, strongly impregnated with lime, resting upon a clay substratum.

It is true, we have some mountain land, of a sterile, barren nature, void of lime, and possessing but little mould; but the generality of the inhabited and tillable land is of the kind before given. Thus, nature made our soil fertile, but it has been much deteriorated by neglectful culture: still none of it is so far exhausted, that it may not be reclaimed by clover alone. And this country and climate being by nature adapted to the production of stock and grain, the rotation should consist of wheat, rye, oats, Indian corn, clover, beets, turnips, potatoes, &c.; while our wood lands should be well set in timothy and herds grass for meadows, and blue grass for pasture. Then suppose a farmer have 150 acres of land which he tills. It should be divided by fences into three equal parts; one of which should be sown every year in wheat, rye or oats, (clover and timothy, mixed, being sown with or upon the small grain.) Then the rotation would stand thus in succession: 1st year, small grain; 2d, clover and timothy; 3d, Indian corn; 4th, small grain; and so round again. Thus all the tillage of any portion would take place every third year; and by this plan our lands improve in fertility at a rapid and cheap rate; the clover being always ploughed in when it is two years old. We can here enrich land cheaper and faster with clover than by any other mode of manuring. It is well to remark, that if the farmer choose to sow rye or oats instead of wheat, during the year of transit from corn to clover, he can do so with propriety, for clover will prosper among them as well as wheat; but the point of material importance is this, he ought not to harvest more of them than enough for seed. Because, if he will graze them, from the time they are eight or ten inches high, with horses, cattle or hogs, (especially the latter,) his stock will thrive on them nearly or quite as well as on clover, while they are manuring his land. The grazing should be conducted in the same manner as upon blue grass, clover, or any other pasture.*

In this way, his oats and rye afford as much immediate profit as if they were to ripen and to be harvested; besides, the farmer reaps a future profit in the improved condition of his soil, from the circumstance that the stock fatten the soil while fattening themselves.

It is for the interest of the farmer not even to put a third of his land in corn, as the above system imports; but of that third a portion should be occupied in beets, turnips and Irish potatoes, for these products prosper well here, and are more economical in the rearing and fattening of stock than corn. Then, the farmer would till fifty acres yearly in corn, beets, turnips and potatoes, and each portion of ground would be tilled but once every three years.

It may be well to suggest that all the stable and yard manure should be *put in the hills or drills* of corn, beets and potatoes, instead of spreading it broad cast.† By applying it to the hills, or immediately where the plants require it, *all* that is put on the ground is of *immediate* benefit to the crop, and thus too you are enabled to supply each plant more abundantly than a given amount of manure would otherwise do. Your turnips, if sown broadcast, must of course be manured in the same way; but if in drills, the manure should be also in the drills. By thus manuring in the hills or drills, your immediate crop is increased to the highest perfection in your power, while you are thus enabled to keep less ground to obtain a given amount of produce, so that more of your land can be in clover, yielding a profit, while it is undergoing a cheaper and more speedy fertilization. Lime should be spread broadcast upon the high points of the field, where the soil has been washed away.

Thus, hastily, I have given our best rotation, and I must conclude by asking you some questions.

1st. What are the best authorities on horses, sheep, and swine? Can they be had in Philadelphia; if not, where?‡

2d. What is the price of Berkshire pigs, and how could they be transported to Nashville, Te.?§

3d. Is the constitution of the State Agricultural Society of New-York published in pamphlet form or otherwise? If so, please send me a copy. If not published, the western country would be benefitted by the publication of it in the Cultivator.||

With high regard for your efforts, I am, sir, your ob't serv't, FRANCIS H. GORDON.

The improvement of the Mind leads to the improvement of the Soil.

Farmington, May 19, 1838.

J. Buel, Esq.—Dear Sir—One of your correspondents, Mr. Robinson, asks what can be done to elevate the condition of the cultivators of the soil?

The zeal he evinces in his communication to you on the subject is worthy of all praise, and his suggestions may be the means of awakening a spirit of inquiry, and thus be the means of effecting much good.

It is true, the *farmer's* calling has been despised, and mainly, as I believe, because the ignorant and refuse of the people were principally the operators, and because the profits of the business were so small, as not to tempt the active and enterprising to engage in it. If I am right in this view, the remedy is plain; it is, to induce men of intelligence to enter into the business, and to make it in a pecuniary point of view profitable.

Now if the mass of the people can be made to see that the cultivation of the soil is equally profitable, or more so, than mechanical business, we shall find no lack of hands, and of the right sort too, to engage in it.

Science, applied to agriculture, has, in England and Germany, effected this object. The new system of husbandry introduced there is not only enriching their soil, but it is gradually making it the most profitable business of all. The dissemination of knowledge here then, and the inducing educated men to enter upon the business, are the means to be used to produce the desired results. Newspapers devoted to agriculture are the vehicles to be used to convey this knowledge to the people; these should be encouraged; every subscriber should induce his neighbor to take one, and use every honorable means to increase the subscription list and extend the circulation, that the conductors of such works may devote time, and labor, and knowledge, and talent, to make them worthy of patronage.

I have thought, instead of forming agricultural societies, (the benefits of which for the most part are temporary,) a more permanent source of good would be to endow agricultural schools, where young men would be sent to acquire knowledge, and to study the art as a science, where practice should be united with precept, where *professors* of every branch of rural economy would lecture, and where every means should be used to instil into the minds of the students a love of the science, and to fit them to be useful to themselves and to the community. To such institutions the rich would be induced to send their sons, as not only invigorating their minds and bodies, but as a means to acquire an accomplished education. The poor, as giving them an useful education, and to enable them to make their way through life; and thus should we rear up educated men, well imbued with this peculiar knowledge, many of whom would choose agriculture as their business, and devote their lives to the improvement of their profession, and thus produce the results your correspondent seeks for.

It is by knowledge thus applied in Europe, that agriculture has made such advances there, and with the enterprize and perseverance of our people may we not hope to overtake our fatherland, and even rival it in improvement.

And why should we not have such schools to teach the art scientifically? Is it not the first and most important employment—that on which all others most emphatically depend, and a thorough knowledge of which is more difficult to obtain than almost any other, and requiring a capacity, too, to master it, of as great a stretch as any other? but having once acquired such an education, the field is open for talent and enterprise in which a rich harvest of honor and usefulness may be reaped; and the successful occupant of which may acquire more solid renown than the great leader of armies, or the statesman at the head of the councils of the nation.

If you should find any thing in these suggestions of any value, you are at liberty to use them in the way you shall deem best. My object will be obtained if any thought I have expressed shall prove a stimulant to others to aid a cause which in its results will be so cheering to our country.

I think I can already see a spirit arising in our land which will not scorn to labor until our land shall become eminent in this branch of knowledge.

Respectfully yours, EGBERT COWLES.

Mode of preventing or curing the Murrain.

In p. 68 of our last vol. we published a communication from J. Smealie, descriptive of a fatal disease which prevailed among cows. Our remarks upon it will be found in p. 79. That communication induced a Maryland farmer to inform Mr. S. *how to save his cows* After repeated trials of the prescription, Mr. Smealie has had ample proofs of its efficacy, and has sent us the correspondence, which we insert below.—Thus, it will be seen, the Cultivator has been a means of saving several valuable cattle; and the letters which follow, we have reason to believe, may be the means of saving hundreds more.—*Con. Cult.*

Union Town, Carroll co., Md., June 12, 1837.

Respected Stranger,—In the last Cultivator I saw your letter, describing a disease which prevailed among your cows. My object in writing to you is to inform you of a preventive of disease, which I have used for the last two years with success. It is simple. You may try it if you think proper. I tie my cow in the stable, then let a strong man hold her by the nose and horn, then take the paddle we commonly use for greasing the wagon, dip it in the tar bucket, taking up as much as will stick to it, say from a gill to half a pint, open the cow's mouth, and put it as far back on her throat as possible without hurting her; hold the paddle in her mouth long enough for her to work the tar off of it. I do the same to every cow, and repeat the operation every two or three weeks the year through, at the same time rubbing a quantity of tar about the cow's

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* This is a new, but, we are inclined to think, a good, suggestion.

† We must dissent from our correspondent. Manure is intended not only to benefit the crop to which it is applied, but subsequent crops. And *where* does the corn crop want it? In the circumscribed space occupied by the hill? The roots, which take up the food, soon extend beyond these limits; and we think that if dunging in the hill gives the greatest *immediate*, spreading the manure broad cast imparts the greatest *ultimate*, benefit, even to the corn crop; and that it benefits most if spread, and commingled with the whole stratum of soil.

‡ "The Horse," by the British Society for promoting useful knowledge, is one of the best works upon this animal.—The same society have made a valuable publication on sheep. Both of these books can be obtained, no doubt, through Judah Dobson, bookseller, Philadelphia. We know of no distinct publication upon swine, though most of the British agricultural writers treat of them.

§ See Bement's letter in No. 3 of the Cultivator; for price. They might be sent to Nashville by water, via Lake Erie, the Ohio canal, &c.

|| This request shall be complied with.

horns and face, forehead and nose; likewise smear plenty of tar about the manger and troughs. Before I commenced with the above remedy, I lost a number of my best cows, but we called the disease the horn distemper or murrain. I have had cows taken when in fine order, I might say almost fat enough for beef; they would linger a few days and die—the horns when examined would always be hollow, and mostly dry—urine sometimes bloody. From the circumstance of your cows voiding bloody urine, I think it evidently the murrain your cows are afflicted with. It is a distemper caused sometimes by cattle drinking impure water. I would advise you to try it, always bearing in mind that it is necessary for the cow to swallow a good portion of the tar. Since I have used the tar, about two years, I have not had one of my cows diseased in any way, and one of my neighbors, whose cows were formerly diseased, has used it for a long time with the most complete success. I give the tar to horses, sheep and hogs, and think it good for them.

If you should think it worth while to try it, and should succeed, I would be glad to hear from you, that is, after you have tested it fully. Direct to Union Town, Carroll county, Maryland.

Since writing the above, I think it necessary to state, that I do not think the tar will be so likely to cure a diseased animal, but as a preventive of disease among stock of any kind I think it unrivalled, particularly for cows.

Your friend,
JOSEPH COOKSON.

Princetown, Schenectady Co., April 21, 1838.

Dear Sir,—Ten months have nearly elapsed since I received your letter in reply to one of mine which was published in the June number of the 4th vol. of the Cultivator, giving an account of a disease that prevailed among my cows, which I did not then know was what is called *murrian*, until informed by Judge Buel and yourself. My object in now writing you is, first, in accordance with your own request; 2dly, to return you thanks for your promptitude and kindness in writing me, which I now do unfeignedly and gratefully; and, 3dly, to inform you of the success of your prescription, not only in my case but also with several of my neighbors. I can now go a step farther than you ventured to do, that is, I can recommend the use of tar, not as a preventive only, but also as a cure for the above disease. You will be able to judge from the following facts: I commenced, according to your directions, immediately on the receipt of your letter, from which time back to the date of mine already referred to, none of my cattle had been taken sick, but in three or four days after they had received the first dose one of them was seized. I first observed her in the morning, and immediately gave her another portion, perhaps double in quantity to what you recommend. At night she appeared to be no worse, but I gave her yet another dose; next morning she was evidently much better, and soon got entirely well.

This was the last sickness of any kind to which any of my cattle have been subjected. The distemper has prevailed in this neighborhood, more or less, for a number of years, very few recovering; and where it found its way among a stock, it has sometimes swept the whole which the owner possessed. Application was made to me by three of my neighbors, to all of whom I recommended the use of the tar, and in every case the result was a complete cure. The first, (who like myself had been contending with the disease for a considerable time,) had a cow so far gone that she was unable to stand, and was blind, yet, contrary to all expectation, on a liberal application of the tar she recovered. Another had one of his cows violently seized, (he well knew the trouble as an old acquaintance, it having nearly swept him once before,) he applied the tar a few times in large doses, and she soon recovered. Another had lost two cows, but since he commenced giving tar, which is about six months, the others have remained in good health. These are the only cases that have come to my knowledge, but the result has been uniformly such as I think will warrant its publication.

Your letter has been read in the office of the Cultivator, and the result of your prescription in my own case has likewise been stated. A request has also been made for your letter for publication, which I have promised, on condition that you make no objection, which I think very improbable, after your prompt communication to an entire stranger. I will, however, wait until the last of May, and if I do not hear from you before that time, your letter will probably appear in the June number.

I am, dear sir, your much obliged well wisher,
JAS. SMEALLE.

Mr. Joseph Cookson.

Corn Stalk Fodder.

Knoxville, Tenn., May 13, 1838.

J. Buel, Esq.—Sir,—Our farmers generally pursue the old plan of stripping the fodder off the corn stalks, whenever the corn is sufficiently matured to do so.—The stalk is very seldom cut off near the ground, and we know very little of saving corn and fodder in that way.

I have been under the impression that the blades would become so much dried before the corn would be sufficiently matured to cut up, that the fodder would be of little value. I would be glad of some additional information on this subject, and also as to how long the stacks are left standing in the field after cutting?—Whether the corn is taken off the stalk before housing? and any other information on this subject you may please to communicate in some subsequent number of the Cultivator.

Very respectfully, your ob't serv't.
MAT. McCLUNG.

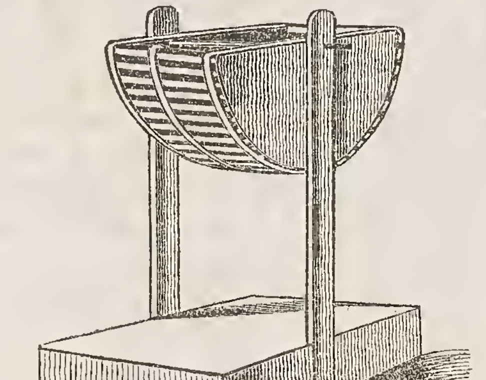
Remarks.—Our practice is, to cut up our corn as soon as the grain becomes glazed, or hard upon the surface—while the leaves and stalks are generally yet green and succulent, and to set it immediately in stooks. Being gathered in this succulent state, and protected in the stook from the injurious effects of the weather, it dries moderately, and retains most of its saccharine and nutrient matter. The corn may be picked from the stalk in twelve or fifteen days, if the weather is favorable, though the stocks require a longer time to cure, before they are housed. When the corn is taken off, we put the stalks into small stacks, so as to expose all the but ends, which have become wet by standing in the fields, to the drying influence of the winds. The grain unquestionably derives more benefit from the stalk after it is cut up, than it does from the stock, after the latter has been stripped of its leaves, its elaborating organs, as practised at the south. The stook, containing 80 to 90 stalks, is tied above the ears, which latter keep it sufficiently open to prevent the grain heating or moulding. It should be remembered, that our corn stalks are pigmies, compared to those which grow in Tennessee. See a memorandum of our experiment at p. 142, in our 4th vol.—*Cond.*

Potato Washer.

Yorkville, Whitestown, April, 1838.

J. Buel,—Sir,—I send by the bearer a model apparatus for washing potatoes and other roots. It is an old affair, therefore I am so much the more vexed to still see brother farmers washing their potatoes in boxes, troughs and baskets, when for the value of one good oak basket they can construct a washer that will last 15 or 20 years. The cheapest way is to take that rude plank you have kept so long because it was so fine, and strike two circles of 40 inches radius, depth 20 inches of course, and saw them out; now take one of your old barrels, if oak so much the better, the staves are exactly the right shape, a little too long perhaps, 28 inches is long enough, place the heads or ends that distance apart, and nail on the staves three-fourths of an inch asunder, over which nail three strong hoops, one on each end and one in the middle; now bore a two inch hole in each head two inches below the compass dot, through which put a shaft, which may be put through or notched on to two posts; the posts may be set in the ground, or, if it is desirable to render the whole moveable, they may be attached to a timber or plank floor. There you have it, now we will try it. Pour the potatoes in over one end to keep its equilibrium, then dash on a bucket of water, and facing one end, and with a hand on each side rock it to and fro, so slow that the potatoes follow the motion; when they appear to be all wet, put in another bucket of water and let them drain; so tip it down, (it being high enough to set your basket under,) and they will slide out freely. With a washer of this kind, any one who can carry a bushel of potatoes can wash, with two buckets of water, two bushels in less than two minutes.

[Fig. No. 38.]



It is obvious that it will wash ruta bagas, beets, &c. equally well, and apples also. There you have my account of the matter; but it is no use to say so much about it; my neighbors see me using it frequently, and acknowledge it is a grand thing, and then go straight home and continue the use of their baskets and troughs as before. 'Tis this that vexes me, because every one of them can make one if they will.

Respectfully, H. G. BALIS.

P. S. I wish to ask you one question. If my basket will hold a bushel of grain even full, ought it to be considered a fair bushel of potatoes if I fill it heaping full? [Yes.]—*Cond.*

Cure for Ring Bone.

Mr. Editor,—Are we not individually called upon, when we become acquainted with any knowledge which by a more extended diffusion will promote the interest and welfare of those around us, to make known the same to the public?

Feeling this to be a duty, I would direct the attention of all gentlemen who are raising horses to that distressing complaint, viz. the ring-bone.

Having in the early part of my life paid considerable attention to the raising of horses, but finding them subject to so many complaints, and especially that of the ring-bone, I was much discouraged in the enterprise, and was led to ascertain, if possible, the causes of that complaint, and if any remedy could be found. From all the information that I could obtain from different authors on the subject, and from my own experimental knowledge of the complaint, I was led to conclude that there were various causes for the complaint—that colts which are kept confined in a stable, and the floor cleaned off daily, are more liable to be affected with ring-bones, than those that are kept on the ground or on floors well littered. Low keeping, by weakening the joints, has a tendency to produce them. In young horses they are generally occasioned by sprains, which are made by being rode or drove too hard, running in the pasture, or leaping fences.

After hearing the above statement as to the causes, the reader may with propriety inquire, what composes the ring-bone, and whence does it originate? In answer to this inquiry—I have found it to be composed of the synovia or juices of the ankle or fetlock joint, which, by some of the forementioned causes, is made to flow or leak from the joint, and is at first collected into a small sack in the back part of the fetlock joint; from thence it is conveyed by two small tubes to each side of the foot, where it gradually forms the callous or ring-bone.

For the last thirty years I have been in the habit of successfully performing an operation, which prevents the ring-bone from increasing in size, and if not lame previous to the operation, the animal never after becomes lame in consequence of the ring-bone; but if lame before the operation is performed, a period of from one to twelve months is required for their recovery, much depending on the length of time which they have been lame.

The operation is performed in the following manner. I first shear off the fetlock, then make an incision thro' the skin and extract the sack above mentioned, at the same time taking care to destroy the communication from the joint to the ring-bone, by cutting off the tubes or conveyors from the joint to the ring-bone.

If the aforesaid operation is performed skilfully, the horse is as fit for use in one week as before.

ZECHARIAH CONE.

Hebron, Conn., March 26, 1838.

Remarks.—Dr. Willich says, where the tumefied part is distinctly perceivable round the pastern, without affecting the coffin joint, it is easily cured, but if the swelling be of long continuance, and has become hard, it may then require both blistering and firing," i. e. searing with a hot iron"—Extend a mild blister over the cauterized part.

Importance of Agriculture—to all.

Stroudsburg, 23d May, 1838.

Dear Sir,—Although not a farmer by occupation, yet there is no department of human industry regarded by me with so deep an interest, as that of the cultivation and melioration of the soil. The sad experience of the few last years has brought us to feel how immediately we depend upon the humble calling of the husbandman for the daily supply of our most pressing wants. Under Providence, society looks up to the farmer; who holds in trust the elements, not only of human comfort, but of existence itself. How important then is the business of agriculture—and, I will add, how respectable too. Yes, sir, how respectable, *in itself*, and in the *public estimation*. Among private citizens, I know of none more worthy of honor than the industrious, intelligent and virtuous farmer—and to such a man, notwithstanding his plain garb and hard hand of labor, I would sooner bow, than to a score of genteel loungers, who contrive to "lash the lingering moments into speed" by novel reading, hunting, fishing and the like.

But the farmer, in order that he may receive honor from those only who can confer it, must have *intelligence*, hence he must *read*, for no man in these days of improvement and experiment can keep pace with society unless he adds the experience and observation of *others* to his *own*; and this is to be done by reading, reflection and experiment. Hence the utility of well conducted agricultural journals—and such, sir, without intending flattery, I would denominate yours.

When I sat down, I intended to touch a subject on which I would be glad to see some remarks from yourself. In every district of country where I have resided, a general belief prevails of the influence of the *moon's phases* on vegetation, as well as on various other things, together with a belief in the important influence of the *signs*. Now if these influences are only imaginary, as I suppose them to be, it is a matter of some consequence that the farmer should settle that point in his own mind. If error it is, it is by no means a fruitless error. Bad consequences, at least sometimes, may follow. Take an instance. A farmer has prepared his ground for Indian corn. It is in good condition; the season has come round, and all is favorable—*except the sign*. He must wait a week, perhaps, for the sign to travel on to *aries*, in order that the ears of his anticipated crop may correspond in length with those members of the body. When at last the golden moment arrives, sad to state, a rain has set in, which, had he committed his seed to the ground in season, would have been most favorable to its early germination; but, as matters are, it may put to hazard his whole crop, in those latitudes where a week's difference in the accession of the first autumnal frost will often make the difference of harvest or no harvest.*

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* The moon has unquestionably an influence upon vegetables and animals, as well as upon the ocean of waters; but we have never seen it attempted to be maintained, by men of scientific knowledge, nor have we ever believed, that one phase of this planet was more favorable to the deposit of seeds in the earth than another phase; and as for *signs*, the only one that we ever wait for, after our ground is prepared, and the season of planting or sowing arrived, is that of *good weather*, which we are sure to improve; and seldom fail of realizing good crops, whether the moon, at planting, be in *aries*

But I will not enlarge—leaving this subject with you, and wishing you all that success and enjoyment which labors like yours deserve, I am, with great respect,

Yours, &c. WM. P. VAIL.

Jesse Buel.

Joint-Murrain, or Garget.

Judge Buel:—A disorder has prevailed among cows in this vicinity, for the last twelve or fifteen years, which I have never seen described, and which baffles all attempts at immediate cure. It generally attacks young cows in milk, and rarely extends to any other stock.

The animal is taken suddenly lame, generally in one foot, but is soon lame in all. No local inflammation is perceptible. Slight costiveness and some fever generally attend it. On examining one recently, I found the hip bones carious to such a degree, that they might be cut with a knife. The spinal marrow was dissolved to a watery substance, in the vicinity of the diseased part. The animal had been helpless in its hind parts for a month before it was killed.—The rotten bones were broken from the spine. Frequently the disorder commences in the fore feet. I have never examined one thus taken.

Cows in high flesh are as liable to the disorder as any. In some instances, it has been cured by drying the cow immediately; in others, this remedy has failed.

Having never had any of my own cows affected with the disease, perhaps I cannot describe it so minutely as some others—the above, however, are the general characteristics. Can you, or any of your correspondents, give information as to the cause of it, or suggest a preventive or remedy? If so, you will advance the cause of agriculture in this section of the country, by giving it publicity through the columns of the Cultivator. J. K. SMITH.

Dublin, N. H. June, 1838.

Remarks.—We are not skilled in the diseases of cattle; and we are satisfied that we are suffering immense losses annually, in the death, by diseases, of our domestic animals, which might be avoided, had we schools, like those of Europe, to teach and promulgate correct knowledge in the veterinary art. Having no resource of this kind, to apply to, we avail ourselves of such authorities as we have at hand, to answer the questions of our correspondent, and invite further information from any of our readers who feel competent and willing to impart it.

Lawrence has grouped together a number of diseases, all of which, he says, indicate the same disease in different stages. These are known by the popular names of *shewt of blood—vomit of blood—blood in the back—blood in the legs or cratench—blane in the tongue, or overflow of blood—striking in or rising of the blood—higham or iron striking*—JOINT MURRAIN OR GARGET—*black quarter—quarter evil—black leg.* "All our animals," says he, "oxen, sheep and pigs, I have observed, are subject to sanguineous effusion, or overflow of the blood, on being put, when in a low and weak state, to rich or succulent keep. One termination of the disease is by a deposition of matter upon the joints, whence the term of joint garget or murrain." "This disease has swept off great numbers of yearling and two year old cattle, and become indeed endemical, in certain districts, where any such scourge was unknown, it is said, previously to the introduction of artificial grasses, with the full feeding on which, the animals become surfeited; thus the improvident use of good produces evil."

"Prevention of this malady is the only cure worth notice, because after the attack, the very nature of the case renders all remedy either uncertain, or of very little profit. even if successful, on account of the expense of time and money. With this view the young cattle must not be put so forward in condition, and indeed the same precaution may be useful, in some degree, with respect to the full aged. Those observed to advance very fast, may be bled monthly for several months, or may be purged with six drachms, daily, for a month, of equal parts of sulpher and antimony, in fine powder, OR SALT MIGHT BE OF USE. Rowelling also might be an efficacious preventive. Keep two rowels or setons open in each breast during several months. The disease having fallen on the joints, the best cure, I should apprehend, is to kill the beast, but if that will not agree, I am aware of no better method than to take him home foment his joints, and give two or three brisk mercurial purges." See Lawrence upon cattle, London 2d ed. p. 294, &c.

Prevention, we all know, is better than cure; and if we would profit by this adage, we should make the transitions from low to high feed, in our domestic animals, slow and progressive; and give them DAILY ACCESS TO SALT, a condiment as essential to health and comfort in the daily food of the brute, as it is in the daily food of man. The best authorities, and most experienced farmers, concur in the opinion, that salt is the grand preservative of health to domestic animals.—To test its value of the animal, daily, let any one take it in his food only monthly, weekly or semi-weekly, as he is accustomed to dispense it to his stock, and he will soon become a proselyte to our belief.—*Cond. Cult.*

On Summer Fallowing.

Schaghticoke, June 5*th*, 1838.

Sir—With a desire to gain information, permit me while I give my own, to ask your opinion as well as that of some of your numerous correspondents, upon the subject of summer fallows. 1st. Are they ever beneficial to the land or crop which it is intended to produce? 2d. If beneficial, are the benefits an equivalent to the enormous expense attending them? 3d. Would not a clover sod be a better preparation for wheat than the naked fallows? Satisfactory answers to these queries, I conceive to be of immense importance to your readers. Some of the agricultural writers of Great Britain, contend that the general abandonment of the naked fallow system in that kingdom, has tended more to produce the high stand which her agriculture now sustains, than every other improvement combined. If such is the fact in relation to Great Britain, why would not its abandonment in this country be attended with a like good result? Look at the immense expense in preparing our lands for wheat. Our farmers, by the course they pursue, are not only at the expense of one or two extra ploughings, but lose the use of their lands through the summer, which could be made to support an immense number of cattle, and thereby greatly augment the profits of these farmers, and increase the quantity and improve the quality of those manures, which have been rightly termed, "the magic wand that the farmer uses," and upon the production and just application of which not only depends our immediate interests, but the high reputation which we hope ere long to see our agriculture sustain. "Nature seems to require no rest, and the earth was evidently designed to produce a constant uninterrupted vegetation." If then the productive quality of the earth never ceases, why should this principle of nature be perverted, and our lands laid bare and exposed to evaporation, instead of being covered and protected. One argument often produced in favor of the fallow system is, that it cleans the land from weeds. Tull, in speaking of the British fallows, said, they presented nothing but a conflict between the farmer and his weeds, in which the latter generally prevailed. Our lands well laid down in grass, are free from weeds, and why are they not in as good a condition to receive a crop with one good ploughing as a half a dozen? It is a fact incontrovertible, that the decomposition of vegetable matter produces food for plants.—By summer fallowing, the vegetable matter is all decomposed and evaporated before the crop is put upon the land. The old school of farmers tell us that the sod should be well rotted before the soil is fit to receive the seed. This idea appears as absurd to me as that straw should be reduced to a powder before we apply it to our soils. The general practice which has been pursued upon the wheat farms in this county, is to sow wheat every other year after summer fallow, until the occupants found that their lands would no longer produce wheat. It would have been millions in their pockets had they pursued an alternative system, and known that it was the fallow, not the wheat, that so soon exhausted their lands.—Wheat farms should be made stock farms. Every farm of 200 acres, by alternating wheat and clover, and cultivating a few acres of roots, can be made to support more stock than 100 acres upon which a plough is never used, as the straw would help to winter them, and with the increased quantity of manure, their crops would, in a few years, be doubled, and the soil continually enriched. I have been perfectly successful in raising wheat upon a clover sod; and so fully am I convinced of the bad effects of summer fallows, that unless this mistaken kindness towards the wheat crop can be abandoned, I believe it would be a benefit to this country should the wheat insect spread over every part of it, and leave us dependant upon the eastern world for this part of our bread stuffs. Yours, with respect,

J. C. MATHER.

Remarks.—The reasoning of our correspondent is sound, and its correctness is verified by results of all who have given a fair trial to fallow crops, as a substitute for summer fallows. The only cases, in our opinion, where naked fallows should be tolerated, that is repeated summer ploughings given for a wheat or rye crop, is where the soil is a stiff wet clay, which will not grow clover, and lands which abound in fibrous, woody matter, when first reclaimed by draining. Good draining, and especially what is termed furrow draining, will supersede the necessity of summer fallowing wet and stiff clays, and vastly improve the texture and productiveness of the soil. If such grounds are ploughed in narrow ridges in autumn, and the furrows well cleaned, that the surplus water may pass off, they may be sown with oats early in the spring, and be in fine condition for winter grain in September. The difference in profit between the two modes of converting sward into wheat, may be stated thus: The three ploughings and harrowings for summer fallow, may be estimated at $8, and the use of the land is virtually lost for the season. In the other mode two ploughings suffice, for the oat and wheat crop, thus saving at least $2.50 of the outlay—while the oat crop, if any way tolerable, will make a return of twelve or fifteen dollars additional. The land will be richer, and in better condition for wheat, because it will retain the vegetable matter of the sod, than if it is summer fallowed. The fertilizing matter of the sward is exposed and wasted by the cross ploughings. To render a fallow a cleaning process, it is customary, in Britain, to pick and gather, after the harrowings, the perrennial roots and quack-grass, and to burn, or mix them with the dung—a labor which our farmers seldom or ever incur.—*Cond. Cult.*

EXTRACTS.

Character of Dutton Corn.

We copy the two following articles from the Hartford Times, at the request of a respectable correspondent.

Mr. Editor—An article has been copied in several papers from the Springfield Republican, commending in the highest terms the *Dutton or Canadian corn.*—Had not the writer of this article been explicit in his statements, giving names, dates, &c., the agricultural portion of the community would have considered it a gross imposition. We saw the article advertised last spring, perhaps in your paper, as peculiarly adapted to this cold region, sure to ripen three weeks earlier than the "old fashioned" corn, &c.

In common with many of my neighbors, I repaired immediately to the advertiser, bag in hand, and as a special favor, at the rate of *four dollars* per bushel, obtained a few quarts. Our children and friends looked at it as one of the great discoveries of modern times, and it was no effort of our imagination to see the fruits of it early in store, long before the appearance of autumnal frosts. I planted it on the 18th of May, in my garden, and at the same time, and adjoining, planted an equal quantity of the "old fashioned" corn. As the ordinary time arrived for family use, I looked, but looked in vain, for the ripening of the Dutton corn. My faith, however, did not fail, until the 4th of October, when, after the old fashioned corn had been ripe more than two weeks, this *celebrated* corn was in the milk, hardly ripe enough to roast. The frosts came about this time and destroyed it, and with it all my confidence in Dutton corn.

Now, sir, if this was the result of my experience alone, there might, perhaps, be some question as to the fairness of the experiment. But since reading the article alluded to, I have conversed with at least six of my neighbors, whose experiments and opinions on this point correspond with my own. If necessary, we are willing to give our names, and think it our duty to express our opinion, that, as regards this section of country, at least, it is an imposition to recommend it. It may seem a slight matter to the "soft handed," who labor by proxy, but to those of us who earn our bread by the "sweat of our brow," it is not only a serious loss thus to plant and not to reap, but it is exceedingly mortifying and provoking.

For a time we thought of prosecuting the advertiser, but we consoled ourselves with the idea that as "monsters cannot beget their own species," no more seed of this kind would very soon be offered to the public.

A LITCHFIELD COUNTY FARMER.

Mr. Editor,—In your paper of the 12th inst. I noticed an article signed "A Litchfield County Farmer," giving a somewhat ludicrous account of his experiment, and of those of six others of his neighbors, in planting and *attempting* to raise that variety of Indian corn now known by the name of the Dutton corn.

It is to be regretted that when gentlemen undertake to place before the public any statements, respecting their own experiments in agriculture, by which any benefit may be expected to result for the common interest, that they withhold their names from the publication of facts, on which their opinions are formed, and their conclusions drawn—leaving the reading part of community at a loss what degree of credit ought to be attached to such anonymous statements.

That frauds and impositions have been practised by certain persons, in selling seed corn under the name of Dutton corn, is well known; but these very frauds go to establish the truth of the fact that this variety has acquired a distinguished reputation, after several years trial by the most experienced farmers in our section of the country, and of course greatly raised the price of this seed—witness the "few quarts" bought by the "Litchfield County Farmer at the rate of *four dollars* per bushel."

I have, Mr. Editor, no other interest in this subject than that of an ordinary farmer in raising corn for my own use. Such have been our seasons for several years past, that I, with many others, have been solicitous to obtain a variety of that useful article which should arrive at maturity as early as might be, to avoid injury by our autumnal frosts. In these endeavors I have succeeded beyond my expectations. I will now state the facts.

In the spring of 1837, I bought of Mr. St. John, of Hartford, a small quantity of the Dutton corn for seed. On the 28th and 29th days of April, I planted in one field sixteen acres—eight of which with the seed of the Dutton, and the other eight with the seed of the common yellow, or, as is denominated by the "Litchfield County Farmer," *the old fashioned corn.* The land throughout was of the same quality, and had the same tilth and culture. The Dutton was fully ripe and fit for

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or *pisces*—in the ram or the fish. The superstitions you mention belong to a by-gone age, when seeing the new moon over the *left* shoulder was deemed an infallible sign of ill luck.

harvesting 16 or 18 days before that of the common yellow—not an unripe ear, nor any mixture of refuse, or what is commonly called *pig corn*, was found among it—whereas among the eight acres of the common yellow, one-third part of the whole was, by reason of its immaturity, thrown by as *nubbings* and *pig corn*, wholly unfit for market. I carefully measured in a half bushel one hundred of ears of the Dutton corn and shelled it. The quantity of the shelled corn was half a bushel and three pints—the weight of the half bushel was thirty-four pounds. Those of my neighbors who planted the same kind of seed the last season, experienced much the same results.

I have now to propose to the "Litchfield County Farmer," that if he will take the trouble to honor me with a visit, I will give him "a few quarts" of the *true* Dutton corn, and let him plant it on the same kind of land as that on which he plants his "old fashioned corn" and give it the same husbandry—if the Dutton corn does not come to maturity at least 14 days earlier than the other, I will pay him for the time spent on the journey two dollars per day, and keep him at my house free of expense to him.

I have now only to add, by way of statement, that, from careful observation, I am prepared to say, that, supposing the season to have been such as to have brought the eight acres of the *common yellow* to maturity without any injury by frost, the quantity would have been one-third less than on the other eight acres.

In conclusion, I think it cannot admit of doubt, that the "Litchfield County Farmer" was imposed upon in the "few quarts" of seed purchased by him. His doleful story of the disappointment of himself, his "children and friends," in their raised expectations of the luxury of the Dutton corn, reminds me of an historical incident, not altogether unlike in its character to the case of our "Litchfield County Farmer."

At an early period of the fur trade between the Hollanders and the western Indians of our country, the Dutchmen bartered off at an enormous price a quantity of their gun powder for beaver. At the close of the trade for the season, when the pale faces were about to return, they informed the Indians that they had a small quantity of *gun powder seed*, which they would sell, in case they could receive a price adequate to its immense value—assuring the red skins that by careful planting and good cultivation, they would be enabled in future to raise their own gun powder. The bait was greedily swallowed, and the purchase made by large piles of beaver skins. The Dutchmen soon took themselves off. The Indians prepared their ground and sowed the seed agreeably to the directions given. After waiting a long time for the expected vegetation of the seed, they examined the ground by digging down, and the trick was discovered.

The purchasers, with their *papooses and friends*, were overwhelmed with disappointment and chagrin, greater, perhaps, than have been endured by the "children and friends" of the "Litchfield County Farmer."

East Granby, May 18, 1838. HORACE CLARK.

Books on Agriculture, for School Boys.

We have thought the cause of agricultural improvement would be greatly promoted by the publication of a series of elementary books on agriculture, designed for the use of the schoolboy. Why should not our children have facilities for the acquisition of knowledge applicable to this pursuit as well as on less useful ones? If education is designed to fit us to engage in the practical duties of life; why is it that the most important of all earthy subjects, and one which occupies the labors of a vast majority of our people, is not the leading object of the schoolboy's education? We have elementary books on every other subject; we have schools wherein are taught the rudiments of every science, schools of law, medicine, divinity, of fighting, dancing, and of every thing but of agriculture. There is something wrong in the national practice on this subject. We ought to give to the most important subjects the highest degree of attention—we must graduate various branches of education by the standard of their relative importance, and give to those having the nearest relation to our most important interests, the greatest share of favor. We ought to have the principles of husbandry taught in every common school and a chair of agriculture endowed in every college. And we think the first step to the introduction of this new branch of education is, to have the necessary elementary school books. We have many men in our country, eminently capable of compiling such works and adapting them precisely to the capacity of the schoolboy.—And he who would prepare a set of works on agriculture for the use of schools, such as would give to the boys of the country destined for the pursuits of husbandry, a thorough knowledge of the principles and the outlines of the practice of agriculture, would do more for the general good and for his own literary fame, than in any other walk of science or learning. Let it not be supposed that we decry other branches of science or learning. We are in favor of all; and especially those which contribute useful aids in the practical labors of life. We would render all subservient to man's use; and it is only in this view that they should be appreciated. But it is admitted on all hands, that agriculture is the most universal, the most dignified, the most congenial, virtuous and productive pursuit of mankind—the substratum of all other pursuits—the life and soul of commerce and manufactures—the mother of the arts and sciences—the basis of civilization; and we insist, it is *not* seeking too much when we seek to give to her own child, the husbandman, a higher grade of education. Whatever description of knowledge, relates nearly or remotely, to the multifarious labors of the agriculturist, should be an object of his study, and constitute a portion of his exercises at the primary school and the college, and employ his reflections in all the riper years of after life. One of the most absurd and mischievous errors of the day, is that of the father, who gives to the son destined for a farmer an education inferior to that he bestows upon the one destined for a profession. The husbandman deserves a better education than a lawyer or a doctor; because his occupation requires the exercise of more knowledge; but it is too generally the case, that he is only allowed some snatched intervals between the crops, "to learn to read, write and cipher"—and this is deemed education enough for a farmer! O, what a wretched, miserable error is this—what a foe to the improvement and dignity of the class! It ought, it must be banished, and the practice which results from it abolished, and a wiser and better one substituted. Now, however the remark may seem to censure the general opinion and practice on this subject, and although we may be even ridiculed by many farmers themselves, for the apparent ultraism of the sentiment, we are bold to declare, nevertheless, that the farmer *has need* of a better education, and he actually more often requires the aid of more various branches of science in his ramified operations, than the member of *any* profession; and we sincerely believe, that if any discrimination should be made in the education of two sons, one destined for a farmer and the other for a profession, it should be in favor of the former. Let us not be misunderstood—the boy destined for a profession or trade should be thoroughly educated in all branches pertaining to his distinct calling; while the boy intended for a farmer should be thoroughly instructed in all the principles to which the intelligent and scientific agriculturist stands indebted for the successful result of his labors. We could easily show, that these principles are drawn from a wider range of sciences than are necessary to be consulted by one destined for any of the so-styled *learned* professions; and consequently it would be shown that the husbandman needs a more extended education. A young man preparing for the bar is ready to enter upon his legal studies on attaining some smattering of Latin, (or it may be Greek); and many do not even go thus far before taking up Blackstone. A short course of reading elementary works on the principles and practice of law, and the student enters on the practical field of his profession. The physician requires more preparation to qualify him for practice. He too, learns the dead languages, and studies the principles and practice of his art, but those principles involve a knowledge of various abstract sciences, and he is constrained to invoke the aid of anatomy, physiology, chemistry, mineralogy, botany, &c. &c. before he enters upon the practice of his profession. We are speaking of those studies only as they relate to the *professional* qualifications of the student, and of course we are not to be understood as denying either the possession or the importance of other branches of learning to professional men. They, as well as agriculturists and others, in their social and political relations to community, are equally required to discharge the duties of *citizens;* and we hold that all classes should avail themselves of every accomplishment which learning or science can bestow, in aid of the performance of those high duties. But we need not array comparisons or illustrations on the subject: our opinions may be presented at one view. We would give to every one, of whatever pursuit, precisely the education adapted to it—and it should be thorough and perfect in all its branches, or at least so far as any or all the branches related to the peculiar pursuit adopted by the student. It should thus qualify him for the intelligent prosecution of the labors of his life and ensure his complete success. It would render the farmer as illustrious, and certainly as useful, in his sphere, as the profoundest statesman or professor. But the subject is too interesting to be treated satisfactorily in the narrow limits to which we are circumscribed; and we mean to pursue it.—In the meantime, we submit to the board of education, and to the commissioners of common schools, the propriety of early considering the importance of adopting a series of agricultural works, as text books in the schools about to be put in operation under the excellent common school law of the state. They may do incalculable good to the children of Kentucky, which will flow to other generations, and they may render the system far more useful and effective, by seasonably directing their earnest attention to the subject.—*Frankfort, Ky. Farmer.*

Quality of Milk during the process of Milking.—Several large coffee-cups having been successively filled from one cow, till she was quite dry, the following results appeared: great care being taken to weigh the cups to ascertain that they held exactly the same quantity: In every case the quantity of cream was found to increase in proportion as the process of milking advanced. In different cows the proportion varied, but in the greater number the excess of cream in the last cup, as compared with the first, was sixteen to one—in some it was not so considerable:—therefore, as an average, it may be called as ten to twelve to one. The difference in the quality of the two sorts of cream was no less striking: the cream given by the first drawn milk was thin, white, and without consistence, while that furnished by the last was thick, buttery, and of a rich color. The milk remaining in the different cups presented similar differences: that which was drawn first was very poor, blue, and had the appearance of milk and water: that in the last cup was of a yellowish hue, rich, and to the eye and taste, resembled cream rather than milk. It appears, therefore, from these experiments, that if after drawing seven or eight pints from a cow, half a pint remains in the teats, not only almost as much cream will be lost as the seven or eight pints will furnish, but that of the best quality, and which gives the richest taste and color to butter. This fact has been corroborated by chemical experiments, and holds good with respect to goats and asses.—*Blachler's Essay on the Improvement of small Farms.*

[*From the Farmers' Magazine.*]

Old and New Husbandry.

Sir—Glad that my former observations have interested your readers, I am now desirous, with your permission, of further prosecuting my original object, which was to encourage the employment of the poor by the occupiers of land. To this end I wish to explain somewhat more fully the means by which I am enabled to employ nearly half as many more men as are usually employed on the same number of acres, not only, as I think, without loss, but with a fair return of profit.

It may be proper to premise that my farm consists of about 200 acres; comprising 30 of wood, 42 of pasture, the rest arable. Of the arable, 85 acres are of good mixed soil, well adapted to turnips and barley, but not considered equal in value to the best wheat land; the remainder consists partly of a hungry gravel, partly of clay, of very inferior quality.—It is cultivated on the Norfolk, or four-course system.

1. I diligently collect litter of every kind, seaweed, furze, fern, leaves of trees, &c. for bedding my yards, in addition to the straw grown on the land.—In the last 12 months I have brought in about 50 wagon loads of this description; each wagon load gives employment to about three men for a day, the total is therefore 150 days.

2. This increase of litter would avail little or nothing if I did not keep an extra number of live stock, for I observe that many farmers do not even make their straw into good muck. I therefore fat about 40 hogs and four or five head of horned cattle every winter; enough, in short, to consume half my Swedish turnips, which are drawn and carried into the yards for this purpose. The drawing, topping, and carting, together with the time occupied in looking after the stock, may be estimated at one man's employment during the winter months, equal to 150 days.

3. The removal of one-half the turnips would injure the succeeding barley crop, if I did not lay on, at the time of sowing the turnips, an extra quantity of manure, say 25 single horse cart loads per acre, about 10 loads more than the usual allowance. This I am enabled to do, partly by the great quantity of litter in my yards, partly by placing a bottom of earth or chalk under every dung heap, and a thin covering of the same materials over the top. The practice of carting all my dung twice, first from the yards to bottoms prepared in the fields, and then on the land when wanted for use, of course employs many hands, as well as the turning their composts, and mixing the materials together. I believe I do not over rate the number of cart loads filled annually on my farm at 2,400, whereas on the same number of acres, a farmer who moved his dung only once, carrying it immediately from the yard, and at the rate of 10 loads per acre for turnips, the same for wheat, would fill only 600 cart loads annually. The extra 1,800 loads may give about 112 days employment, and the turning of the compost about 20 more; making together 132 days.

4. I have introduced this year the Norfolk practice of dibbling wheat. This occupies two men and six children for 30 days, at the rate of half an acre per man per day. Computing the six children equal to one man, the dibbling gives extra employment of 90 days. The expense is paid in the saving of seed, to say nothing of the increased produce, which is estimated by the best Norfolk farmers at a sack per acre.

5. Extra weeding, throwing ditches, draining, &c. may occupy about 80 days.

Let us now recapitulate—

Collecting litter, ...	150 days.
Feeding stock in yards, ...	150
Carting earth and dung,........	132
Dibbling wheat,...............	90
Extra weeding, draining, &c....	80
Total,..............	602

At 300 working days in the year, this is equal to two laborers extra, winter and summer, employed on a farm containing only about 120 acres of arable land.

It is not easy to estimate with precision the increased amount of produce which a farmer may expect to obtain in consequence of such an increased outlay in labor; the less so as that increased produce does not make itself felt the first, second, or third year, to the full extent; indeed, I have heard an intelligent farmer say, that he has observed a progressive improvement in his land during no less than *twenty* years, from persisting in a system of high cultivation. I quoted in a former letter the estimate of Von Thaer, which, however, was so disfigured in the printing (owing, I fear, to the badness of my hand writing,) as to be almost unintelligible; I beg leave, therefore, to repeat the statement.

On a farm on 913 *acres of good barley land.*

	Under the old system two crops and a fallow.	Under the improved or alternate system.
Produce in cattle, ...	£210	£1,249
Produce in grain,......	894	2,030
Gross produce,........	1,104	3,279
Expenses of cultivation,	537	1,051
Nett produce,.........	567	2,228

The last line comprises rent, profit, interest on capital, tithes and taxes of any description, the object being simply to show the *comparative* results of the two systems of cultivation. The system is not founded on speculative views, but on extensive and accurate observation during a long series of years by a man well acquainted with the practical business of agriculture. Indeed, I may observe in passing, that there is no work in the English language to be compared with Von Thaer's, so far as my knowledge extends. I am not surprised at the low estimation of works on agriculture among practical farmers. Instead of containing, as they ought to do, a digest of all that is necessary to be known by a single competent hand, such works consist, for the most part, of loose collections of suggestions, speculations, experiments, and observations; correct and incorrect, authenticated and unauthenticated; thrown together apparently almost at random, without order or discrimination.

It will be seen, on comparing Von Thaer's numbers, that his estimate of the expenses and produce on the two systems of cultivation respectively is in round numbers as follows:—On the improved system the expense of cultivation is *double;* the gross produce is *triple;* the nett produce is *quadruple.*

This statement, however, being expressed in so general and abstract a form, and resting as it does on the authority of an unknown author, is not likely, I fear, to weigh much with the majority of farmers.—Let me then endeavor to bring the question home to them by a statement of a different kind. I suppose it will hardly be disputed that by means of the system of high cultivation which I have described, a cultivator may expect to get per acre at least one sack* of wheat, one of barley, a quarter of a ton of clover, hay, and three tons of turnips additional. Let us compute the value of these items.

4 bushels of wheat at 56s...	£1 8 0	
4 bushels of barley at 30s...	0 15 0	
¼ ton of hay at 3l..........	0 15 0	
3 tons of turnips at 5s......	0 15 0	
4	£3 13 0	
Average per acre,....	0 18 3	
This on 120 acres amounts to		£109 10 0
The labor of the extra hands through the piece at 11s. per week, amounts to....	£57 4 0	
I charge nothing for horse labor, since the carting of dung, litter, &c., is performed at times when the team would otherwise be standing still. But as there is some additional wear and tear of carts and wagons, let us estimate this at	10 0 0	
		67 4 0
Extra profit arising to the occupier,....		£32 6 0

The result of this computation, if correct, ought surely to encourage every farmer to be liberal in his expenditure in the article of labor, and if not correct I hope some one of your many correspondents will point out where I am wrong. The actual produce of the present year, in my own case, is as follows:—my wheat, so far as yet threshed, averages from nine to twelve sacks per acre; the last is the produce of a new variety, which proves very prolific. My barley has yielded on an average twelve sacks per acre. I have, however, one field of barley not yet threshed, from which I do not expect to get more than nine sacks per acre, the soil being a poor gravel. The general character of the land I have already described.

I hope these statements and calculations will call forth the observations of some of your able correspondents, in order that my conclusions may be confirmed, if well founded, or corrected, if erroneous; and should they prove sound, as I am willing to believe, I trust they will contribute to promote the more general employment of the poor.

A HAMPSHIRE AGRICULTURIST.

Feb. 8, 1838.

[*From Hitchcock's Re-Examination of the Geology of Mass.*]

Theory of the action of Lime on Soils, Manure, and Vegetation.

The action of lime is threefold; each distinct. 1. It is a *Neutralizer:* 2. a *Decomposer:* 3. a *Converter.* 1. I have already alluded to some acid soils: free phosphoric acid, geic, acetic, and malic acids, also occasionally exist in a free state in soils. Here lime acts as a neutralizer. 2. Soils may contain abundant geates; particularly geate of alumina, the least of all demanded by plants. Long formed and sun-baked, they are scarcely acted on by rain or dew, and are almost useless. Here lime, by decomposing these metallic and earthy geates, forms a combination, which, in its nascent state, is readily dissolved. If the carbonate of lime acts better than the hydrate, it is because, following a well known law, double decomposition is easier than single. If any acid geine exists in the soil, or any free acids, carbonic acid is then liberated; it acts on the geate of lime, supergeates result, and these are easily soluble.

3. The great use of lime is as a *converter;* turning solid and insoluble, nay, I go further, solid vegetable fibre, into soluble vegetable food. Here is the great puzzle, the point where our philosophy seems to leave us; giving us our choice, to refer this action to one of the numerous cases of mysterious '*catalytic*' change, with which we are becoming every day more and more familiar, or to explain the process by referring the whole to *saponification.* I use this word as conveying to you at once what I mean;—but I do not mean to say that the product of lime and vegetable matter is soap; but I cannot make myself more intelligible to a farmer than by saying, this lime makes compounds of vegetable matter, just as it makes soapy compounds of oil and fat. The action of lime on geine I take to be of the same nature, as its action on oils and fat.—It is well established that animal and vegetable oils and fats are converted into acids by the action of alkalies, earths, oxides, and even by vegetable fibre itself. The general law is, that whenever a substance, capable of uniting with the acid of fat or oil, is placed in contact with fat or oil, it determines the production of acid. Now we have seen that alkali produces a similar change on geine; it develops acid properties. I go further, if alkali has converted vegetable oil and geine into acids, I see no reason why a similar action may not be produced by all those substances which act thus on oil. Hence *lime,* earths, and metallic oxides, convert geine into acid: as fast as this takes place, so fast it becomes soluble. Then too the long action of air on insoluble geine, rendering it soluble, is it not analogous to the action of air on oils?—Both evolve in this case, vast volumes of carbonic acid, the oil becomes gelatinous and soluble in alkali; does not a similar change occur in geine? It is possible that during the action of lime on geine, a soluble substance may be produced, bearing the same relation to this process that glycerine does to saponification. These views you will see need to be followed out experimentally. If found tenable, the most signal benefit will result. We place manures on a new foundation, on which great practical results may be erected.

Practical application of the theory of the action of lime.

Taking the preceding principles as our guide, we may lay down a few general principles for the application of marls.

1. Enough ought to be applied to neutralize all the free acids in a soil; which may be known by its ceasing to produce acid plants, such as sorrel and pine.—Generally, however, the amount required for this purpose is small.

2. It will be serviceable to add enough to convert the earthy geates of a soil into geate of lime. The richer a soil is, the greater we may conclude is the quantity of geates which it contains.

3. It will be serviceable to add enough to convert all the insoluble geine and vegetable fibre in a soil into soluble geine. Hence the richer a soil is, and the more manure is added, the more marl will it bear with benefit. Indeed, *there appears to be no danger of adding too much marl, provided a sufficient quantity of manure be also added.* Ignorance of this principle, I apprehend, is the source of most of the failures that have occurred in the use of lime upon soils. Farmers have supposed that its action was like that of common manure, viz. to serve as direct nourishment to the plant; whereas it only *cooks the food,* if I may be allowed the expression, which exists in the soil, or is added along with the lime. In nearly all cases of over marling which I have read of, a fresh supply of manure has been found to be the remedy; which shows the truth of the above principle. Agriculturalists have spread marl alone, or with very little manure, upon land that has been worn out, that is, whose geine has been exhausted; and because such soils have not thereby been recruited, they have inferred that lime was injurious. Without acids, or geine, or geates, or vegetable fibre, to act upon, much excess of lime appears to operate injuriously, so as to diminish, instead of increasing the crop. They have also expected a sudden and surprising increase of fertility: whereas in some cases the chief benefit seems to consist in causing the land to produce for a greater number of years, by preventing the ultimate decomposition and escape of the organic matter. In general, however, it will add also to the yearly product: but those who employ marl or lime in any form, ought to moderate their expectations that they may not be disappointed, and to be satisfied if they can slowly and surely improve their lands, as they most assuredly can do, by this substance, provided they do not expect to accomplish it by the use of lime alone.

Templemoyle Agricultural School.

The Agricultural Seminary of Templemoyle originated at a very numerous meeting of the North-west of Ireland Farming Society at Londonderry, and it was at first intended that it should consist of two establishments, taking Mons. Fellenberg's Institution at Hoffwyll in Switzerland in some degree as the model: the first to be a school affording instruction in every science and accomplishment aimed at by the children of the higher orders; the second for the education of the sons of respectable farmers and tradesmen, in the hope of disseminating the advantages of an improved system of farming with greater certainty, by combining the practice and theory of it in the instruction of those who were afterwards to make agriculture their pursuit. It was hoped that the extended scale of the institution would have allowed of a greater variety of masters and lecturers, and that the profit derived from the superior school would have contributed towards the maintenance of the secondary one; but a short experience convinced the subscribers that such a scheme was impracticable without much larger and more certain funds than they could rely on; they then gave their undivided attention to the agricultural seminary, which through their increasing exertion has attained such eminence as may justly entitle them to look forward with confidence to its increasing usefulness, and to its becoming a model for establishments of a similar nature in other parts of Ireland.

The school and farm of Templemoyle are situated about six miles from Londonderry; about a mile distant from the mail-coach road leading from Londonderry to Newtowlimavady. The house, placed on an eminence, commands an extensive and beautiful view over a rich and highly cultivated country, terminated by Lough Foyle. The base of the hill is occupied by a kitchen and ornamental garden, cultivated by the youths of the establishment, under an experienced gardener. The ground between the garden and house is laid out in beds in which all the different grasses, clovers, &c., are cultivated with the greatest care. The house is in the form an ||═||, with range of farming offices behind, containing spacious, lofty and well ventilated school rooms, refectory, dormitories, apartments for the masters, matron, servants, &c.

Each pupil occupies a separate bed; the house can accomodate seventy-six, and the number of pupils amounts to sixty. They receive an excellent education in reading, writing, and arithmetic; book-keeping, mathematics, land-surveying, and geography. This department is managed by an excellent head master and assistant master, both resident in the house. The pupils are so classed that one-half are receiving their education in the house, while the remainder are engaged in the cultivation of a farm of 130 Cunningham or 165 statute acres, in the management of which they are directed by the head farmer, an experienced and clever man, a native of Scotland, who has a skilful ploughman under him. The pupils who are employed one part of the day on the farm, are replaced by those in the school, so that the education always advances in and out of doors *pari passu.*

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* A sack is four bushels.

The pupils are thus instructed in all the practical parts of farming, and are also several times a week on the theory of agriculture. They are made acquainted with all the properties of different soils, the manures most applicable, and the crops best adapted to each; points in which most of our practical farmers displayed great ignorance. They are also made acquainted with all the numerous varieties of cattle, and their qualities, such as early maturity in some breeds, hardihood in others, and have strongly impressed on them that one of the most essential points in farming, is to select the cattle and the crops best adapted to the situation, soil, &c.

The stables, harness-rooms, cow-houses, winter-feeding houses, piggeries, barn, tool-houses, are arranged in the best manner, and the pupils are required to keep them and their contents in the highest order. A respectable and intelligent matron has the superintendence of the dairy, cooking, and cleaning the house, and the charge of the domestic servants.

In sending a pupil to Templemoyle, it is necessary to have a nomination from one of the shareholders, or from a subscriber of 2*l.* annually. The annual payment for pupils is 10*l.* a year; and for this trifling sum they are found in board, lodging, and washing, and are educated so as to fit them for land-stewards, directing agents, practical farmers, surveyors, schoolmasters, or clerks.

From fifteen to seventeen is the age best suited for entrance at Templemoyle, as three years are quite sufficient to qualify a student possessed of ordinary talents and a knowledge of the rudiments of reading and writing, to occupy any of the above situations.

N. B.—Upwards of two hundred young men, natives of sixteen different counties in Ireland, have passed through or remain in the school. Of these between forty and fifty have been placed in different situations, such as land-stewards, agents, schoolmasters and clerks, or employed on the ordnance survey. Nearly one hundred are now conducting their own or their fathers' farms in a manner very superior to that of olden time; and the accounts of those who have been placed from the seminary are such as to gratify the gentlemen who have its interest at heart, and to convince them that the good seed sown is producing an ample and valuable harvest.

Templemoyle, Oct. 14, 1837.

[It gives us unqualified pleasure to lay before our readers the above gratifying account of an institution so eminently calculated to confer lasting benefits upon the country. We have been long strenuous advocates for the establishment of agricultural schools in all parts of Ireland, feeling assured that they would ultimately be the means of breaking down those absurd prejudices which have been hitherto the most insurmountable obstacles with which agricultural improvement had to contend.]—*Editors [British] Farmers' Magazine.*

Decomposition or Putrefaction of Vegetables.

All vegetables, when the principle of life has departed from them, begin spontaneously to be decomposed (to putrify). The elements which enter into the composition of plants, when left entirely to the disposal of their chemical affinities, have a tendency so separate from each other, and form new compounds very different from those which compose the living plant. This is termed the "spontaneous decomposition" of vegetables. The substances formed by the new arrangement of the elements of the vegetable are aerial and colourless;—hence the entire disappearance of the vegetable, as if it had been totally annihilated when life ceased to preserve its particles together in the vegetable form.

The compounds formed, when the vegetable dies and putrefaction goes on, are, carbonic acid, water, carbonic oxide, and carburetted hydrogen. The two former are the chief results of the decomposition; the two latter formed more sparingly, and principally when there is not a free supply of oxygen to the substance undergoing decomposition. The carbon and hydrogen of the plant have a constant tendency to unite with oxygen, and form carbonic acid and water. Now there is never present in the vegetable a sufficient supply of oxygen to convert all the carbon into carbonic acid, and all the hydrogen into water; hence, if there be not a sufficient supply of oxygen to produce these compounds presented from external sources, as from the air, the two other matters are formed, one of which (carbonic oxide) requires a less quantity of carbon than the carbonic acid, while the other (carburetted hydrogen) requires no oxygen, consisting of carbon and hydrogen.

In vegetables which decay under water, caburetted hydrogen is abundantly formed; hence arises the gas which is found so plentiful in summer in stagnant waters containing quantities of putrefying vegetables.

The spontaneous decomposition of vegetables goes on most rapidly when they are exposed to the air, kept moist, and preserved at a degree of warmth higher than the usual temperature of the atmosphere. Putrefaction is retarded or almost prevented if the vegetable be dried, so that its own moisture is expelled, carefully excluded from air and moisture, and kept cold. The influence of heat in promoting the decay of vegetables depends upon the repulsive power it possesses, by which it disposes the various elements to assume the gaseous form. Animals and vegetables are frequently found in snow or ice, in a high state of preservation.

Such are the changes which go on in the dead plant. That mysterious agent, Life, is able by its peculiar power, to control and overcome the chemical attractions which tend to produce these changes, and retains these elements in that state of combination best adapted for the performance of their proper functions: at the moment however, in which life ceases to superintend the exercise of these functions, they cease and the chemical attractions, no longer restrained by the vital principle, obtain full sway. The carbon, oxygen, and hydrogen, formerly existing in the state of wood, bark, leaves, fruit, or seeds, obey the laws of chemistry, return to the state of carbonic acid; water or inflammable gas mix with the earth and atmosphere, afford nutriment to new plants, again form leaves, flowers, and all the beautiful and diversified organs of the vegetable creation—again wither and decay, and return to the soil to supply new generations, and continue the same series of unceasing revolutions.—*Chemistry of Nature.*

Application of Marl.

On reading the last No. of the Cabinet I perceive that your readers in the lower part of Delaware and the Eartern shore of Maryland, where the green sand or marl abounds, are desirous of being informed of the best mode of applying it as indicated by the experience of our New-Jersey farmers. It may perhaps save those who are inclined to try it, some trouble and expense to be informed that every known method of application seems to have been resorted to; and that which has been found to answer best, is to use it as a top dressing on sward or grass grounds; the effect is immediate and great, being scarcely to be believed excepting by those who have been spectators of its effects. The quantity applied to an acre of good marl is from six to twenty tons; a bushel weighs about a hundred weight—of course a ton is about twenty bushels; more may be applied without any apprehension of injury, but from twelve to fifteen tons per acre is a good dressing, though some have applied twice that quantity. Spread it evenly over the surface of the grass ground in the fall, winter or spring, or whenever you have most leisure, and when done you need not give yourself any further trouble about it; nature will do the rest, and your reward will be certain and great if your marl be good. Whenever you plough down your grass ground which has been thus marled for corn, or any other crop, you will see the effect of it strikingly exhibited in the subsequent crops. It has frequently increased the fertility of the soil more than ten fold, and some crops are believed to be much improved in quality as well as quantity by its application.

The great weight of the marl causes it to sink in the earth, and if it should be ploughed in on its first application, there is some danger of losing part of the good effects of it, by its being placed too remote from the roots of the plants intended to be nourished by it.

It is now agreed on by all, that the fertilizing ingredient of this valuable substance is potash, and the benefits derived from its use are directly proportioned to the quantity of it contained in its composition.—*Communicated for the Farmers' Cabinet.*

Notice of an Experimental Farm in France.

BY COL. LE COUTEUR.

It is situated, in a beautiful and fertile country, well wooded and watered, but cultivated by the Breton farmers just as their fathers tilled it 200 years since. The college or experimental farm appears like a garden in a smiling wilderness, so far as culture goes. I rose at four in the morning, in order to witness the whole course of labor in this interesting institution.

There were from 80 to 90 students under the superintendence and tuition of a director, a professor of agriculture and agricultural chemistry, a veterinary surgeon, and an agricultural implement maker. At half past four they took a slight repast, and as the clock struck five, all were employed; some in harnessing the horses and oxen, others in carting out and properly disposing the implements in the field, others set to hoeing, others weeding, some ploughing, some hay making, in a word to all the various labors of the season.

The school is divided into working parties of ten; at the head of each is a steady young man of experience, called the 'decurion,' who directs the work of his party. In all difficult operations, a regular farming laborer is at hand to perform them; but such is the ardor and perseverance of the youths, that they rarely allow any difficulty to arrest their progress. The duty of one 'decury' or ten, is to dress, litter and feed the cattle, with as much regularity as a cavalry corps dress their horses; also to keep the farm-yard in order. Thus all, in turn, are made acquainted with every thing connected with a farm, whether in regard to horses, oxen, cows, pigs, or manures. These last are made and husbanded with the greatest care, the mixons being formed of sweepings, leaves, and weeds that had not seeded, in alternate layers with stable manure.

The drainings of the stables and straw-yard, run into a tank, to be pumped out when required as liquid manure, which is in the best, most portable, but least known in this country.

The learned professor M. Donku, who is an admirable practical farmer, as polite and communicative as he is learned, complained that he had not a sufficient quantity of manure. I urged him to burn the underwood and decaying timber of the large adjacent forests, through which wide roads were cut, which would enable him to obtain an inexhaustible supply of ashes the best of all manures either for turnips or wheat; the cartage of ashes being easy, and the quantity required to dress the land not being great; in which he entirely coincided.

At nine all come into their studies, when they write remarks on the various operations of the morning. From eleven to twelve is the breakfast hour. From twelve to three is the time for recreation and study, which embraces for the first class questions of the following nature:—"His farm of 600 acres, one eighth of which is always to be in beet-root, is to be divided into the most eligible rotation of crops; show the most profitable course, and describe the nature and chemical properties of the soil in each field, the proper manures to be applied to them, the quantity of seed required for the crop, its culture by previous ploughings, by after-hoeing or weeding, and the cost and labor, and the probable return!"

The plans of farming given by some of the youths, would have done credit to an experienced farmer, and demonstrated clearly that though theory alone in farming is an absurdity, the combination of the practice with scientific acquirements, will soon operate great melioration in the agricultural world. From three till seven they prosecute their labor in the fields, being eight hours work in the day. They then come in for dinner. At eight the director receives the report, from every decurion, of the day's work of his party of ten. He then orders the work for the ensuing day, giving a concise lecture on the subject when necessary to the culture of any unusal crop. A library of agricultural works is open to the students till bed time, quarter past nine. * * * The crop that appeared to me to be most carefully cultivated, was beet-root in drills, which produced per acre about 750 pounds of sugar, selling at ten pence per lb. as fast as it could be manufactured.

Science of Gardening.—*Continued.*

POTASS.

When wood or any garden plant is burned to ashes, these are found to consist of a considerable portion of the substance termed potash, which was discovered by Sir H. Davy to consist of a metal termed potassium combined with oxygen and water. Different sorts of plants, however, vary very much in the quantity of potass which they contain; aspen and box-wood, for instance, containing only sixty or eighty pounds in every thousand pounds weight, while sunflower, fumitory, and wormwood contain from three hundred and fifty to seven hundred and fifty pounds in every thousand. Sea weeds and plants growing close by the sea shore, instead of potass, yield soda, when they are burnt to ashes.

It may be taken as a general rule, that the herbs yield four or five times, and shrubs two or three times, as much impure potass as trees; while the leaves produce more than the branches, and the branches more than the trunk; and further, that plants, when green and fresh, yield more than when they have been previously dried.

The process by which this is ascertained is not difficult, and consists in weighing the plant before burning; in washing the ashes twice in their own volume of water; in passing the washings through blotting paper; and in evaporating them to dryness. The dry substance thus obtained will be probably pure potass.

The potass is introduced into the system of a plant in the same way as carbon, by being first combined with humic acid, forming humate potass, and then dissolved in water.

LIME.

Like potass, lime has been proved to be composed of a metallic substance termed calcium, united with oxygen. When thus composed, with the addition of other substances, it is usually called quicklime; when united with carbonic acid, it forms chalk, limestone, marl, and marble; and when united with sulphuric acid, it forms gypsum, or plaster of Paris.

In the proceess of burning vegetables, lime is found in their ashes, but never, I believe, in such quantities as potass, and consequently it is of less use to supply soils with it artificially on this account; but on account of its uniting with humic acid in form of a humate, and of the compound thus formed being readily dissolved in water, it becomes highly useful.

If quicklime, either fresh burnt or slaked, be mixed with moist vegetable substances, however hard and fibrous, it soon destroys their texture and forms a mixture, the greater part of which can be dissolved in water, thus rendering what was previously useless, fit for the food of plants.

On the other hand, it is injurious to mix quicklime with vegetable substances already soluble in water, or with any sort of dung, or other animal manure, lest it should take up too much humic acid.

Lime, however, is more seldom used in gardens than in farms, and this is so far judicious, that garden soil would often, as appears from what has just been said, be thereby injured rather than benefitted.

SUGAR AND GLUTEN.

There are few plants that do not contain sugar, which chemists have shown to be composed of about three parts carbon, four parts oxygen, and eight parts of hydrogen.

It should follow, therefore, that it is not necessary for it to be introduced into the soil in the state of sugar, the constituents being always more or less contained in the water, and most probably combined into sugar after entering the system of a plant. This applies also to starch, which is composed on the same principles, and may indeed be converted into sugar, as was lately discovered: and gluten differs only in containing nitrogen, in addition to the carbon, oxygen, and hydrogen.

In a word, all substances of this kind which can be discovered in the soil, or in the water diffused through it, may be resolved into water, carbon, and nitrogen; and hence it is of less consequence for our present purpose to notice separately every compound that might be enumerated.

RECAPITULATION, AND PROOF FROM THE SAP.

It hence appears, that the chief food of plants is carbonic acid gas, atmospheric air, and the humates of potass and lime mixed with water, and presented to the spongelets or suckers at the tips of the root fibres, to be thence carried into the interior of the plants. The examination of the sap, as it rises from the root into the inner bark of a tree, confirms the truth of these statements.

This sap is usually found to be a clear fluid, of a pleasant taste, readily fermenting, and, in that case, giving out, at first carbonic acid gas, and afterwards some azote. The chief portion of the sap is water, and it only differs from the moisture of the soil by acquiring in its passage upwards a portion of thicker fluid, which probably acts a part similar to the saliva of animals, mixed with the food in chewing, or to the digestive fluid in the animal stomach. By means of this, the sap becomes thicker the higher it rises. M. Biot, of the French Institute, is at present, 1833, engaged in experiments which bid fair to elucidate this important subject. His tests of the substances contained in the sap are made by the polarisation of light.

Young Men's Department.

Hints to Young Farmers—No. IX.

DO NOT GET ABOVE YOUR BUSINESS.

One of the most fatal errors which young men are apt to commit, is, when they have acquired the means of a comfortable independence, and are established in doing well enough, *to get above their business.* They are apt to relax in those labors, or in the supervision of them, which led to success—or to become dissatisfied with their moderate but certain gains, and seek to better their fortunes, and to elevate their standing, by embarking in some new business, to which they are yet strangers.

It should be your aim, first, to make yourselves practically acquainted with the best modes of performing every operation of the farm; and, secondly, constantly to superintend and direct those you employ in these operations. There is hardly any business in life, in which success does not materially depend upon the practical knowledge and rigid supervision of the master. If you would have your work done, *see* that it is done—if you would have it well done, *lead* in its performance. It will impair neither your physical nor intellectual powers, but invigorate and strengthen both. There are very few sufficiently trust-worthy and intelligent, to be charged with the entire management of a business in which they may be considered as mere hirelings. And unless the master is a proficient in the business he is carrying on, in all its minutiæ—unless he knows how every operation *should* be conducted—the *time* it will require to perform it, and see that it is *done well*—he is subject to constant impositions, disappointments and losses. Hence we see, that not only in farming, but in most other employments, unless a man has practical knowledge, as well as theoretical, in the business he carries on, he is far less likely to succeed, than others who possess this practical knowledge. A man may be made to comprehend, very well, the plan and construction of a house, or the principle of amputating a limb of the human frame; yet, until his hand is practised in carpentry, or in surgical operations, we should hardly venture to trust him to build our house or to cut off our leg. These remarks apply to the minute, as well as to the more enlarged operations of the farm. If your workmen have confidence in your knowledge and judgment, and are aware of your critical supervision of your affairs, they will labor cheerfully and diligently, respect your authority and carry out your views of improvement. Hence, we repeat, make yourselves practically acquainted with every operation in farming—though you do not practise it after you have acquired that knowledge—be the manager of your own affairs as far as possible—avoid the temptation to change, to indolence and to speculation, and be assured you will not fail to enjoy, in a large measure, the substantial comforts and pleasures of life. And having realized these blessings yourselves, take care to secure them to your children, by inculcating and establishing in them, the principles and habits which have led to your individual success.

Another common propensity to error, in the farmer, is to ape the follies, the fashions and the extravagance, in dress, equipage and supernumerary servants, of what are termed the higher classes in society—which seldom redound either to our comfort, to our rational gratification, or to our respectability in life. An old veteran of the revolution, who had acquired a fortune by prudent industry, once remarked to us, that to gratify the feelings of a young family, he set up a coach. He was obliged, he said, to have horses and harness, and household furniture to correspond. His coachman required an extra maid to wait upon him, and the maid required a scullion to wait upon her; and he found, that instead of being master, and enjoying his quiet, he became virtually the servant to the coachman, maid and boy. So that after spending a thousand dollars a year, barely upon his coach establishment, he sold out, dismissed his supernumeraries, and returned to his Dearborn wagon and horse, to the great relief of both his mind and his purse. It is commendable to endeavor to multiply around us the comforts, and even the innocent delicacies and elegancies of life; yet it is folly to adopt habits, either from ostentation, or a spirit of foolish rivalship, which are not adapted to our employments or our means, and are not calculated to make us either wiser or happier. Gentility, that is, politeness of manners, and easy, graceful behaviour, may be cultivated in the country as well as in the city—as well upon the farm as behind the counter. It is neither the coach, nor the gay dress, nor the ostentatious display, nor the title, that makes the gentleman, nor insures happiness. For, as Burns sings, though

> "The king can make a better knight,
> A marquis, duke and a' that,
>
> * * *
>
> The pith of sense, and pride of worth,
> Are grander far than a' that."

Chemical Catechism—Chapter III.

OF CALORIC.

What is heat?

Heat is the well known sensation which we perceive on touching any substance whose temperature is superior to that of the human body.

What name is given to the matter of heat?(*a*)

Chemists have agreed to call the matter of heat *caloric*, in order to distinguish it from the sensation which this matter produces.(*b*)

What are the principal uses of caloric?(*c*)

Caloric is every where indispensable to the existence of man. "It is with fire that, in every country, he prepares his food, that he dissolves metals, vitrifies rocks, hardens clay, softens iron, and gives to all the productions of the earth the forms and combinations which his necessities require."

What are the sources of caloric?

There are six sources from whence we procure caloric, viz. from the sun's rays, by combustion, by percussion, by friction, by the mixture of different substances, and by means of electricity and galvanism.

Which of these is the principal source of caloric?

The sun is the chief, and, probably, the original fountain which furnishes the earth with a regular supply, and renders it capable of supporting the animal and vegetable creations.(*d*)

How is caloric furnished by combustion?

The oxygen gas of the atmosphere is *decomposed* by combustion; and caloric, one of its component parts, is set at liberty.

How is caloric produced by percussion?

The heat produced by percussion is generally occasioned by the *compression* of the particles of the body, which compression forces out a portion of its latent caloric.(*e*)

How is caloric produced by friction?

It is not known how friction produces caloric,(*f*) unless we suppose it to be a succession of percussions.

In what way can heat be produced by means of electricity or galvanism?

By the discharge of an electrical battery, or by the galvanic apparatus, a more intense degree of caloric may be obtained than by any other means whatever.

How is caloric produced by mixture?

When heat is produced by the mixture of two or more substances, it is owing to the fluid part of the mixture taking a more solid form; for neither water nor any other fluid can acquire an increase of density without giving out a portion of its latent caloric. (*g*)

You speak of latent caloric; is there any difference in the nature of caloric?

No: we have reason to believe that caloric is uniform in its nature; but this term is necessary because there exist in all bodies two portions of caloric, very distinct from each other.(*h*)

How are these two portions of caloric distinguished?

The one is called *sensible* heat, or free caloric; the other *latent* heat, or combined caloric.

What do you mean by free or sensible caloric?

Sensible caloric is the matter of heat disengaged from other bodies, or, if united, not chemically united with them.

What is latent caloric?

Latent caloric is that portion of the matter of heat which makes no *sensible* addition to the temperature of the bodies in which it exists.

What substances contain latent caloric?

Caloric in a latent state exists in all substances that we are acquainted with.(*i*)

Do all substances contain the same quantity of latent caloric?

No: caloric combines with different substances (*j*) in very different proportions; and for this reason one body is said to have a greater *capacity* for caloric than another.

Is this capacity for caloric uniformly the same in the same bodies?

The same bodies have at all times the same capacity for caloric, unless some change takes place in the state of those bodies.

Can you adduce instances of a change of this kind?

When gaseous substances become liquid, or liquid substances become solid, they lose in a great measure their capacity for caloric: accordingly, when solid bodies become liquid or gaseous, their capacity for caloric is proportionately increased.(*k*)

How does this property of bodies operate?

Whenever a body has its capacity for caloric thus increased, it requires a larger portion of the matter of heat to raise it to a given temperature, than another body does which has a less capacity for caloric.

Can you exemplify this curious property of matter?

If equal quantities by weight, of water and mercury, cooled down to the same point, be afterwards separately heated to the heat of boiling water, the water will be found to have required more than three times the quantity of caloric that the mercury did to bring it to that temperuture.

What term is made use of to denote the quantity of caloric thus required?

The portion of caloric necessary to raise a body to any given temperature is called the *specific* caloric of that body?

Is there any method of ascertaining the specific caloric of different bodies, and comparing the relative capacity of each for caloric?

An instrument called a *calorimeter* is used for this purpose. The substances to be tried are heated to the same temperature, and then placed in this machine surrounded with ice.(*l*) By observing how much ice each of them melts in cooling down to a given point, the specific caloric which each of them contained is determined.

What do you call the instrument which is in common use to measure the temperature of bodies?

It is called a thermometer. (*m*) It consists of a glass tube containing a portion of mercury, with a graduated plate annexed to it. The tube is hermetically sealed, to preserve the metal from the pressure of the atmosphere.

Do you understand how a thermometer is affected by the temperature of bodies?

When a thermometer is brought in contact with any substance, the mercury expands or contracts till it acquires the same temperature,(*n*) and the height at which the mercury then stands in the tube, indicates the exact temperature of the substance to which it has been applied.

Will the thermometer show the exact quantity of caloric in all bodies?

No; it will not show that portion which is latent, or chemically combined with any body: for instance, fluids require a certain portion of caloric to keep them in a state of fluidity; which portion is not indicated by the thermometer.

Is the thermometer, then, of no use in ascertaining the temperature of fluids?

Yes: all fluids operate upon the thermometer in the same manner as solids; for, whatever sensible caloric be contained in any liquid, that portion is accurately shown by the thermometer.

What do you call that portion of caloric which is a necessary part of fluids?

It is called the caloric of fluidity; but different fluids require different portions of it to preserve them in the state of fluids.

What are the effects of caloric upon bodies?

The *general* effects of caloric are, to increase the bulk of the substances with which it unites, and to render them specifically lighter than they were before; but in whatever quantity it is accumulated in bodies, it never adds to their absolute weight.

What are the PARTICULAR *effects of caloric on bodies?*

It favors the solution of salts, and promotes the union of many substances. In other cases it serves to separate bodies already united,(*o*) so that in the hands of chemists it is the most useful and powerful agent we are acquainted with.

Can you recollect any other particular effect that caloric has upon bodies?

It is the cause of fluidity in all substances which are capable of becoming fluid, from the heaviest metal to the lightest gas.

How does caloric act upon hard bodies to convert them into fluids?

It insinuates itself among their particles, and invariably separates them in some measure from each other. Thus, ice is converted into water, and by a further portion of caloric into steam.(*p*)

How are these substances distinguished which are capable of being thus rendered fluid by caloric?

We have reason to believe that every solid substance on the face of the earth might be converted to a fluid, or even a gas, were it submitted to the action of a very high temperature, in peculiar circumstances.

You say the sun is the great source of caloric; how is caloric transmitted from the sun to us?

Caloric is transmitted to us accompanied by light: both are perpetually thrown off from that immense body with astonishing velocity in every direction.

If caloric passes with such velocity, how is it retained by those substances which receive it?

It is retained by its affinity for those bodies, or rather, their mutual affinity for each other.

Do bodies in general possess a very strong chemical affinity(q) for caloric?

No: it is one of the weakest of all known affinities, which is evident from the facility with which heated bodies part with their caloric to all surrounding bodies.

Is this universally the case?

Yes; it seems to be one of the laws of nature, that heated bodies should give out *part* of their free caloric to the neighboring bodies at a lower temperature, till the whole become of an equal degree of temperature.

Give me an instance of the operation of this law of nature.

When the temperature of the atmosphere is reduced below 32°, water gives out its superabundant caloric by degrees, till at length the cold atmosphere robs it of its caloric of fluidity also, and it becomes ice.

If water be changed into ice by parting with its caloric, how comes it to pass that ice swims upon the surface of water?

Because, by the change which it undergoes, it becomes specifically lighter than the subjacent water.

Did you not say that all substances become more dense by the loss of caloric?

They usually do; but the freezing of water is a striking *exception* to this general law of nature, and is a memorable instance of the wisdom and provident care of the Almighty, when he established the laws of the universe.

NOTES.

(*a*) The sensation of heat and cold arises from the tendency which caloric has to diffuse itself equally amongst all substances that come in contact with it. If the hand be put upon a hot body, part of the caloric leaves the hot body, and enters the hand; this produces the sensation of *heat*. On the contrary, if the hand be put upon a cold body, part of the caloric contained in the hand leaves the hand to unite with the cold body: this produces the sensation of *cold*.

(*b*) In order to give precision to chemical language, it was necessary to find a term to distinguish the matter of heat from its effect; for whenever caloric becomes fixed in a body, it loses its property of affording heat. Nothing can be more evident than that caloric may exist in many substances, without producing any of the effects which arise from the agency of fire.

(*c*) Many of the uses of fire will immediately occur to every individual, whenever the importance of this subtle fluid is alluded to; though perhaps the wisdom of the Deity, in giving the use of it to man only, has not been often noticed. Why has this powerful agent been solely entrusted to man? Why was every fowl of heaven, and every beast of the field, impressed with an unconquerable dread of approaching it? If it were at the disposal of animals, which of our possessions, or even of our lives, would be safe for a single moment?

(*d*) According to the laws of nature, animal and vegetable life are both very much influenced by the temperature in which they exist; we therefore find different kinds of vegetables, and a different race of animals, appropriated to the different climates of the earth.

That caloric is as necessary for the support of vegetable as for that of animal life, may be proved by direct experiment. If, in the midst of winter, a hole be bored in a tree, and a thermometer be put into it, it will be seen that the tree is many degrees warmer than the atmosphere.

(*e*) As evaporation produces cold, condensation always occasions heat; that is, caloric is always evolved from those bodies which have undergone any degree of condensation. In one case caloric is absorbed; in the other it is set at liberty.

By the collision of flint and steel, so much caloric is disengaged, that the metallic particles which are struck off are actually melted thereby. This is evident from their being always found in a spherical form.

(*f*) Instances have occurred where whole forests have been burnt down, by fires kindled from the violent friction of the branches against each other by the wind.

(*g*) Sulphuric acid and water experience this condensation by mixture, which is proved by the measure of the fluids, before and afterwards, and by the heat that is evolved. If four parts of the former be mixed with one of the latter, the mixed fluids will quickly acquire a temperature higher than that of boiling water. It is necessary to be cautious in making this experiment.

If iron filings and sulphur be mixed into a paste with water, a sulphuret of iron will be formed, which decomposes the water and absorbs oxygen so rapidly that the mixture takes fire, even though it be buried under ground.

Mixture does not uniformly produce heat. The mixture of some substances produces an intense cold. But the cause of both effects is easily explained. Whenever substances become more condensed by mixture, heat is evolved; when they expand, cold is produced; or, in other words, the compound has a greater or less capacity for caloric than the separate ingredients. The mixture of crystalized muriate of lime and snow produces the greatest degree of cold yet known.

(*h*) How the same substance may exist in a body in two distinct states, may easily be explained by the familiar example of a piece of common bread which has been dipped in water. This bread will contain two portions of water very distinct; one of them is in a state of combination, and forms a constituent part of the bread; the other is only interposed between the particles of the bread, and may again be forced out by pressure.

(*i*) Caloric pervades all bodies; this is not the case with any other substance we know of—not even light. It lies hid in every thing around us. It is a substance which we are ever in want of; it is therefore deposited on every side, and is ready for every exigency.

(*j*) Caloric, as it penetrates bodies, frequently forms a chemical combination with them, and becomes essential to their composition. This is always the case when a solid is converted to a liquid, or when a liquid passes to a gaseous state. But if caloric be superadded to a body when it is in a state of saturation, it merely traverses its surface, and passes from it, in the form of sensible heat, to some of the adjacent bodies.

(*k*) The freezing of water and the cooling of melted lead, may be adduced as familiar examples of the former; and the absorption of caloric in the melting of salts will sufficiently exemplify the latter. By the solution of some salts, water may be deprived of so large a portion of its caloric as to be frozen in the midst of summer.

When water is poured upon dry pulverized plaster of Paris, in order to form cornices for rooms, great heat is produced by the mixture. This is owing to the water giving out its caloric of fluidity as it becomes solidified in the plaster.

Whenever caloric becomes active, it produces heat; when it passes into a latent state, it produces cold.

(*l*) Ice has the property of absorbing all the caloric with which it comes in contact, and communicates no part of it to the surrounding bodies till the whole of the ice is melted: therefore the specific caloric of bodies may be easily be calculated by its means.

(*m*) Thermometers are made by putting mercury into small glass tubes with bulbs, and heating these bulbs till the mercury boils. This ebullition forces out the air, and the tubes are hermetically sealed while the mercury is boiling; which preserves the vacuum. They are afterwards graduated by a correct scale.

(*n*) The absolute necessity there was for an instrument of this kind may be shown by the following simple experiment: If the bulb of a thermometer be immersed in a mixture of snow and common salt, the mercury will fall to at least 32° below the freezing point of water; and if the instrument be then removed from that mixture and put simply into a mass of snow, the mercury will be so much heated by the change, as to rise 32°; so that snow which appears to the hand to be totally devoid of all heat, contains sufficient to raise the thermometer many degrees.

(*o*) Caloric also promotes the decomposition of bodies, by reason of its counteracting the attraction of cohesion which exists in all bodies.

(*p*) In India and China the wealthy have their rooms open on all sides, the roof being supported on pillars, and the intervals hung with curtains. Servants without doors scatter water on these curtains continually: its evaporation absorbs a vast deal of heat, and makes the apartments cool and refreshing.

(*q*) Before a youth can have an accurate idea of chemical attraction, the nature of philosophical attraction should be explained to him, by means of a magnet and iron filings; by globules of water, of mercury, &c.

"What do you teach the girl?" asked Maltravers of the school-master. "That God made her, and that he loves good girls, and will watch over them." "What else?" "That the Devil runs away with bad girls, and"——"Stop there: never mind the devil yet awhile. Let her first learn to do good, that God may love her; the rest will follow. I would rather make people religious through their better feelings, than through their worst. We can do without the devil at present."—*Bulwer.*

There is nearly always something of nature's own gentility in every young woman, (except, indeed, when they get together and fall a giggling.) A vulgar boy requires, heaven knows what assiduity, to move three steps, I do not say like a gentleman, but like a body that has a soul in it; but give the least advantage of society or tuition to a peasant girl, and a hundred to one, but she will glide into refinement, before the boy can make a bow without upsetting the table.—*Ib.*

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*Middle Granville,	Wash.	18	*Warsaw,	Va.	22

PRICE CURRENT.

ARTICLES.		New-York. June 16.	Boston. June 11.	Philadelphia. June 12.	Baltimore. June 11.
Beans, white,	per bush.	1 25.. 1 30	1 25.. 1 75	1 00.. 1 12	1 00.. 1 10
Beef,	cwt..	8 00..11 00	8 00.. 8 80	7 00.. 9 00	10 00..
Bacon, western,	lb....	10..	11.. 12	8 00..10	12.. 13
Butter, fresh,	lb....	18.. 22	20.. 25	14.. 18	20.. 25
Cheese,	lb....	7.. 9	8.. 9	9.. 10	....
Cotton, best,	lb....	9½.. 12	9.. 13	....	11.. 12
Flour, best,	bbl..	7 50.. 8 25	8 00.. 8 25	7 87.. 8 00	10 00..10 50
GRAIN—Wheat,	bush.	1 55.. 1 62	....	1 37.. 1 40	1 35.. 1 37
Rye,	bush.	1 02.. 1 03	1 05.. 1 10	95.. 97	88.. 94
Oats,	bush.	35.. 46	46.. 48	35.. 40	32.. 33
Corn,	bush.	78..	78.. 80	66.. 70	69.. 71
Hams, pork,	lb....	10.. 12	11.. 12	10.. 12	12½.. 13
Pork, in hog,	cwt..	....	8 .. 9	....	6 75.. 7
SEEDS—Red Clover,	bush.	12 00..13 00	10 80..11 00	10.. 11	11 00..
Timothy,	bush.	....	2 63.. 3 00	2 ..3 25	2 25.. 2 50
WOOL—Saxony, fleece,	lb....	45.. 50	52.. 57	48.. 50	40.. 50
Merino,	lb....	37 . 38	48.. 50	45.. 50	35.. 40
1-4 and com.	lb....	32.. 36	33.. 35	33.. 38	25.. 30
Sheep,	head,	....	3 33..	....	....
Cows and Calves,		30 ..45	25 00..37 00	20 ..38	35 00..46 00

FROM THE STEAM PRESS OF
PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

The Crops.

We do not remember any season in which the crops are so generally promising as in the present.—At the time of writing, July 2, the remark applies to every description of crop, and to every section of the union, so far as we have observed, and have been able to learn. The wheat crop has, however, two formidable enemies to encounter this month—the grain worm and the rust. The former was seen in our fields for the first on the 24th of June. It might probably have appeared as early as the 20th June; and the last time we were able to discover it was on the 20th of July—when spring wheat, sown on the 16th May, had been a few days in head. ☞ We shall be obliged to any gentleman who has watched this insect, to apprise us of the times at which it appeared and disappeared.

During a jaunt of 200 miles into Vermont, in the last of June, we were gratified at the highly auspicious promise of the crops; and not a little surprised to find the corn, from Bennington to Rutland, in a better and rather more forward state than it was in the upper valley of the Hudson. This we ascribe to early planting, early variety, and the use of long manure. On the 19th of June we saw part of a field in tassel, at Wallingford. We planted some of the same kind on the 24th, and expect to see it come to maturity this season.

Common School Libraries.

We were unadvised of the fact, until we saw it announced in a late *Jeffersonian*, that the legislature made an appropriation at its last session, of $45,000 per annum, for three years, for the establishment of common school libraries. We fully concur in the sentiments expressed in the following extract which we make from the Jeffersonian, as to the salutary influence which this judicious appropriation is likely to have in enlarging the sphere of useful knowledge, and in improving the condition of the producing classes of the community.

"We trust no friend of the great cause of universal education, no parent, no youth, no lover of his country, has forgotten or will forget the provision so wisely made by our last legislature for the establishment and support of COMMON SCHOOL LIBRARIES. We feel a proud satisfaction in contemplating the fact that New-York stands forth in this matter a pioneer and a glorious example to her sister states. The law making provision for the distribution of the annual revenue of the new common school fund, (arising from the deposite of the late surplus revenue with the states,) appropriates forty-five thousand dollars a year exclusively to this benificent purpose. Each district in the state is entitled to draw its share of this fund, proportioned to the number of its scholars; and, estimating the whole number of districts at forty-five hundred, this sum would allow an average of ten dollars to each district, or thirty dollars in the course of the three years' duration of the law. We believe this estimate is rather under than above the truth; and that, with a very moderate display of public spirit on the part of the people, a very comprehensive and most useful library may be immediately secured to every school district in the state.

"The great advantages of this noble enterprise to that very large proportion of our citizens who are unable to buy large collections of books cannot be over-estimated. Not alone to children and youth will its benefits be dispensed. Parents and others of mature years can readily avail themselves of the fund of useful and instructive reading which is thus brought to their doors. Even should the library consist of but fifty volumes at first, each family in the district may draw one volume from it per week for the whole year, returning it at the week's end for another; and thus enjoying a supply of information and entertainment for the whole period without the cost of a cent. At the end of the year, a new instalment of the appropriation will be doubled, and another year's reading commenced. We firmly believe that in this way the library will be found a great auxiliary to the school, by creating a new interest in its management and its welfare. Should the district conclude to have a little gathering every Saturday evening, or some other evening, to exchange books, or return and draw again, a lyceum, or association for mutual improvement, would soon grow out of it, and still greater benefits be realized. Each parent and scholar would feel that he had a personal interest in the library as well as the school; and thousands would spend their leisure hours in reading, which would otherwise be given, almost of necessity, to frivolous if not corrupting amusements."

Thus far our quotation. But we are not prepared to go farther with the Jeffersonian—in its approbation of the selection of books designated and recommended as the *basis* of common school libraries. The Messrs. Harpers, to whom we accord great credit for their enterprize and industry, have printed, we are told, under the direction of the American Society for the diffusion of useful knowledge, a series of 50 handsome volumes, of uniform size and appearance, to be comprised in a neat case, and furnished at twenty dollars. These books, of which a list is given in the Jeffersonian, treat mostly of foreigners, foreign lands, and of matters foreign to the great pursuits of our country. They are the lives of Bonaparte, Alexander the great. Peter the great, Oliver Cromwell, of celebrated travellers and female sovereigns; ancient and modern Europe, the Holy Land, the Crusades, Arabia, the Chinese, voyages, travels, &c. We see but eight volumes that seem from their title to relate particularly to our continent, and but about the same number that are written by Americans. But we do not recognize one, among these books—which are designed almost exclusively for an agricultural community—we do not recognize a single volume on agricultural chemistry, or on agricultural botany, or on agricultural geology—or on the mechanics of agriculture, the great modern lever which simplifies, abridges, and at the same time augments the products and profits of human labor; we see nothing on the veterinary art, or the management of cattle—nothing upon practical agriculture or horticulture—and little, if any thing, upon the moral, relative and political duties of life. The studies to which we have last alluded, ought to form the foundation, the basis, of a rural education; those selected might become auxiliary, or supplemental; or, the two classes might be blended like brick and mortar in the walls of a building, to give beauty, as well as solidity, to the structure.

It needs no argument of ours to convince any reasonable man, that the proper study of youth, is the business which is to employ them in manhood. Thus we give to the law student elementary books in the business which is to constitute his living; and to students in divinity and physic, the elementary books suited to their several professions; and we require a four years' study in these elementary works, in order that the student may fully understand the principles upon which he is to preach or practice, before we permit him to put on the toga of manhood, and to take rank with his profession. And shall not the student of agriculture, whose business embraces a wider range of useful science than either of the before mentioned classes, be permitted, during his minority, to study the elementary principles of *his* profession?—to store his mind with the precepts and practices of eminent men in that profession? We say, lay the *foundation* in usefulness—in that knowledge which will tend to make intelligent, useful and contented farmers, and good citizens, of the boys of our common schools. You may then build whatever superstructure you please upon this solid foundation, and embellish it to your taste.

But we are reminded, that we are treading on hallowed ground; that the society for the promotion of useful knowledge, with Gov. Marcy at its head, have sanctioned the selection that has been made, and, as if to silence every doubt, that Gen. Dix, superintendent of common schools, has also given it his approbation. Without wishing to derogate in the least, from the high character of the gentlemen who constitute the society, or to depreciate their efforts to do good, we must be permitted to doubt their pre-eminent qualifications for selecting a suitable library for an agricultural community. Most of the gentlemen, we believe, belong to the learned professions, or to the mercantile class; and we are willing to award to them a high standing in literature and general science; yet few of them, we apprehend, know much of the practice or theory of farming, a business which stands first on the roll of usefulness, and which it is the interest of every class of the community to enlighten and improve; and they are therefore not exactly best qualified to promote this great object of national prosperity, be their intentions ever so patriotic. Or at least so we are obliged to infer, from the catalogue of books which have been published. And as for our highly respected secretary of state, he is no doubt well qualified to select a law or literary library, or to thread the mazes of politics—yet we should not venture to trust him, with all his qualifications, to select *our* library, or manage *our* farm. Would these gentlemen trust an association of farmers, however intelligent, to select their *professional* libraries? We think not.

But perhaps we are going too far: something on agriculture is promised in the next series, and we ardently hope it will be furnished.

After all, it may be said, and will be said, and by thousands of farmers too, that agriculture wants no auxiliary aids; that it has done well enough, heretofore, without the aid of books or of science—and that it can continue to do so. How would such a remark apply to the other arts of labor? Look at the cotton factory for instance—a yard of cotton goods may now be purchased for half the price which was paid for barely *weaving* a yard thirty years ago. The manipulations in most of the other arts have been so abridged by machinery, and the processes so simplified by science, that the fabrics produced by these labors are greatly lessened in price. In these arts, the improvements of the age are speedily registered and promulgated in books and periodicals. Mechanics and manufacturers know how to appreciate this sort of book knowledge; and it enables them to keep pace with the improvements of the age. Not so our farmers generally. They have little intercourse with each other; they have no access to agricultural books, and many are too old or too prejudiced to seek for or receive information. The consequence is, that we are making slow progress in agricultural improvement, while agriculture is being made to double, treble and quadruple its products upon the old continent. Youth is the appointed time, and the only time that can be relied on, for implanting the knowledge and the principles which should guide and govern in the business of manhood—and of laying the foundation for good citizens and intelligent prosperous farmers.

The Strawberry.

As the present month and the beginning of September, is the best season for making strawberry beds, some remarks as to varieties and the mode of culture may not be unacceptable.

The fruit of the strawberry is almost universally esteemed; and is prized as well for its delicious flavor, as for its tendency to promote health, and for its efficacy in mitigating or curing certain diseases.—The berries are almost wholly soluble in the stomach, and neither there or elsewhere do they undergo the acetous fermentation. They dissolve the tartareous incrustations of the teeth. They promote perspiration. When used largely, they have given relief to those afflicted with the gout; and Hoffman states, that he has known consumptive people cured by them. The principal species and varieties are—

1. *Wood*, with oval serrated leaves; the fruit round and small, and white and green. Native of Britain.
2. *Scarlet*, with leaves like the preceding, roundish and scarlet coloured. Native of North America. Varieties: early scarlet, Wilmot's late, common late, Wilmot's scarlet.
3. *Roseberry*. A Scotch seedling. The plants have few roundish leaves, larger fruit than the scarlet, and are very prolific. Continues bearing till August.
4. *Downton*. Fruit large, irregular and coxcomb-like; leaves large; plants hardy; and although prolific in England, has not proved so with us. We have grown a berry that measured 5 3-4 inches.
5. *Carolina*, or *Bostock*.
6. *Musky*, or *Hautboy;* with oval, rough, javellin edged leaves, the fruit large, of a pale red.
7. *Chili;* with large oval, thick hairy leaves and large flowers; the fruit large and very firm. A native of Chili.

8. *Keen's Imperial*, or *New Chili;* a large showy fruit, of great repute in England, but not so much esteemed here.

9. *Pine;* the leaves small and delicate. There are two sorts, the red and the white, or greenish-tinted, of the most rich flavored fruit. The Methven Castle belongs to this class. South America.

10. *Alpine*, or *prolific*, or *monthly;* commonly lasts from June to October; two sorts, white and red.—The Alps.

11. *One leaved;* the pulp of the fruit pink colored. South America.

We received twelve kinds of select fruit from the London Horticultural Society, in 1825; but continue to cultivate in our garden only the Methven and scarlet,—the latter coming in use ten or fourteen days before the former,—both abundantly prolific. Some of our beds are six years old, and they have produced as abundantly this as in any former year. We ascribe this continued productiveness to our pointing in horn shavings annually between the beds, and strewing upon the latter in autumn tan from the morocco leather factory. The Methven is in bearing about two weeks; we have had 47 berries that weighed a pound, many that measured over four, and one that measured five and one-quarter inches in diameter. Our practice is to clean the alleys and beds before the blossoms show, to leave the runners till the fruiting season is over, and after that to take off those that intrude upon the alleys, and to dung and dig these.

The strawberry multiplies rapidly by suckers or stolens, and may be transplanted as soon as the leaves have grown at the joints, although the roots are but imperfectly formed. If planted out in this month, they will give a partial crop the next season, and will be in high perfection the second year.

Mr. Keen, near London, who appropriates acres to the growth of this fruit, recommends that the pine be grown in a light loam, though no kind will grow better in a stiff one. The imperial and scarlets like a similar soil. The hautboys like a light soil. The wood strawberry is generally raised from seed, and the alpine always. The seed is best sown as soon as the fruit ripens; the plants to be set in fruit beds the spring following. Our own experience leads us to recommend, that the pines and scarlets be planted in a loose, rich, and pretty moist soil, our climate being dryer than that of Britain, and the strawberry demanding a great supply of moisture when fruiting.

The mode of planting is generally in beds containing two, three or four rows, with alleys of two feet between them. The soil should be well dug and pulverized, and the situation open and exposed to the sun. The larger growing kinds may have intervals of two feet between the rows, and of 18 inches between the plants in the rows; the smaller growing kinds may be planted closer. Keen cuts the runners three times in a season—we cut them but once, and leave then the new plants that take root in the beds, mostly to grow. His culture may be the most perfect, but ours is attended with the least labor, the cost of which is there trivial to what it is here. Keen plants the pines and hautboys 2 feet by 18 inches apart, and the scarlets 20 by 18 inches. He found among the many different kinds of hautboys, one which had the male blossom on one plant and the female on another; and experience soon taught him, that to render them fruitful, it was necessary to mix the two kinds in his beds, in the proportion of one male to eight females. Mr. Langworthy, of Cincinnati, and Mr. Downing, of Newburgh, think that the male and female blossoms grow on different plants, in other kinds of strawberry; but our limited experience has not enabled us yet to confirm their opinions. The duration of most kinds with Mr. Keen, is three years,—the wood strawberry and alpine, two years. The latter bears fruit the first year after sowing.

The general dependence, in the country, for the strawberry, has been upon those growing wild in the fields; but independent of the fact, that this fruit cannot grow where the farm is well managed, the extra trouble of gathering them in meadows, is more than equivalent to the labor of taking care of them in the garden.

With regard to manures for strawberry beds, such are to be preferred as are cool, and free from the seeds of weeds. Cow manure is preferable to that of horses. Bone dust and horn shavings are excellent, if not applied in too large quantity. A bushel and a half of either should go as far as a load of long dung. For top-dressing the beds in autumn, there is nothing better than tan, that from the morocco leather factory being preferable. The tan smothers weeds, keeps the soil moist, the berries clean, and seems, withal, to afford the specific food of the plant. It is recommended to cover strawberry beds *lightly* with straw, in the spring, and burn it off, which destroys the seeds of weeds, &c. We have been cruelly censured for this recommendation, by one who unwittingly burnt *piles* of straw upon his beds, and consequently destroyed his plants.

On the proper time for cutting Grain.

"When the base of the stem of grain," says M. Biot, "begins to become yellow and dry, if the corn [grain] be then cut down, though the grain is not ripe, it will continue to be nourished at the expense of the green matter [elaborated sap] of the stem, almost, if not quite as well, as if it had remained uncut, and will thus ripen well; while, having been thus cut down early, much loss from shaking is prevented, beside the chance from *lodging* from heavy rain and wind." The editor of the Quarterly adds, "In a *fine season*, farmers cut down when they find the neck of the straw immediately under the ear, free of juice, when twisted round between the finger and thumb; and do not wait until 'the lower part of the stems are yellow and dry,' because they find in such a season the straw *to die from the ear downward.* This fact, we conceive, does not militate against Mr. Biot's *theory*, for as the absorbing power of the ear at the top of the stem is always powerful, it must be the more powerful the nearer the ear approaches maturity, and, of course, the part of the stem nearest the ear should first become dry. In a bad season, on the other hand, the lower part of the stem first becomes yellow and dry, after which, of course, the crop is not allowed to stand; for, in such a season, the ear never becomes mature, having, of course, less absorbtive power, whilst the vitality of the root is early destroyed by the combined effects of bad weather, and ungenial state of the soil."

On Smut in Wheat.

The Quarterly Journal of Agriculture contains some lengthy and well written numbers on the diseases of grain, by Mr. John Donaldson—in which he notices the different theories which have had their day, and the different preventives which have been recommended; and finally gives us his own opinion as to the cause and means of preventing these evils. We design hereafter to take a more extended view of these interesting communications; but our present object is merely to state the result of some experiments made by the writer, and to notice some of the means of preventing smut in grain, which he considers the most approved.

It is well to premise, that Mr. D. considers smut a parasitic plant, and that it is contagious, or in other words, that smut-powder abounds in minute seeds, capable of germinating and producing its like, when sown with wheat. To destroy the vitality of this smut seed, salt, lime, chamber ley, copperas, arsenic, &c. &c. used in steeps, have been employed, and proved more or less effectual. We select from the different receipts, two, on account of the facility with which they may be employed by farmers generally. One is, "a solution of common salt in water, strong enough to carry an egg, sometimes mixed with nitre and copperas, in which the wheat is steeped, the light grain being carefully skimmed off, and dried with quick-lime and then sown. In Norfolk, the salt is dissolved in a small quantity of water, barely sufficient for the purpose; the lime is slaked with this solution, and the wheat is dried with it in its hottest state, having been previously moistened with pure water." The second, practised in the south of Scotland and north of England, is, to steep the seed in stale urine, free of any mixture. In a practice of this mode of prevention, for forty years, Messrs. Culleys never had any smut. A tub holding a bushel of wheat, with a tin bottom pierced with holes, is immersed in the tub containing the urine, and after the wheat is repeatedly stirred, and the light grains skimmed off, it is thrown on a clean floor, encrusted with lime, and immediately sown. A short time only must elapse between this preparation and the sowing, as the corrosive quality of the volatile alkali with which the stale urine abounds, will destroy the vegetative power of the seed, especially if quick-lime be added."

Mr. D. gives the results of 16 experiments, made with wheat, variously prepared, and without preparation. Seed sown without any preparation, produced but one smutted ear in 434; but impregnated with smut-powder, two-thirds of the ears were smutted. Impregnated with smut-powder, and then washed in urine, the product was one smutted ear in five; and when lime was added to the washed grain, the proportion of smutted was only one to 11½. The four next experiments were made with grain impregnated with smut-powder, and arsenic, vitriol and copperas employed to purify it; and the results were, in the order named above, 1 to 14, 1 to 4, 1 to 16, and 2 to 1. Impregnated with chamber-ley and limed, the smutted ears were only in proportion of 1 to 47. This was far the most favorable result, though salt was not used in any of the experiments.

Arthur Young made several series of experiments with steeps, which are detailed in his Farmers' Calendar. Fourteen parcels were sown on adjoining beds. We give below the preparation and results.

No.	*Preparation.*	*No. of smutty ears.*
1,	Sown dry; nothing done to it,............	377
2,	Washed well in clean water,............	325
3,	Washed in lime water,..................	43
4,	Washed in a ley of wood ashes, ...	31
5,	Washed in an arsenic and salt mixture,....	28
6,	Steeped in lime water 4 hours, ...	12
7,	do in the ley 4 hours, ...	3
8,	do in the arsenic steep 4 hours, ...	1
9,	do in lime water 12 hours,..........	6
10,	do in the ley 12 hours, ...	0
11,	do in the arsenic steep 12 hours,......	4
12,	do in the lime water 24 hours,........	0
13,	do in the lye 24 hours, ...	0
14,	do in the arsenic 24 hours,..........	5

It would seem from the preceding results, 1, that steeping in lime water, or the ley of wood ashes, are either of them a pretty sure preventive of smut—if, in the second place, the grain is continued in the steep 12, or rather 24 hours. Every farmer has access to one or the other, or both of these, without much expense; and if, as we believe, they are, as well as salt and lime, destructive to the seeds of the smut, there is no excuse for omitting to employ them, or for marketing smutty wheat. It is, however, to be borne in mind, that when smutty wheat has been brought to the barn, unless great care is taken, it is likely to effect somewhat the coming crop, notwithstanding the seed may have been steeped; the seed of the smut being so minute and subtle as to adhere to bags, shovels, the floor, &c. and often to come in contact with the seed after it has been prepared. If wheat is made to follow after a crop of smutty wheat, a practice which should not be tolerated under any circumstance, the new crop will inevitably be smutty, as much of the smut seed will be scattered upon the soil, and will, of course, come in contact with the mouths of the young grain. But it is believed that the smut seeds lose their vitality, and will not grow after the first year; and that hence, if the seed is two years old when sown, the product will not be smutty.

Available Means of Agricultural Improvement.

Societies and premiums were tried in vain in Germany, to renovate agriculture, says Mr. Fleischman, and so was theoretical farming. "The practical farmer, uneducated and full of prejudice," he says, "was not able to understand the principles of the new system; the man of scientific education had no experience and knowledge of applying science to practice properly;" and so both failed, or improved slowly. At last, agricultural schools were established, and the science and practice were taught simultaneously. "In six years," he continues, "the influence of these schools was felt throughout the whole country." Rotation of crops was introduced; the stock was increased and improved; the fertility of the land was renovated; prejudiced neighbors became convinced; they began to imitate, to read, and to think, and in a short space of time, the old system was abandoned, and the farmer soon saw and realized the advantages of the *science* of agriculture."

"I look to the establishment of agricultural schools," says our highly intelligent Otsego correspondent, "as belonging to an earlier state of things than agricultural exhibitions. To him who has made no advance," he adds with great truth, "an agricultural exhibition is a source of mortification and a wounding of self-love—[because it throws his own labors and skill into the back ground]—but a school will awaken the spirit of improvement; and a few young men going forth from such an establishment, will be like a little leaven in the inert mass."

It requires but little reflection and foresight to predict, with great certainty, that unless something is speedily done, by the people and the people's representatives, to improve the state of our agriculture, the farmers of Europe will soon supplant—will undersell us—in our own markets, in the products of our soil. We already find the bread-stuffs of Europe, and even of Asia, put in requisition to feed our population. From the low price of labor in Europe, and particularly from the recent improvements in agriculture, which are doubling and trebling the products of agricultural labor there, the disparity in the actual cost, to the cultivator of these products, is constantly increasing against us. The venerable Fellenburgh—and may he yet enjoy a long and happy life—was the first to demonstrate the utility of combining the science with the practice of agriculture—of making farmers gentlemen, and gentlemen farmers—of combining intellectual with physical power, and literature with labor—in a school for the education of young men. The sagacious Frederick, king of Prussia, soon saw the advantages to the state, which were likely to result from schools like that at Hoffwyl, and soon established the great school at Moegelin, under the distinguished Thaer, and has since incorporated its principles into the common schools of his kingdom. Bavaria, Austria, and other of the German states, and France, have since established like schools; Russia has agricultural schools near St. Petersburgh and Moscow, liberally endowed and supported by the government; and even Ireland, it will be seen by the extracts in our last, has started in this noble career of usefulness. The United States, which should be foremost in efforts to enlighten, improve and elevate the agricultural population, will, we fear, be last to establish agricultural schools, and the last to profit by their usefulness.

The only present available means of accelerating the introduction of these schools among us—for established they ultimately must and will be—is the agricultural press—the enlarged circulation of agricultural periodicals among the people. We have now about twenty of these in our country. They are every day increasing the sphere of their usefulness, and the extent of their circulation. They are bringing into notice the best practices in husbandry, and promulgating the principles of agricultural science. They are producing a salutary change in the public mind, in regard to the importance of improving our husbandry; and this change will ere long, we trust, be felt and manifested in our halls of legislation. The sooner the better, for all classes of our citizens.

Utility of Agricultural Societies.

A national society, for promoting agricultural improvement, was about being organized at our last dates, in Great Britain, through the active influence of Earl Spencer, the Duke of Richmond, and other distinguished landholders. There already exists a Central Society of Agriculture, which may in some measure be termed a national institution. The rapid improvement of Scotch husbandry, under the invigorating influence of the Highland Agricultural Society, is operating as a powerful stimulus to the formation of a similar society in England. The Editor of the (London) Farmers' Magazine, speaks thus of the matter:—

"Attention is at length aroused," says the editor, "to the remarkable progress which agriculture has made in Scotland, and to the high rents cheerfully paid by the tenants there, although laboring under the disadvantage of a more inhospitable climate. That the Scotch are better farmers than the English generally, that they pay higher rents, and that their system of farming is improving daily, are facts at last unequivocally, though reluctantly admitted; and the question is very naturally asked, how has this been effected? How is it that our northern brethren, laboring under acknowledged disadvantages, have beaten us in the race? The answer is, by reducing the practice of, and improvements effected by, the most talented and skilful agriculturists, to writing, thereby establishing agriculture as a *science*, and again diffusing such information speedily and widely amongst the farmers. The effective attainment of both objects may be mainly, if not altogether, ascribed to the exertions of the Highland Agricultural Society. We have been always so deeply impressed with the high value of this society, that we have never failed to hold it up as a model to all other agricultural societies. A like opinion of its utility is rapidly spreading, as well as a desire to become better acquainted with the system of management adopted by the Scotch agriculturists."

The editor continues—"An agricultural society has been formed in Paris, which communicates with more than 200 local societies in different parts of France, and has correspondents in every part of the kingdom, besides more than fifty correspondents in almost every part of the world. New local societies are in course of formation daily, ploughing matches are introduced, a steam plough has been invented; and agricultural schools are established in different parts of France. The French possess several experimental farms, and the propriety of establishing agricultural colleges, for the instruction of youth, is strongly urged by the best practical writers of the day. At Petersburgh and Moscow, agricultural colleges are established. In Prussia, the king especially patronizes agriculture, and the academy at Frankfort, upon the estate called Moegelin, under the superintendence of M. Thaer, the most scientific agriculturist in the world, is well known. If we plume ourselves upon our superior knowledge, and regard with indifference the exertions made by our neighbors, we shall by and by discover to our disgrace and shame, and loss, that as in the case of the Scotch agriculturists, we shall have to go abroad for information,"—and, *we* may add, for BREAD!

Sir John Sinclair.

If substantial usefulness to the human family constitutes the criterion of merit—as it should do—few men are entitled to greater praise than this distinguished Scotsman. Many men have the talent to be useful, who lack the disposition. There are others, who have the disposition to be useful, but lack the talent, the means, or the resolution, of carrying out their benevolent wishes. In Sir John Sinclair, the talent, the disposition, the means, and the perseverance, necessary to accomplish great usefulness, were most happily combined, and by him they were most successfully employed. Such a man is a blessing to his country and to mankind. He saw the agriculture of his country, the great source of human subsistence and human comfort, in a wretched condition. He saw, that from the little intercourse the farmers had with other countries and other districts, from which they could draw instruction, that little improvement was to be expected, except through the united exertions of influential individuals, aided by the liberal patronage of the government.

Impressed with these convictions, he printed and circulated, in 1793, his plan for establishing a Board of Agriculture; and in a few days afterwards, he moved, in his place in parliament, an address to the crown, in favor of the proposed establishment, which was carried, 101 to 26, the board organized, and he made president. In a speech which he made while the subject was under discussion in parliament, he pointed out the obvious advantages which would result from the establishment. In the first place, according to his biographer, he regarded it as a general magazine of agricultural knowledge, and a society of reference, to which any question might be sent, connected with the improvement of the country. In the second place he shewed, that by agricultural surveys, carried on under the auspices of such a board, every fact or observation known in that country, connected with the improvement of the soil, or the stock it maintained, would be collected. In the third place, that by establishing an extensive foreign correspondence, the discoveries and improvements appertaining to other lands, would be much sooner and more widely rendered available, than if dependant wholly on private exertion. In the fourth place, that it was only through the means of such a board that any general improvement of stock could be looked for; and that, in the last place, it might be the instrument of obtaining a statistical account of England. Five thousand pounds—$22,000—was the annual grant, and the privilege of franking was given to the board.

The two great primary objects of the board were, to ascertain the general agricultural state of the country, and the means of improving that state. As the most effectual way of accomplishing these objects, agricultural surveys were made; and "in the course of a little more than a year," as stated by a distinguished writer on husbandry, "the board of agriculture had printed a body of authentic facts respecting the agricultural and internal economy of the country, greater than was ever obtained by any other nation since the beginning of time."

But these works, amounting to about eighty volumes, were too voluminous for general use; and the next object of the worthy president was to condense, and bring within the compass of a volume, all the most material facts thus collected, in order to render them available to the practical farmer, and more conducive to general improvement. He laid it down as a maxim in literature, that "knowledge, previous to its being brought into a condensed state, may be compared to a small portion of gold, dispersed throughout a great quantity of ore. In that rude condition, the strongest man cannot sustain its weight, nor convey it to a distance; but when the pure metal is separated from the dross, a child may carry it without difficulty."

In his address to the board, in 1813, he remarked, "that the power and prosperity of a country depend on the diffusion of useful knowledge, can hardly be questioned; *and there is probably no art in regard to which a variety of knowledge is more essentially important, than in the art of agriculture.* The extent of information necessary to bring it to any thing like perfection, is hardly to be credited. To preserve the fertility of the soil—to free it from superfluous moisture—to cultivate it to the greatest advantage—to raise its productions at the least expense—to procure the best instruments of husbandry—to select the stock likely to be the most profitable—to feed them in the most judicious manner, and to bring them to the most advantageous markets—to secure the harvest even in the most unpropitious seasons—to separate the grain from the straw with the most economy and success—and an endless variety of other particulars, require a degree of knowledge, *to do them well*, of no common description."

It is said that Sinclair was first induced to direct his attention to a digest or code of agriculture, by a suggestion of Sir Joseph Banks, "that an account of the systems of husbandry adopted in the more improved districts of Scotland, would be of the greatest advantage to the agricultural interests of the United Kingdom: and that it was incumbent upon a native of Scotland, while presiding at the board of agriculture, and possessing all the means of information which that situation afforded, to undertake the task. In objection, Sir John argued, that the labor of accomplishing such a task, would be very great—that it would be extremely difficult to obtain such information, and that it would afford cavillers an opportunity to attack the board, on the grounds of promulgating doctrines which, if acted on, might prove ruinous to many farmers."* But all obstacles vanished, when Sir Joseph further urged, "that agriculture has derived, is deriving, and will derive, more benefit from Scottish industry and skill, than has been accumulated since the days when Adam first wielded the spade." This was in 1809. Sir John immediately set about collecting and arranging the materials for his Code of Agriculture. He opened a correspondence with the most eminent men and best practical farmers; made three or four tours upon the continent, to acquire a knowledge of the improvements there, particularly in Flanders and Holland, of which he published accounts; and he also published a Code of Health, adapted to the various conditions of life. He was mainly instrumental in promulgating the knowledge of Elkinson's system of draining, and of its being extensively adopted; in inducing Davy to undertake his valuable work upon agricultural chemistry; in instituting and giving efficacy to the Highland Agricultural Society; and in introducing to public notice McAdams' improved system of road making. So late as 1815, the latter was first put into effectual practice, by the Bristol District of roads; and such was found to be its great utility, that now most of the principal roads in Great Britain have been reconstructed upon this admirable plan. He also published, after his Code of Agriculture had passed through the press, a Code of Statistical Philosophy, a Code of Finance, and had nearly prepared for publication a Code or Digest of Religion. "We are informed," says his biographer, "that in his introduction to the proposed code, the writer proceeds upon the supposition that he had undertaken the instruction of an individual, who was either altogether unacquainted with revealed religion, or who had imbibed very limited or erroneous views concerning it. The pupil is led through a system of progressive instruction. He is presented with a general view of human nature, comprehending, first, the corporeal frame, and, secondly, the mental faculties of man—then, with an account of the globe, where the Creator has placed him—then, with that of the heavenly bodies, by which the earth is encompassed. Rising from nature, up to nature's God, it was next intended, reverentially, to contemplate the being and attributes of Him by whom all things were made, and through whom all things live, move and have their existence. It was then intended to inquire, whether any revelation of the Divine will had ever been made to the human race, and, if so, where the best account of that revelation was to be found. It was intended that the work should conclude with an examination and explanation of the precepts and doctrines thus promulgated to man, to guide him in his conduct here, and lead him to the enjoyment of the promised happiness hereafter. The mass of mankind," to continue our quotations from the work before us, "who are misled by the tinsel of military glory, the superficial glitter of eloquence, or the accumulation of great wealth, are incapable of appreciating the silent effects of social improvements; but we confess, that if it were in our choice to select the path of glory, which wisdom and the better experience of mankind will consecrate, we should prefer the distinctions arising from the useful and unequivocal career of a Sinclair, to any renown attached to the splendid achievements of a Bonaparte, the fascinating eloquence of a Pitt, or the unmeasured wealth of a Baring."

In regard to the Code of Agriculture, as many of our readers cannot have had an opportunity of seeing it, we copy from the Quarterly Journal of Agriculture, a brief notice of its contents and arrangement, as useful to every class of farmers, in suggesting the points and the order in which the prominent matters in farming should engage their attention.

"The first section of the Code of Agriculture is devoted to the consideration of the preliminary points which a farmer should ascertain, before setting himself down to the cultivation of any considerable extent of land, particularly climate, soil, subsoil, elevation, aspect, situation, tenure, (whether in property or on lease,) rent, assessments on, and size of farm. In the second section, inquiry is made regarding the means essential to secure niceness in farming, namely, capital, regular accounts, arrangement of agricultural labor, farm servants, labors in husbandry, live stock, implements, agricultural buildings, command of water, divisions of fields and farm roads. In the third, the various modes of improving land are pointed out, by cultivating wastes, enclosing, draining, manuring, paring and burning, fallowing, weeding, irrigating, flooding, warping and embanking land. The fourth section is devoted to the explanation of the various modes of occupying land, in arable culture, in grass, (including the dairy husbandry,) gardens and orchards, woods and plantations. And the fifth, which concludes the work, is occupied in a general consideration of the means for improving a country, the diffusion of information, the removing of obstacles to improvment, and by positive encouragement [by government.] In the body of the work, only general principles are discussed, and where minute information is necessary, it is inserted in the form of foot-notes; while points requiring further explanation or detail have separate papers devoted to them in the appendix. The Code of Agriculture, by Sir John Sinclair, must ever be regarded as the standard work on the state of that science—for he has raised it to the dignity of a science, by establishing its principles —especially as referring to the commencement of the 19th century. It is a monument honorable alike to his ingenuity, his untired perseverance and his general philanthropy. His mind was impressed with the belief, that the prosperity of the human race in a boundless measure depended on their knowledge of cultivating the soil, or, in other words, increasing the natural means of subsistence; and he reckoned no labor too assiduous, no obstacle insurmountable, when such an object occupied his generous enthusiasm."

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* We, too, have cavillers, who scout at the idea of improving their practice, by book farming—by the examples of others, who excel in husbandry, and who bring their minds to aid in the improvement of the soil.

Importance of Chemical Knowledge in Husbandry.

"Agriculture," says Sir H. Davy, in one of his lectures, "to which we owe our means of subsistence, is an art intimately connected with chemical science; for although the common soil of the earth will produce vegetable food, yet it can only be made to produce it in the greatest quantity and of the best quality, by methods of cultivation dependant upon scientific principles. The knowledge of the composition of soils, of the food of vegetables, of the modes in which their products must be treated, so as to become fit for the nourishment of animals, is essential to the cultivator of land; and his exertions are profitable and useful to society, in proportion as he is more of a chemical professor.—Since, indeed, the truth has been understood, and since the importance of agriculture has been generally felt, the character of the agriculturist has become more dignified and more refined; no longer a mere machine of labor, he has learned to think and to reason. He is aware of his usefulness to his fellow-men, and he is become at once the friend of nature, and the friend of society. If land be unproductive, and a system of ameliorating it is to be attempted, the sure method of obtaining the object is, by determining the cause of its sterility, which must necessarily depend upon some defects in the constituents of the soil, which may be easily discovered by chemical analysis. Are any of the salts of iron present? they may be decomposed by lime. Is there an excess of silicious sand? the system of improvement must depend on the application of clay and calcareous matter. Is there a defect of calcareous matter? the remedy is obvious. Is an excess of vegetable matter indicated? it may be removed by liming, pareing and burning. Is there a deficiency of vegetable matter? it is to be supplied by manure. In the selection of the remedy, after the discovery of the evil, chemical knowledge is of the highest importance. Limestone varies in its composition, and by its indiscriminate application, we may aggravate the sterility we seek to obviate. Peat earth is an excellent manure, but it may contain such an excess of iron as to be absolutely poisonous to plants. How are such difficulties to be met but by the resources of chemistry? That much vague speculation may be found in the works of those who have lightly taken up agricultural chemistry, it is impossible to deny. It is not uncommon to find a number of changes rung upon a string of technical terms, as oxygen, hydrogen, carbon and azote, as if the science depended upon words rather than upon things. But this is in fact an argument for the necessity of the establishment of just principles of chemistry on the subject. If a person, journeying in the night, wishes to avoid being led astray by the ignus fatuus, the most secure method is to carry a lamp in his own hand."

The Turnip Flea.

Our correspondents make great complaint of the depredations of the turnip flea, and ask us to prescribe a preventive. This insect is in length nearly the eighth of an inch; smooth, shining, and of a brassy black colour, with a slight tinge of green, particularly on the wing cases. This little insect preys upon several species of plants, as cabbages, radishes, but is particularly fond of the turnip, which it attacks both in its perfect and larvæ state. It is principally destructive when the plants are in the seminal, or first leaf, and are tender. When the second leaves are unfolded, and the plants have acquired strength, their depredations are comparatively insignificant upon the leaves, though they continue, in their larvæ state, to prey upon and injure the roots. They are extremely voracious, an individual consuming, as has been ascertained, ten young turnips in a day.—In Britain, where there are from 60 to 100 acres of turnips on a farm, they cause immense losses.—They afford evidence, that there are few pleasures or profits without alloy, and seem to be a means of inciting man to constant healthful industry and vigilance.

There have been many receipts published as a preventive of the evils inflicted by this pigmy enemy of our crops; but hitherto all seem to have failed of producing the desired effect. Among other applications to the seed, oil, brine and sulphur have been used, sometimes with apparent success; and one farmer completely saved his crops for fifteen years, by keeping the seed sometime previous to sowing, among a quantity of flour of sulphur, and sowing the sulphur along with the seed. In this way the juices of the plant might be tainted by absorption, so that the insect had no relish for it.

The best remedies for the evil seem to be:

1. To have the ground well prepared and rich, so as to insure a vigorous growth to the young plants.

2. To sow thick, that a part may at least have a chance to escape the flea,—and the crop being thinned at the first hoeing. And it has been found effectual to sow thick an extra row between every two rows intended for the crop—the thick sown being more tender, are preferred by the flea, and may be extirpated by the cultivator at the first dressing,—the extra seed and labor bearing no proportion to the value of the crop.

3. And principally, reliance must be had, when the young plants are threatened, on dusting the plants with some kind of powder. Soot, ashes, gypsum, &c. have been used for this purpose, "but there can be no doubt," says the Quarterly, "that by far the most useful application of this kind is quick-lime."

The Doncaster Agricultural Association, which has rendered the most essential service to the agricultural world by its labors and publications, has given to this subject the best attention; and has concentrated, by their queries, the experience and improvements of more than one hundred practical farmers, on the means of averting the evils induced by the turnip flea. From this information, they have prescribed certain rules of prevention, from which we take the following, as particularly adapted to our practice:

"Most effectually to insure the speedy growth of the plant, the land should be kept in the best possible state of cultivation.

"The system of ridging the land, with manure under the rows, and drilling on the ridges, should be adopted in every possible case.

"The most favorable opportunity for ridging should be chosen, and it ought to be particularly observed, that the land be not ridged in too dry a state.

"As soon as the land is opened for manure, it ought to be laid in, the ridges formed, and the seed drilled immediately. The quicker these operations follow each other, the greater chance there is of a good crop.

"The manure chosen should be adapted to the soil, and such as is likely to insure the speedy growth of the young plant, and a full quantity ought to be allowed.

"The seed should not be deposited in the manure, but the manure thinly covered with soil, and the seed drilled in this soil.

"A very liberal allowance of seed ought to be given, as much as 3 lbs. or 4 lbs. the acre for drill, and 6 lbs. or 7 lbs. for broadcast, and the seed should be of one year's growth.

"As soon as the plant appears above ground, it should be dusted with quick-lime, and this repeated as often as rain or wind beats it off, and the fly reappears."

We will only add, that we spread our manure, drill upon the level surface, and, in eighteen years' practice, have never made any topical application, and yet have never failed in obtaining a fair crop of turnips.

Mildew on the Gooseberry.

At page 59, of our last volume, we mentioned our success in *arresting* the progress of the mildew on our gooseberries, by sprinkling the bushes with a weak pickle; and in page 159, we stated the Rev. Mr. Reed's mode of preventing the blight in pear trees, by impregnating the soil with iron, and his suggestion that salt would prevent the mildew on the gooseberry and the grape. We applied the blacksmith's cinders to a part of our pear trees, and tan to another portion; and there is yet no appearance of blight on either. In February we had the ground about our gooseberry bushes well saturated with strong pickle, and our gooseberries are perfectly free from mildew, for the first time in twelve years. It is not yet time to determine upon the efficacy of the pickle on the grape vines. We infer from the facts that have fallen under our notice, that the mildew is an abiding parasite, particularly at the collar and at the roots of the gooseberry and grape; that the minute seeds of this parasite are wafted to the fruit in a certain state of the atmosphere, and that salt destroys the vitality of the prolific parent in the soil. See No. 10, vol. iv. We beg here to observe, that we err here as in the most other kinds of fruit, in esteeming the *largest* as the *best* varieties. The large gooseberry has generally a thick tough skin, while the best, and they are generally of a medium size, have a thin smooth skin, indicative, also, of good flavor.

We overlook the Main Point.

Did our politicians, including, of course, the honorable members of our legislatures, display half the zeal, and expend a tithe of the money, to enlighten and encourage agriculture, and to render the earth more prolific in the bounties of Providence, that they display and expend in the scramble for power—for the spoils of office—which many grasp at but few obtain—we should have less complaint of hard times; and we should become, what we too vauntingly boast of being already, an independent, a prosperous and happy people. There would then soon be but little occasion for young lawyers and boys running about to instruct our sturdy farmers in their interests and political duties. He is not a *wise* man who does not know *how* to vote—nor a FREE MAN who *dares* not vote as he thinks right—nor a PATRIOT who *will* not do so.

Sale of Mr. Weddle's Cattle.

In our advertising sheet for February, was noticed the intended sale of a fine stock of cattle at Bloomfield, the property of Mr. Thomas Weddle. Twelve cows and heifers sold for $4,133—averaging $344 each, and some selling as high as $500 and $520. Nine bulls sold for $3,437, averaging $382—two of them bringing $600 each. Three cows and their calves for the three last years, sold for $1,690, $1,584 and $1,642. The highest priced animals, and we presume the best, were generally bought by Gen. Dudley, of Kentucky.

Hints on Pruning Forest Trees.

There were five competitors for the Highland Society's ten guinea premium, offered for the best essay on the pruning of forest trees,—a business which, to be sure, is not yet much practised among us; but as many of the principles which govern in the operation, apply in the pruning of fruit and ornamental trees, we shall state some of them. The essays are not published entire, but a digest of them is given by William Scott, one of the directors, who states, that on all the leading points, except as to the time of pruning, there is almost a perfect coincidence of opinion expressed in them all.

1. *Is pruning beneficial?* "Although pruning in ordinary cases does not ultimately increase the weight or bulk of wood, yet trees which are *early* and *judiciously* pruned, will be improved in quality, increased in their useful dimensions and ultimate value, and a greater number can be grown on a given space."

2. *Thinning the plants*, as they advance in growth, is deemed indispensable.

3. *Pruning should be begun early*, and the directions for pruning, coming as they mostly do from professional nurserymen, are worth remembering:—"When trees in the plantation have produced three, or very thriving two years growth, pruning should be commenced. At this period the knife is the most suitable instrument, and the *top* is the principal part of the plant which requires attention. In order that only one shoot may be allowed to remain as a leader, the others next in size, if not very inferior, should be headed down, generally to about one-half the length, and all the stout lateral branches of the tree headed in the same manner. No such branches need be cut close to the stem at the first, second, or third pruning." "All suckers or branches that spring from the roots, which tend to make the plant more like a bush than a tree, should be taken away."

4. *Error to be avoided.* The practice of cutting away the side branches to a certain height, at the first pruning, and afterwards to operate only on the under branches of the tree, is reprobated, as tending to produce a small trunk, an irregular top, and side-branches more vigorous than the leader. Under this management, in "exposed places, not one in a hundred ever becomes a large and valuable tree."—"Such an excess of amputation destroys the health of the tree, by depriving it of the organs by which a sufficiency of sap is secured [elaborated] to be afterwards converted into wood."

5. The leading shoot should be preserved, and all others checked which have a tendency to compete with it, so as to divide the stem into forks or clefts.

6. "The writers agree in opinion," says Mr. Scott, "that young trees should not be pruned at once close to the stem, but that the larger branches which it may be necessary to cut away, should be shortened first, and cut close afterwards." As decidious trees give out an irregular tier of branches yearly, any branch should be shortened which is of greater length than the majority of those on the same tier; or, if the whole of them be too long, they must be shortened. By the concentration of the sap, which the shortening effects, a much greater quantity is thrown into the main stem," the leaves are much larger, the foliage healthier, and the tree shoots up much faster, and at the same time maintains a proportional circumference of stem.

The objects of the pruner should be "to give, in trees of advanced size, twice the length of the trunk to that of the top, in good soil; and in poor soil to leave the top as long as the trunk; and 2d. to have one inch in circumference to 15 feet of height; and if the circumference is proportionably greater, so much the better."

With regard to coniferous trees, as the silver fir, spruce, pines, &c. it is objected to their being pruned, *in any soil or situation.*

The opinions of the writers as to the best season of pruning are variant. One recommends April to June; another before the buds swell; another in autumn, &c. and Mr. Scott, to reconcile the contradictory opinions, proposes to prune "a little before the buds begin to swell,—or a little while after the leaves have expanded." We repeat—late in June.

Farming Implements.

The improvements which have been made in the implements of husbandry, in the last thirty years, and the introduction of new implements, have not only tended greatly to abridge manual labor, but, by doing the work much better than it was formerly done, have increased much the bounties of the soil. Having the desired implements, the next object is to learn to use them with facility and skill, a task more difficult in acquiring than many seem to imagine. Take, for instance, the plough, the most common implement of husbandry, and we venture to say, that not one in fifty who uses it, knows how to use it as well as he might do; or, knowing, does use it as he ought to do. But not only have the implements long in use been improved in their model and fabrication, but new ones are coming daily into more general use, as cultivators, drilling machines, rollers, straw cutters, hay rakes, mowing machines, root-slicers, potato hooks, turnip hoes, &c. which greatly aid in the economy of the farm. It has been our object to note such of these as came under our notice, and to commend them so far as our observation and experience would justify. This we shall continue to do, in the belief that they are calculated to facilitate greatly the labors of the farm, and to increase its products and profits.

We in the first place invite the reader's attention to the *Potato Raiser*, of the Messrs. Lawsons, of Edinburgh, figured and described in the present number. The potato is extensively and profitably cultivated among us, and its culture is likely to increase. It is an excellent crop to ameliorate and cleanse the ground—to convert long into short manure, and thus fit it for small grains, and no less excellent for stock and the market. Under the improved mode of management, it may be planted and receive its after culture, almost exclusively, with the plough, harrow and cultivator, with but little aid from the hand-hoe. The great expense is in harvesting the crop. If this can be lessened, and the Messrs. Lawsons and Capt. Center assure us it can be greatly, by a potato plough, like the one described, the culture of this valuable crop may be profitably enlarged. The expense of procuring a potato raiser, or a potato mould-board, and fitting it to a common plough, will be trivial, compared to the advantages which are likely to accrue from its use.

Hoyt's Drill Barrow is also figured and described in the present number. We have not had it in operation; but from examining the principles upon which it works, we give full credit to the declarations of the patentee. The cost is about $10, and it is said to be adapted to the sowing of all kinds of seeds.

Bushnell's Drill Barrow.—We have had this in operation, and it justifies the high expectation we expressed of its value. It differs from any we have seen in this: the forward wheel pulverizes and levels the surface, and thus enables the workman to graduate the coulter, while the after wheel breaks and presses upon the seed the earth which is thrown upon it by the brush or rake which is applied behind the hopper. This machine drops four to eight turnip seeds, at intervals of about eight inches; and it has slides adapted to seeds of all sizes, which may be used at pleasure. These slides are of tin. They ought to be of wrought iron, like those in Merchant's drill, which latter, by the bye, suffers nothing in reputation or value, by being better known. A Scotch farmer, familiar with the drill barrows of his native country, and who has used Bushnell's, pronounces it the best he ever tried. Ample reference to the patentee and venders, will be found in our back numbers.

Mr. Thorp has improved his *Turnip Hoe*, by making the shank, which connects the cutting part with the eye, stronger and of better iron, and by using better copper rivets than heretofore. This hoe is worthy the attention of every turnip raiser, and of every gentleman who takes exercise with a hoe in his garden.

Potato Hooks.—Several models of these have been sent us. They are all useful and serviceable in many operations of the farm and garden. In culture, they effect an important purpose—they loosen the surface to any reasonable required depth, pulverize it, and render it pervious to atmospheric and solar influence, as well as free it of weeds. It is excellent in raising potatoes and turnips. A new one has just been presented to us by Messrs. Ripley & Spalding, the manufacturers, residing at Norwich, Ct. They are for sale by our neighbor Thorburn, at 50 cents.

Root Slicer.—We have received one from Mr. D. M. Walker, of Whiting, Vt. As our turnips were mostly fed out when it came to hand, we had not a fair opportunity of trying it; but we did experiment upon it so far as to ascertain, that it would not only slice, but cut into inch strips, a bushel of ruta baga in a minute, turned by a smart man. This machine was noticed and described in the last number of vol. iv. It is not patented. The iron work costs about $6. The wood work may be made by any carpenter, or an ingenious farmer. If Mr. Walker will renew his request, his letter having been mislaid, it shall be promptly attended to. We should advise that the knives and cutters be reduced one-half, in this machine. It will still perform its work expeditiously, and be less fatiguing to the operator.

Van Bergen's Cultivator.—We have used this implement, the present season, in cultivating our hoed crops, and think it has a decided preference over the old triangular drill, though we have had no opportunity of comparing it with Bement's. The side pieces are parallel with the centre one, and each of the former has a forward coulter to cut the weeds and pulverize the soil, and a coulter with a small mouldboard in rear, to gather the loosened earth in the space between the rows, or to throw it to the plants. The implement may be contracted or expanded at pleasure, or the laterals may be taken off, and the centre coulters used among beans, or other crops, where the drills are 12 or 18 inches asunder. In the first dressing of our corn, potatoes, &c. the loose earth was turned from the hills. The plants were then cleaned with the hoe, and when necessary, thinned, and the cultivator soon after followed, turning it to the rows, and giving the plants a slight earthing. In the potato crop, the small plough follows the cultivator, to give a slight, but the only earthing it receives. The cultivator may be advantageously used a third or even a fourth time, in the corn crop: it keeps the surface mellow and clean. We can with confidence recommend this implement, for all lands not encumbered with large stones or stumps. The fault in this machine, if any, is the weakness of the wood-work, and of the cast-iron teeth, which are liable to be broken if they are brought in contact with stout roots, or immovable stones. Our machine has suffered in this way.

The operation of Bone Dust.

Bones are a phosphate of lime, that is, they are composed chiefly of lime and phosphoric acid. When crushed, and deposited in the earth, by the action of heat and moisture, the bones are soon reduced to a state of decomposition, and the original elements of which they are composed are thereby set at liberty to form new combinations in the great circle of revolving nature. By this means, the phosphoric acid is set free in the form of gas, and the lime is left in its caustic state, deprived of its neutralizing acid; these two substances are then left to produce the powerful vegetation which we see to follow their application as manure in their new state; and as we know of but few principles in nature more powerfully active than phosphorus, in all its states of existence, we have formed the idea, that phosphorus, in conjunction with the lime, perhaps in the state of phosphoric acid gas, is the chief cause of the rapid and luxuriant vegetation produced by the application of bruised bones as a manure. The phosphorus of our shops is so easily ignited, that the least friction sets it on fire; nay, if exposed to the air, it burns spontaneously by a slow combustion, and therefore can only be preserved from combustion by being immersed in a vial of water; hence I consider that crushed bones evolve a considerable quantity of gas and heat during decomposition in the earth. As I have attempted, in a field of my own, to try some experiments with the bone dust, I shall, with all deference, state the results. 1. I find that old rotten bones, and dry bones, crushed properly, work sooner, and are more readily efficient as a manure, than fresh or green bones; the latter requiring a longer space of time to decompose and part with their phosphoric principle than old bones, already partly in a state of decomposition.* 2. I find that bone dust acts most readily and powerfully, if, the night previous to its being put into the earth, it be formed into a heap, and thoroughly wet,† and allowed to lie till it is beginning to become warm. It then ought to be put (in its wet state,) into the ground, when a powerful and luxuriant vegetation immediately follows. In a dry soil, it remains long before decomposition, and also in very wet ground. This may account for what, to a certain extent, by some has been considered a partial failure of its usual effects.—*Aberdeen Journal.*

A Hint to Cattle Breeders.

T. A. Knight, the very distinguished horticulturist, publishes in the Farmers' Magazine, a communication on the ill effects of overfeeding young stock. Young cattle thus brought up, when taken into other districts, have been found, with their offspring, incapable of thriving upon common pastures. Animals, he thinks, which have been overfed from their birth, and whose ancestry have been subjected to the same treatment, acquire a power of eating and digesting a much larger portion of food than others. He admits that the improved Durhams are brought to market at a very early age, oxen of very great weight and excellence; yet he says it is well known that all those young animals come to market deeply insolvent, the sums for which they are sold being greatly less than those expended in feeding them. In illustration of their expensive keep, he cites the following facts:

"Three Herefords and three Durhams," says he, "were put into stalls, to be fatted, on the 3d of November. The weight of the Herefords was then 33 cwt. and that of the Durhams 38 cwt. and 14 lbs. Between that period and the 30th March, when all were sold in Smithfield, the Durhams consumed 12,755 lbs. weight more of turnips, and 1,714 more pounds of hay, than the Hereford; but the Durhams, notwithstanding the larger size when put to fatten, and the greatly larger quantity of food consumed, sold for only 20 shillings more than the Herefords; and such I believe will ever be the result of similar trials, when one class of animals has been properly fed, and the other over fed, the merits of the breed being equal."

This reasoning is true in regard to perennial vegetables—trees for instance. If the nursery from which they are drawn, and in which they have been raised, is very rich, they will not thrive so well in a common soil, as those which are taken from a soil of an inferior quality. If the habit of gormandizing is established when the plant or animal is young, neither will thrive so well afterwards upon spare food, as if they have been brought upon more moderate fare.

South Down Sheep.

"My chief reasons for preferring this breed," writes Mr. H. Watson, "are:—that the South down sheep, although an active and spirited animal, are easily controlled and managed by a good shepherd—can go over more ground for food than any other kind of sheep, without stopping their growth,—and when tried by severe storms in winter, will brave it better than even the black-faced Highland,—and although reduced very low in spring, sooner pick up condition, than the other short woolled sheep. As a proof of the Southdown's inclination to fatten, when put to good keep, I may mention a fact, that while I have seldom been able to produce a fat Cheviot sheep the same season she has reared a lamb, I never fail to make good fat of the South downs *off grass.* Their wool is so closely matted on their backs, and about the head and neck, as to be almost impervious to rain or snow; hence, so soon as the storm ceases, they appear dry and comfortable, their coat not the least disordered, and altogether free from that drenched appearance which longer woolled sheep exhibit, even for days, after a winter storm."

Mr. Watson says the South downs are remarkably healthy; that his loss in them has invariably been much under that of any other sheep he has bred; that when crossed with a well-bred Leicester ram, and brought into good keep, they produce the most profitable lamb that is bred; that the wool fetches the highest price of any British wool; and that he has realized from them, when 16 months' old, not less than 40s. ($8.88) each, wool and mutton. But mark! Mr. W. gives this preference over every other sheep, for districts "*too high to be occupied during the whole season by a flock of Leicesters* (Bakewell) *and under that level which the native* (Scotch) *sheep* only *can thrive upon.*"

ON AN AGRICULTURAL EDUCATION OF GENTLEMEN FARMERS, AND THE SCIENTIFIC EDUCATION OF PRACTICAL ONES.

Men are prone to become idle as they grow wealthy; but if they have been early imbued in the practical knowledge of their business—say, for instance, have been brought up at the counter, or on the farm, their early habits, and the practical knowledge acquired in youth, are of invaluable service to them in more advanced age, though they do not submit to manual labor—in superintending and directing their affairs. It is a kind of knowledge which no man can get rid of, if he will, but it will intrude upon his mind, and guide his judgment, in after life. The theory will not do alone. The head may teach the hands *what* should be done; but the hands must teach the head *how* things should be done. The man who undertakes to direct the operations of a farm, without a practical knowledge of the manipulations and mechanical labors which are to be performed upon it, generally fails in his expectations; and, if he has undertaken it for recreation or for profit, he sinks his capital, or retires from his new employment in disgust, before he has either tasted its pleasures or become capable of judging of its advantages. Whatever be his pretensions to science, there are a multitude of details in farming, which make every thing on the score of economy, which are best learnt in youth, and without a personal and practical knowledge of which, all is guess-work and uncertainty.

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* Bones may, in this respect, be compared to dung: in a half-rotted state, they work *sooner*, but do not work *so long*—the gases of both, are lost by partial fermentation.

† We have found this process facilitated by blending ashes with the bones.

Nor have we, at present, any institutions where the science can be acquired by young gentlemen, such as will qualify them to manage with judgment and profit, the estates which they are expected to heir, and destined to occupy. In existing schools, the sciences are taught rather as abstract studies, than as auxiliaries to productive labor. It is only by giving demonstrations of their principles, on the farm and in the shop, that we are enabled properly to instil into the minds of youth, their important bearings in the business of life. How little do the graduates of our colleges know, when they come from the classic halls, of the application and importance of the natural sciences, and of chemistry, to the business of the farm. But give them two years of practical instruction, and then scientific acquirements become useful and highly profitable to them. But if the science and practice are blended in the school of instruction, the second apprenticeship is superseded—the two years are saved—and the boy comes into manhood with the highest qualifications, and suitable habits, to distinguish himself for usefulness, either as a laborer or manager on his own estate, or as a valuable assistant to others; and with the knowledge and habits acquired in such a school, there is little danger of his becoming tired of the farm, a drone in the commonwealth, or of his selling his principles, and compromitting the freedom of his country, for the corroding "spoils of office."

The importance of the sciences to all the arts, and more especially to agriculture, is every day becoming more manifest. Scotch husbandry has more of science than that of any other country; and Scotch husbandry has reaped from it the richest rewards. Scotland has progressed in improvement, in the last half century, much faster than any other country. And the improvment of the mind, and the habits and comforts of her population, have advanced with the increased productiveness of her soil. But Scotland has not been alone in efforts to bring the mind as a powerful auxiliary to agricultural labor. The Great Frederick of Prussia, was in the habit of expending more than a million of dollars annually to improve the agriculture of his dominions, which he considered as manure spread upon the ground. France places $100,000 annually at the disposal of one of her ministers, to be employed for a like purpose. Bavaria, Hungary, Wirtemburgh, Prussia, France and Ireland, have their public schools of scientific and practical instruction in agriculture. But we have yet to begin in this work of usefulness—in this work of mental, moral, and we may add political improvement—for, disguise the matter as we will, our security as a free people depends emphatically upon an enlightened and prosperous yeomanry. Half the money that has been expended, or in the opinion of some wasted, in the Seminole war, would have built and endowed an agricultural college in every state of the union; and a tithe of the national expenditure now, over what it was a few years ago, amounting, as it does, to 14 or 15 millions annually, applied to improve and elevate the standing of rural labor, would have added, by this time, at least a tenth to the annual products of our agriculture. It is not our province to find fault with what *has* been done—we wish only to state what *might* have been done.

On the importance of practical and scientific instruction to the higher classes, and of scientific instruction to those of lower grade, we beg to offer the following extracts, which we copy from a lengthy communication on the former branch of this subject, published in the Edinburgh Quarterly Journal of Agriculture, and which have a particular reference to the south and to wealthy farmers of the north, who think their sons cannot become *great* men, without they are sent to the counter, the bar, or the desk, or assume the *dignity* of mere idlers.

"Strange to remark, anxious as landed proprietors certainly are to bestow a liberal education on their families, which is the best legacy they can leave to their younger sons, agriculture, which most materially affects the interests of themselves and their eldest sons, the very profession by which they are upheld in the high stations of society they occupy, they almost entirely neglect, as if, after the acquirement of a superior education, a man should be ashamed of attending to the means of his subsistence. Is it not 'passing strange,' that any country gentleman should be unacquainted with farming, the very source of his livelihood, when all other classes of people, in learning their respective professions, whether learned or vulgar, serve apprenticeships, and toil through life thereafter? It seems to be forgotten that land ownership *is* a profession, that it is in the manner in which *it* is conducted, that the best interests of the country may be injured or promoted, and that it is a profession which requires as great capacity of mind to practise it aright as to conduct those large commercial and manufacturing establishments whose importance is so much lauded."

The writer then proceeds to enumerate the difficulties and losses which result from trusting the business of the farm to factors and agents, most of whom are wholly unqualified for the task; and the pleasurable sensations which are lost to the owner, by not understanding, and feeling a deep interest in, the various operations which are continually going on. He then proceeds—

"Now the effects of all these evils, we venture to assert, may be most effectually remedied by the sons of landed proprietors, who will themselves become land owners, acquiring a thorough knowledge of farming in their youth, as a necessary branch of practical education, and the management of their estates will then be felt a desirable gratification, not a task." "Proprietors would then discover there is not a more rational, pleasing, or interesting study, than the science of agriculture, and its practical application, nor one which can be so well combined with those manly sports and amusements in which it is the pride of our country gentlemen to excel. They would then have no temptation to reside abroad, but would discover, that a knowledge of the minutiæ of farming creates a daily increasing interest in field operations, and the rearing of stock."

"Where is all this important knowledge to be acquired? It is to be acquired, like every other species of knowledge, by observation, in the operation of nature, as displayed in the fields of art. Is this question asked in a country whose proud boast is to possess more enterprising, educated, and well-informed farmers, [a boast that ought to apply literally and most emphatically to our free country,] than perhaps any other country in the world?"

The writer then proceeds to answer the question by recommending, that these sons of wealth, and inheritors of land, spend two years with an intelligent farmer, under the direction of a scientific tutor of competent acquirements. But how much better would be a school, in which there should be a tutor for each of the prominent branches of agricultural science, a first rate practical farmer, a library, an experimental farm, a philosophical apparatus, a mechanical laboratory, a well conducted garden, and the stimulus of competition. But let us attend to what our writer recommends that the tutor should teach:

"He should be competent to teach," says he, "the application of chemistry. He should teach the application of the principles of mechanics, in order that the principle on which any implement operates may be comprehended,—the application of the principles of hydraulics, that the principles of draining, embanking and constructing reservoirs for water, may be easily understood. He should teach botany, to enable young farmers to distinguish soils by their natural vegetation; and particularly the physiology of plants, that the culture of plants of whatever kind, may be in conformity with appropriate soil and situation. Also geology, that the sub-strata, or subsoils, on which soils rest, may obtain due regard. Meteorology should be studied, in order to be able to anticipate the changes of the weather. The anatomy and physiology of animals are also requisite for him to teach, that the good points of live stock may be duly appreciated. And above all, he ought to be acquainted with the *practices* of agriculture, for although the farmer will no doubt undertake to teach this department of the system, yet, unless the tutor also understands it, he cannot so successfully demonstrate the applications of science to the operations of practice."

"With colloquial prelections and discussions in the house at stated hours, so as not to interfere with the hours of labor in the fields, and with demonstrations in the field, whilst the labor was in progress, a vast mass of useful information would in a short time be conveyed to, and acquired by, the pupils."

Practical Effects of Draining.

The system of draining introduced into Scotland some years ago, and proceeding so rapidly, must be regarded as the greatest improvement of modern times. The landlord and farmer do it jointly. Here is a safe investment for money—the expense repaid in twenty years, regular interest, and the land improved in value above one-third. Green crops are grown in great abundance after draining, where no attempt could be made before, and the farmers allow they have four crops in three years, and the draining pays on an average eight per cent. I know an instance of a wet clay soil, almost covered with rushes, being drained and improved at an expense of £15 an acre ($65); the green crops were so productive as to repay the expense in one year, and after deducting the old rent, the improvement pays fourteen per cent upon the outlay. The drains are from 20 to 30 inches deep, and at the distance of from 12 to 20 feet, sometimes in the furrows of the field, or across, or obliquely, as the descent may suit, and sometimes the land is laid flat. Draining, to be remunerative, must be done effectually. A field cannot be drained by putting a drain in a corner, one here and another there; by running one across the field, and another diagonally to that. It must be done completely, or not at all, for half measures are ever useless.—*Qr. Jour. of Ag.*

Draining by Steam.

Joseph Glynn has received the gold medal of the Society of Arts, for a communication on his application of steam power to draining fens, or extensive marshes. The process consists in excavating broad ditches through the fens, and applying stationary steam power at their termination, or lower side, to raise the water to a higher level, that it may pass off. His letter, with the estimates it embraces, is one of great interest to the civil engineer, and augurs favorably to the landed interests. Mr. G. had been employed in eleven districts, and had already drained about 90,000 acres, the value of a portion of which has in consequence been increased from £10 and £20 to £50 and £70 per acre. One tract contained 25,000 acres, and was completely drained and kept dry by two engines of 60 and 80 horse power. An 80 horse power engine, working 12 hours in a day, raised from 19 to 25 millions tons of water in a year.

Deep Ploughing—Treading in Seed.

We gather the following facts, which should not be lost to our readers, and which are in accordance with the teachings of science, from the proceedings of the Rutland (England) Agricultural Association, as published in the Farmers' Magazine.

On Mr. Barker's health being given from the chair, this gentleman returned thanks, stated the great improvement in ploughing, which had resulted from the distribution of premiums, at ploughing matches, and which had amounted to £40, and after referring to other local improvements, he proceeded to say—

"I will detail to you an experiment, which I made last year in deep ploughing. I felt at first inclined to try the press, but some said try the drill, some the broadcast, and at last I selected the drill, and had the seed trodden in by my Lord Lordsdale horses, when they were at exercise, and afterwards had a flock of 400 or 500 sheep driven over it. The produce of this land averaged seven quarters (56 bushels) and one peck an acre throughout 22 acres—(the total product amounting to £402 3s. 9d. (= to $1,785, or $81 the acre,) and from two bushels and one peck of seed per acre sown; and I wish you would try the experiment of treading in the wheat, or fixing it firmly in the ground, which I am sure will lead to a similar result. As regards the exhibition of animals, I think we are still wrong in principle, and in endeavoring to produce so much fat. If we paid greater attention to the increase of *eatable flesh*, I am certain a great improvement might be effected, especially in the quality of Leicestershire sheep and pigs. When our prize animals are killed, what do we find? Why perhaps five or six inches of fat to one of lean. I intend, another year, to offer a premium for that animal which, when dead, shall show the most *lean*, and I hope that some one will offer a similar pig premium. I must beg you to take my hints about fat and lean into consideration, and see whether we cannot produce a greater quantity of *eatable meat* than we have hitherto done."

Useful Memoranda,

From the Farmers' Magazine.

Carrots.—The *Reverend* (for there are clergymen in England who rank among the most enterprising and intelligent farmers,) J. Monkhouse, has raised 30 tons of carrots on an acre. Some of the roots weighed more than 7 lbs. At 2s. per cwt. this crop would be worth £60 (= to $266.40) per acre.

The Blood Red Wheat is said to be uncommonly prolific; and as an evidence of the fact it is stated, that Mr. Wm. Carlishaw obtained from an acre of old cultivated land, 66 bushels of the best, and three bushels of hinder ends—being something more than 23 loads per acre.

Profit on raising good stock.—The stock at Carlton Hall sold as follows:

5 cows, average price..	£68,	equal to	about	$302.
3 2 year old heifers,......	21,	"	"	90.
5 one year old do	19,	"	"	84.
5 heifer calves,..........	13,	"	"	57.
3 bulls,..................	15,	"	"	65.
3 bull calves,............	16,	"	"	69.

Thus 24 cattle brought $2,900. What would 24 common like aged animals have brought? Not $300.

Convertible Husbandry.

The convertible system is nothing more than the application of capital and labor to cultivation under a different system; and the difference between the mode of agriculture, practised in North and South Britain, lies in the method of that application. Under the convertible system, every field has its regular alternate share of cropping and manuring. In England,* one part of the farm is kept in grass, and must on no account be ploughed, the other pays best by being ploughed and cropped perpetually.—The one farmer drains wet lands, and adopts every improvement any way calculated to advance his purpose, the other rejects any alteration on certain established modes of proceeding which must not be altered; the one spares neither labor nor expense in increasing the produce, the other will make no expenditure, under the belief that any other mode of farming than his own will not pay.—*Farm. Mag.*

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* Although the English system of farming is extolled among us, yet in some districts the management is bad; and in all districts, perhaps, excepting Norfolk, inferior to what it is in Scotland.

Agriculture in France.

There is at present in France 123 agricultural societies, and 303 agricultural committees, where before 1803, there were scarcely ten, and they are constantly increasing. Every thing has been done by the present government to encourage agriculture in a pecuniary way, as well as by the different societies. The sum of 500,000 francs—nearly 100,000 dollars—has been placed at the disposal of the French minister of public works, for the encouragement of agriculture during the year 1838. There have been also several gentlemen travelling in Scotland, at the expense of the French Society of Agriculture, in order to examine the system of farming in that country.

Cheese from Potatoes.

Cheese of extremely fine quality is said to be made in Thuringia and Saxony as follows: Boil a quantity of potatoes, white ones are preferable, and after becoming cool, peel and reduce them to pulp, either by means of a grater or mortar. To 5 pounds of this pulp, which ought to be as equal as possible, add a pound of sour milk, and the necessary quantity of salt. The whole is kneaded together, and the mixture covered up and allowed to lie three or four days, according to the season. At the end of this time it is kneaded anew, and the cheeses are placed in little baskets, when the superfluous moisture is allowed to escape. They are then allowed to dry in the shade, and placed in layers in large pots and vessels, where they must remain for 15 days. The older these cheeses are the more their quality improves. A better kind is made in the same way, by mixing four parts of potatoes with two of curdled milk; and a still better kind, by blending two of potato and four parts of milk.

Useful Tables for Reference.

AN ACRE OF LAND CONTAINS

4	Roods, each rood 40 rods, poles or perches.
160	Rods, $16\frac{1}{2}$ feet each.
4,840	Square yards, 9 feet each.
43,560	Square feet, 144 inches.
174,240	Squares of 6 inches each, 36 inches.
6,272,640	Inches, or squares of one inch each.

Breadths and Lengths of an Acre, in rods and perches and feet.

Breadth.	Length.		Breadth.	Length.	
Perches.	Per.	Feet.	Perches.	Per.	Feet.
10	16		28	5	$11\frac{11}{14}$
11	14	9	29	5	$8\frac{11}{58}$
12	13	$5\frac{1}{2}$	30	5	$5\frac{1}{2}$
13	12	$5\frac{1}{13}$	31	5	$2\frac{45}{62}$
14	11	$7\frac{1}{14}$	32	5	
15	10	11	33	4	14
16	10		34	4	$11\frac{11}{17}$
17	9	$6\frac{27}{34}$	35	4	$9\frac{3}{7}$
18	8	$14\frac{2}{3}$	36	4	$7\frac{1}{3}$
19	8	$6\frac{12}{15}$	37	4	$5\frac{13}{57}$
20	8		38	4	$3\frac{9}{15}$
21	7	$10\frac{3}{14}$	39	4	$1\frac{9}{13}$
22	7	$4\frac{1}{2}$	40	4	
23	6	$15\frac{18}{23}$	41	3	$14\frac{73}{82}$
24	6	11	42	3	$13\frac{5}{14}$
25	6	$6\frac{3}{4}$	43	3	$11\frac{77}{86}$
26	6	$2\frac{7}{15}$	44	3	$10\frac{1}{2}$
27	5	$15\frac{5}{10}$	45	3	$9\frac{1}{6}$

Comparison of American with Scotch and Irish acre.

American.	Scotch.			Irish.		
Acre.	A.	R.	P.	A.	R.	P.
1	0	3	14.4	0	2	18.7
2	1	2	28.9	1	0	35.5
3	2	2	17.3	1	3	16.3
4	3	1	17.8	2	1	35.1
5	4	0	32.2	3	0	13.8
6	5	0	6.7	3	2	32.6
7	5	3	21.1	4	1	11.4
8	6	2	35.5	4	3	30.2
9	7	2	10	6	0	27.7
10	8	1	24.4	6	0	27.7
20	16	3	8.9	12	1	15.5
30	25	3	33.3	18	2	3.2
40	33	2	17.8	24	2	2.1

New Laborers in the Field.

We have received two numbers of the *American Silk Grower*, devoted to the Silk Business, and to Rural Improvement generally, published at Burlington, N. J. by Ward Cheeney and Brothers, a well executed sheet of eight pages, published monthly, at fifty cents per ann. Also, the *American Journal of Productive Industry*, devoted to Agriculture and the Mechanic Arts, an 8vo. sheet of 16 pages, published semi-monthy, at two dollars a year, at Maryville, Te. and conducted by Mr. M'Tew. We hail these as co-laborers in the work of usefulness, and wish them a liberal patronage. We think well of Mr. Cheeney and Mr. M'Tew's abilities, and hope much good from their labors in the public vineyard.

And last, though not least in our estimation, we notice the receipt of two numbers of a recently commenced periodical work, called "*The Educator.*" It comes to us from Easton, Penn.—is printed semi-monthly on a sheet of 8 quarto pages, at $1 per ann.—and is conducted by the president and two of the professors of Lafaytte college; the first, Mr. Junkin, we believe, an American; the second, Mr. Cunningham, a Scotchman; and the third, Mr. Schmidt, a German,—all gentlemen of high literary standing, and, if we are to judge from the specimens before us, of strong minds and correct modes of thinking. Their objects, are to improve the mind and the soil—ours to improve soil and the mind. Our objects are so similar, in the end, that we hail this publication with a heartfelt pleasure, as a powerful and efficient auxiliary in the work of general improvement, and heartily commend it to the notice and patronage of all who are desirous of seeing our country blessed with an intelligent, a moral, a prosperous and an independent yeomanry. We intend, in our next, to give an extract from this work, as an evidence of the talents of those who conduct it, and of its tendency to promote the best interests of the American republic.

HOFFWYL AGRICULTURAL SCHOOL.—An American who has recently travelled in Europe, paid a visit, which afforded him high gratification, to M. Fellenburgh's school, in Switzerland. He saw there a student from New-York city, who informed him that there were several other boys in the school from the same place. "There were pupils on the ground," he adds "from Switzerland, Germany, France, Spain, Portugal, North and South America, and two from Tifflis." When shall we become wise and imitate the good, as we are ever ready to do the bad examples of our European ancestry. When shall *we* establish schools of scientific and practical agriculture for our sons? Whenever their importance shall be duly appreciated—and our citizens consult their true interests in endeavoring to promote the best interests of their country—of their whole country.

To Correspondents.

Some of our correspondents seem disposed to overrate our professional knowledge; and put to us questions which we either cannot answer, or which would require too much time and space to do in a satisfactory manner; and there are others who question us upon matters which have been already repeatedly and fully discussed in the Cultivator. We have received several specimens of soils and earths, supposed to contain marl or carbonate of lime, with requests to give their analyses, and to direct the mode of management and application. We have no chemical laboratory. The expense of procuring an analysis, in the many cases which present, would be heavy, without producing a corresponding benefit to the public—as marls and soils vary much in their relative qualities; and, besides, we possess no other scientific knowledge than any young or middle aged man may soon acquire by reading and observation—without the aid of schools. It is in agriculture as it is in the other arts—the head must work as well as the hands. We must put in requisition the faculties of the mind. We must read, reflect, analyze, compare, and try, what comes recommended to us as established truths; otherwise we cannot expect to derive that advantage from the study and labor of others which lies within our reach. It is the province of the hands to perform, and of the head to direct when and how to perform. Our schooling was very limited. We were brought up to a mechanical profession; and when, twenty years ago, we commenced farming, we were conscious we had every thing to learn, both in the theory and practice of husbandry. Our theatre of action was an unsubdued pine barren, by many considered incapable of profitable cultivation. Yet with great facilities for obtaining extra manure, our farm is under as profitable culture, in proportion to its size, as any in the vicinage, or, we believe, in the county. Our knowledge in farming has thus been acquired at an advanced period of life, by combining book farming with practical farming—the science with the art—and by adopting after close observation and a fair trial, whatever we found to be excellent in the practice and recommendation of others. We sought to profit by the suggestions of our own mind as well as by the labors of other men.

We have thus laid ourselves open to the charge of egotism, in order to show, that it is in the power of the young—of ALL—to become competent judges of the proper means of improving their farms and their fortunes, and of thereby enlarging the sphere of their enjoyments. The principles of science have a general application; yet the judicious application of these principles to practice depends upon a great many local contingencies which practice and observation can alone detect and modify. It is impossible, therefore, to judge of the defects of a soil, or the best means of improving it, without seeing, analyzing or experimenting upon it. The occupant is, or may be, or should be, the best physician. By keeping a journal of the operations of the farm—of the expense and products of the several crops and fields—the manures applied, &c. and by posting these annually into a ledger, to the several compartments of the farm, the farmer can, at any time, bring into view, the relative profits of his several crops and courses of crops—and can judge satisfactorily of the deterioration or increased productiveness of his soil. These accounts are as essential to the farmer as they are to the merchant or mechanic, and may be as easily so kept, that the farmer may, at the end of each year, know the profit or loss of his business, or of any branch of it.

We will, in our next, suggest some rules that shall have a general application, and which will enable the novice to judge of the composition of his soil,—of its defects, and the modes of improving it—and of the means of increasing and perpetuating fertility, by manures, the alternation of crops, draining, &c.

We offer the foregoing remarks, not to complain of those who interrogate us upon matters of husbandry—for we consider a desire for knowledge commendable, and the first step to improvement—but as an apology for the summary manner in which we have answered many of their interrogatories, and for our total neglect to answer others;—and to induce our correspondents to rely more upon the resources of their own minds, and the suggestions of their own experience. Agriculture is a business in which a man may continue to learn as long as he lives, even should his life be prolonged for centuries; and the more a man knows, the less vain is he of his knowledge; because, as he advances, the wonders of nature so accumulate upon his vision, and the means of improvement become so multiplied, that he is wonder-struck and humbled at his comparative ignorance. Knowledge is not the ultimate object of education; but it is the application of it to the useful purposes of life—to the advancement of public virtue and general happiness, that renders its attainment valuable. The man who thinks he can learn nothing in husbandry, must be a dolt, that is, according to Webster's definition, "a heavy, stupid fellow; a blockhead; a thick skull."

With these preliminary remarks, we proceed to notice several letters, in the order in which they lay before us.

EVIDENCE OF THE CORN CROP.

Mr. D. M'Neil, of Morefield, Va. advises, that he will be a competitor for our corn premium, and wishes to know what evidence we require of the product? We answer, his certificate of the fact, with that of a magistrate, that he is a man of veracity, and that his statement is to be depended on. Mr. M'Neil writes us a good letter, which evinces much zeal in a good cause. *A copy of the Cultivator will be furnished to the agricultural society of the Valley,* (South Branch,) AND TO EVERY OTHER AGRICULTURAL SOCIETY IN THE UNION, GRATIS—*on the application, post-paid, of the President of said society, accompanied with the assurance, that an agricultural exhibition has been held by said society during the preceding year, at which at least three hundred dollars have been distributed in premiums.*

CATTLE, PIGS, SHEEP, &c.

We have a letter of inquiry from R. G. Underhill, of New-York, in relation to pigs, one from P. St. George Ambler, of Va. in regard to the improved Short Horns, New-Leicester Sheep, &c. and several other letters in relation to stock. In the stock business we make no pretensions to proficiency. We are not breeders. Of course all we can say must be guess-work, or the opinions of better judges in these matters. In regard to "pigs for orchards," or any other mode of fattening, we can say the Berkshires are *good*, though we do not mean to say they are *the best.* As to the Short Horns, we have requested that Mr. Ambler be advised, and he may depend upon the facts which Mr. B. shall give him. In regard to the New-Leicesters among us, the pure blood are pretty much alike: the difference consists principally in the attention which has been paid to their breeding and keep, and to the selection of individual animals. The price of Mr. Bement's pigs has been stated in our present vol. by Mr. Bement; and the price of New-Leicester bucks may vary from $15 to $50, according to quality. This last remark is also in reply to the letter of G. H. Maccary, of West-Poultney, Vt. Thomas Dunn, of Albany, has as good as any, if not the best New-Leicester flock.

A VERMONT FARMER asks us many questions. We refer him to our preliminary remarks, and to our present and back numbers, for answers to such as relate to the turnip fly, to charlock, the spiked roller, to the culture of potatoes, to farm accounts, &c. His 250 acre beaver meadow, which he represents as dry and yet infested with sedgy grass, should be broken up, cropped, thoroughly subdued, and then stocked with timothy and other grass seeds. Sawdust is good for nothing as a manure till it rots, and is not worth much then. The name of a writer, however humble, will ever command more attention from us than an anonymous signature. No man should be ashamed of a desire to be better informed in his business.

MARYLAND FARMING.

We are not sufficiently acquainted with the farming practices in Maryland, to venture to direct "A Young Enquirer" how to manage his estate, which he advises us consists of 240 acres divided into three fields—a naturally good soil, susceptible of high improvement, with abudant resources of manure in peat earth and oyster shells. His object is to "*improve his farm, and make the most money in the shortest time.*" We propose that he should substitute *ultimately* for the "*shortest time,*" as more likely to lead to improvement. We advise our correspondent to make a jaunt of observation and of inquiry to the Patuxent, to Fredericks, to the upper part of Delaware, and to Pennsylvania—to Mr. Patterson in his own state, and to the Messrs. Reybolds, in Delaware, and to learn how the best farmers manage matters in those reputed good farming districts. We can only venture to make a suggestion, which is, that our correspondent confine his attention to the improvement of *one* of his fields only, availing himself of all his resources of fertility—till he has brought it into a high state of improvement,—and to stock the other two fields with cattle and sheep. For the course of crops best adapted to his object, we refer him to our remarks on alternating crops, p. 53 of this volume. When one field has been made to attain the desired fertility, attention may then be given to the second and third fields. The latter will be in progress of improvement by means of the farm stock, which will also contribute to enrich the first field. We lay it down as a rule that labor is far more profitable, when applied to *one* field in an improved and highly productive state, than the same labor is when imperfectly applied to *two* fields in an impoverished and unproductive state.

Our correspondent who makes the above inquiries, has appended to his letter the following note:

"Mr. J. Hathaway is certainly mistaken relative to brining wheat before seeded. I bought some this spring of very ordinary quality, soaked it in strong brine one night and part of the next morning, and limed it. It came up soon, and now looks tolerably well."

A PLOUGHING EXHIBITION AND SALE OF CATTLE

Was to take place the 1st of the present month, at Hoboken, under the direction of the American Institute. ☞ The notice of this exhibition came too late for our July number; and it is now too late for us to speak of it in terms which its importance would justify.

MARL.

The specimen of earth sent us by Mr. Fullerton, of Orange; as also the specimen sent us by a gentleman whose letter we have mislaid, and whose name and residence have escaped our recollection, are both marl, but the per cent of carbonate of lime which they contain, we have not been able to ascertain.

ON THE TREATMENT OF COWS BEFORE CALVING.

"A subscriber," who dates at Hoosick, asks whether cows, showing a flush of milk, before calving, should be milked or not?

When the udder is greatly distended, and indications of inflammation appear, cows should be repeatedly milked, particularly young ones, and the udders should be anointed with some cooling ointment, or olive oil, or unsalted butter. A neglect to do this often causes serious inflammation and injury. In old cows unaccustomed to this precautionary measure, evil is less to be apprehended. When tumours appear on the udder, a salve, consisting of one ounce of Castile soap, dissolved in one pint and a half of new milk, over a moderate fire, constantly stirring it till it be thoroughly incorporated, is a good application. An ointment prepared from the juice of the leaves of the stinkweed (*Datura stramonium*) mixed with hog's lard, is also recommended. When the inflammation, however, becomes violent, resort should be had to internal remedies. Where no indications of inflammation, or of tumours, appear, the udder may be left undisturbed.

ERRATA.—The reader is desired to correct two errors in the communication of "P." page 82. In the 10th line, for "substance and for the food of plants," read "substances *used* for the food of plants." In the 14th line, last paragraph, 2d column, dele, or strike out, "own" at the termination of the line.

CORRESPONDENCE.

The Salutary Influence of Agricultural Journals.

Whiting, June 25th, 1838.

HON. J. BUEL—Dear Sir—Having been a farmer all my days, I now, in the sear leaf of life, just begin to appreciate the advantages which the rising generation have over those who, like myself, have farmed it from *tradition.* It is a source of much gratification to me to see farming begin to take a stand, among the varied and multifarious occupations of this busy world, as a *scientific and honorable* employment.

Much of this change—and I hardly know whether it would be saying too much to say, is wholly owing to the untiring and indefatigable labors of a few agricultural papers in the country, among which the common voice of community sets yours down as the *standard work* at the present day. Without feeling the least disposition to derogate from the praise-worthy exertions of the New-England Farmer, a pioneer work—the Genesee Farmer, and others of more recent introduction, now in the full vigor of manhood, all have a strong claim on the gratitude, not only of the farmer, but the nation. I am much gratified to see the increased interest among farmers of patronizing agricultural papers, and frequently when the interesting subject of improving our farming occurs, in conversation among my friends, inquire—do you take the Cultivator? And being answered in the negative, say to them, just hand me a dollar now, and I will send it to Albany, with your address and that of your post-office, and at the end of the year, if you are sick of your bargain, I will take you papers and pay you back your money, noting to them at the same time, that it is more than probable that it will cost them a dollar or two more before the end of the year—that my son and many others had become so interested with the work, that before the end of the first year they had sent and purchased the back volumes. Much good may, in this way, be done to our farmers, to say nothing of the additional patronage it will give the publisher, and thereby enable him to improve the value of his publication.

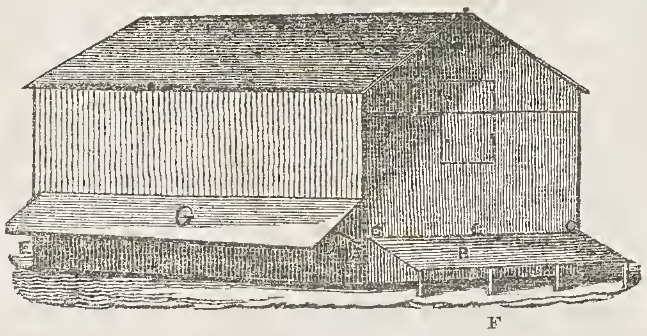
Deacon T. had taken your paper from the commencement, and feeling an interest for his neighbors, got some half a dozen to subscribe for the 3d vol.; at the end of the year he called on them to see if they would continue their subscriptions: one young man hardly knew whether he could, as it would now cost a *dollar.* Well says the deacon, "now look back and see if you cannot think of some improvement you have made from the information you got from the paper the last year, to the value of a *dollar*:" he reflected a minute or two, and replied —"I did save two lambs last spring from some hint in the Cultivator, which are now worth more than two dollars." He continued his paper. Some may be disposed to smile at the simplicity of our young farmer—let them smile if they please, but profit by it at the same time: it was a *genuine practical* observation. "I have saved enough on every acre of corn I have raised for years to *pay all the cost* of the paper, from introducing one implement, the description of which I found in the Cultivator,"* said a venerable,† practical minded friend of mine to me, as I took up his paper and was giving it a hurried glance.

"Any farmer, who will read any single number of the Cultivator attentively, may, by a judicious application of the information he may get, *save* or *make,* more than the whole vol. will cost him," said T. F. B. Esq. the other day, when talking of the importance of farmers taking agricultural papers: he is one of our most thorough practical farmers. I shall take much satisfaction in furthering the circulation of your paper. Yours respectfully. J. A. WALKER.

Portable Barn and Sheds.

MR. BUEL—Sir—The following cut is intended to represent a *Portable Barn* and *Sheds,* which I have lately caused to be erected.

[Fig. No. 39.]



The improvement consists partly in the cheapness of its structure and different uses to which it may be applied.

It can with little hindrance be moved from one field to another; the sills answer every purpose for runners; the end sills and sleepers are framed into the posts, as at A, three feet above the shoe or side sills, which makes a retreat or shed for sheep under the barn. The roofs G, on each side of the barn, are fastened to the posts by tenons, and supported with braces, as at D. The roofs at each end, B, are made fast at the end sills by three hinges C C C. When no use is made of the barn or sheds, or when it is to be filled with hay, the studs, F, are removed, the roof drops similar to the leaf of a table: and when it is desired to prevent winds and storms driving under the barn, the end which stands to the windward may be closed. The draft is fastened at the end of the sill E.

The extra expense of a portable barn, over and above stack yards, will in three years be remunerated in the extra value and saving of hay and labor.

It may be profitably used to improve the barren parts of pasture land as a summer house for sheep.

Yours, S. W. JEWETT.
Weybridge, Vt. June, 1838.

Millers' Tolls.

Rahway, N. J. June 18, 1838.

MR. J. BUEL—Dear Sir—Since your correspondent from Oswego has inquired what toll millers, by law, have a right to take for grinding grain? I have seen by the May number of the Genesee Farmer, and June number of the Cultivator, that Mr. David Walton, of Burlington county, N. Jersey, and Mr. John Westly Luff, of Spring Mills, Delaware, in justification of the millers' extortionate tolls, understand the science of taking toll better than weighing air, or at all events I would not be very well satisfied with their deducting 12 pounds out of every 60 of my wheat for fixed air. Mr. J. W. Luff presumes to make it appear that 60 pounds of wheat contain more than one bushel of loose air, which he cannot prove by practical philosophy. He may make it appear that one bushel of air may, by artificial power, be condensed into a very small compass, but it will not weigh any heavier than when it filled the bushel measure. And I further contend that if he gets more loose air in any species of grain than its circumference will contain, he will be obliged to employ some artificial power to aid nature in her wonderful and mysterious works of its germination. According to the Rev. David Blair's philosophy, under the head of pneumatics, in his experiments in weighing air, he found that it weighed 324 grains for every 1,000 cubic inches; and that it was 900 times lighter than water. Now before Mr. J. W. Luff can prove to my satisfaction that there is 12 pounds, or even 12 ounces, of fixed air in 60 pounds of wheat, he must first prove that the Rev. D. Blair knows nothing about philosophy, or at all events of that part of it under the head of pneumatics. If these gentlemen will take the trouble to make the calculation, they will ascertain that there is 2,150 42-100 cubic inches in a bushel; therefore, if 1,000 cubic inches of air weighs 324 grains, 2,150 42-100, or one bushel, will weigh one ounce and nine penny weights, but no more. I am under the apprehension that the millers in this part of the country have been studying and practising this new science of taking toll. Yours most respectfully,

WILLIAM A. STONE.

Schenectady, 28th June, 1838.

DEAR SIR—Jesse Degraff, Esq. a scientific farmer, on the north side the Mohawk river, just called me to inquire whether I had answered the criticism of Mr. Burnham, (in the Cultivator of this month,) on my observations on early sown grain, as he considered us at issue on the theory of plants exhausting moisture from the ground, and should look for my reply.

I acknowledged to him my want of care in the language used, shewing why early sown grain is favored in times of drought, above that sown late. I explained to him that it must be within the observation of every vigilant farmer, that early sown plants suffered less from the evil of early May and June droughts than those of late sowing. The roots become larger, extend deeper in the soil, whence they obtain more nutriment—through that and the shade of the increased growth of the plants, were protected from the rays of the sun, while those of late sowing became stunted and unproductive. That I had found clover seeds sown on naked ground, failed, because the sun dried the roots when small, and they perished: while those sown with grain were saved by the protection of the grain from the sun in dry weather, and succeeded. He was fully satisfied with these observation, as *he* had made similar remarks, and that they did not contradict the theory of Mr. Burnham, but that an explanation would be expected from me. Will this suffice?

In my communication en the liability of oats to lodge when sown on *strong* ground, and prevented by mowing, your printer said *stony* ground, which made nonsense.

Most respectfully,
DAVID TOMLINSON.

The Grain Worm.

St. Armand, L. C. June 26, 1833.

J. BUEL—Sir—The grain worm having done considerable injury to the wheat crop in this vicinity, for several years past, my attention has been called to the subject, and I think I have found a remedy. My way is as follows, viz: when the heads or ears of wheat begin to show themselves I sow about two bushels of slaked lime or good house ashes on an acre of grain, when it is wet with dew, I repeat the operation once in eight days, until the grain begins to harden and is out of danger. The philosophy of it is simple; the lime or ashes render the plant unpleasant to the fly, so that it will not alight upon the grain to deposite its young. My remedy is *prevention,* which is better than *cure.*

JOHN GERRISH.

REMARK.—We have tried a *single* application of lime, without any sensible benefit. What *repeated* applications would do, we are unable to say; but we doubt the benefit of any topical application, except it contains something offensive, in its odor, to the fly.

We must have Knowledge.

That our farmers may carry into their occupation a "zeal according to knowledge," they *must* be better informed on subjects connected with agriculture.

It is not sufficient, in this country, that a few scientific men direct their attention to it. They, indeed, may, and should lead the way. But they cannot effect so much at once, as in other countries where the many are more under the control of the few.

Here it must be a gradual business. The pioneers of improvement can instruct and influence by precept and example those with whom they come in contact, and thus in time the whole community may be reached, "as the small pebble stirs the peaceful lake." And when this is once done, our intelligent population will turn it to much better account than if they had adopted improvements, they knew not wherefore.

The farmer who avails himself of all the knowledge within his reach, can generally turn it to good account. Every improvement in his business, made in any part of the country, is at once before him for his inspection and adoption. Each hint of the most gifted minds is made to subserve his interest; each new implement to minister to his ease or advancement. New varieties of stock are brought to view, for his selection—new plants solicit his culture. But above all, this knowledge gives him the power of discrimination—qualifies him to select judiciously—and prevents him from being imposed on by pretended improvements.

Plodding ignorance may indeed amass wealth but it is not so common as with the well-informed. And when this *is* the case, it is generally done by a "mill horse" round of toil and vexation, without knowing or caring for any thing beyond the narrow circle in which they move. The present is emphatically an era of improvement; but to the ignorant man all the advantage to be derived from this improvement is lost. Improved modes of culture may render land doubly productive; labor saving machinery lighten the fatigues of labor; change of circumstances unfold new sources of profit; *all* be delineated with fidelity, and spread before the public by the winged messengers of the press; but to him it is a sealed book. He has imbibed a prejudice against "book farming," and nothing short of a miracle will turn aside his steps from the beaten path of his fathers; nothing make him believe that those "gentlemen farmers," who sometimes hold a pen as well as a plough, can instruct *him* who has *worked* at farming all his lifetime.

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* The Cultivator. † Late Hon. Henry Olin.

Nor are the moral and religious tendencies of agricultural pursuits, in connexion with a good degree of knowledge, to be overlooked. In no branch of science, in no employment of art, are there more numerous or interesting circumstances to call forth the sympathies of the soul, to purify and exalt the best feelings of the heart, to direct attention to the objects of nature, and through them to nature's God, than are to be found in agriculture. To him, who in every opening flower, and ripened fruit, in every sighing breeze and singing bird, and purling rill, can behold and recognize a bountiful Father, sources of enjoyment are continually multiplying.

He who can behold the fertile earth in spring beautifyed with flowers, and carpeted with springing grass; the lavish abundance of autumn, its delicious fruits and golden grain, and feel his breast expanded by no joyful emotions, his heart quickened by no sentiments of gratitude to the great Author of all these blessings, is surely neither to be envied nor admired. If "the undevout astronomer is mad," the undevout agriculturist is doubly so. S.

Dublin, (N. H.) June, 1838.

To increase the Wheat Crop.

It is not the writer's intention to dictate, nor can he claim to have imitated the Emperor of China in even annually giving demonstrations of his veneration for the plough, by entering the field to follow and hold with his own hand that honored and useful implement of agriculture; still he considers his observations for ten years past over the wheat growing district of Jefferson county worthy a passing notice. Winter wheat may be considered the staple grain crop of the middle, western, part of the eastern and southern states; in northern latitudes, it has to encounter many enemies. No doubt the one most formidable, is the prevailing winter or spring night frosts, and thawey drying days, the ground being left in a flat state or in lands too wide and without sufficient cross furrows to carry off the surplus moisture; large fields are thus drawn by the frost and wilted by the sun. It has been observed, and I assert the rule to hold good, that wheat ploughed in from 20th Aug. to 10th Sept. in narrow lands, shallow furrows and well cross drained, to a great extent escapes the injury of the heaving frosts of winter and spring; the ground preserving a more uniform moisture sufficient to facilitate a proper growth, and in clay soils does not become baked. Good crops is the consequence. I would recommend ploughing in wheat in lands of six furrows wide, (about six feet,) leaving the furrows between the lands open, making cross furrows in all low parts of the field, that it may be properly drained. Some object, as it leaves the ground rough for gathering the wheat, and subsequently the grass, if it is seeded down; but I would not seed down upon winter wheat when the frost so materially affects it. Seed with spring crops.*

Many farmers do all the *hard work* of raising a good crop, the operation of putting in the seed is done slovenly, as all work is done in a hurry and without care. Some skill is requisite to plough in wheat in the manner here suggested. The furrows should be straight, so that the last one will be of even width and have no balk. It is much to be regretted, that many, priding themselves upon their spacious acres and *chance* fine crops, do not possess the knowledge of ploughing well, or at least omit to practice it with skill. How beautiful to the observing traveller appears a field of wheat newly sowed, upon ground in all respects properly prepared and ploughed in, as here suggested; how agreeable to the farmer to hear, borne upon the wind, the traveller's remark, "This man is a farmer, his work is done neat." Such an one is "a farmer." He needs not sow a second time but gathers a crop, not in patches but *a full one,* 25 to 40 bushels per acre. This *notion* some have of leaving wheat land flat to make better harvesting of that and subsequent grass crops, evidently has reduced the wheat crop millions of bushels annually.

TO BEAUTIFY THE COUNTRY.

Since the settlement of the American continent the primitive forests have been removed from vast portions of its fertile and diversified surface. By a few, primitive trees have by chance or accident been suffered to remain near intended dwellings and by the way side; many have planted their tree in early youth, and in age reclined beneath its grateful shade. Such are now more dear to descendants, recollecting their enjoyments in this respect were provided for by time honored ancesters.

The "new beginner" in a wilderness country seeks to remove the impediments to cultivation. In most cases not a tree is suffered to grace the yard of his isolated log cabin; his fields are rendered alike barren as to natural ornament. Now it is quite as easy in clearing new lands to leave a few trees of moderate size and in suitable places upon the road side, about building grounds, and clusters where division fences are intended. Thus we may have beauty without cost, and that too at least twenty years in advance of planted trees. It may be proper here to remark, that such trees being *natives,* will uniformly *live* if left uninjured, which is less certain with *planted* trees; in this way you may have a variety, and every tree standing upon soil the best adapted to its growth. But reader, if you have a farm without trees to *leave,* by all means *plant* and raise them. Natives of the farm look well; scarce any are better.

In suggesting this mode of raising good crops of wheat and of beautifying the country, I am aware neither is new with many tasty farmers; but the fault or neglect, if it may be so termed, prevails to a great extent in both respects.

Let him who prepares his ground well, sow clean seed in season, *and plough it in* as by the writer suggested; or him who is by these suggestions incited to save from the devouring axe a few trees for his shade, place the good or evil consequences to the account of

OLIVER CHILD.

Carthage, N. Y. July 6, 1838.

P. S. As the Cultivator is not read by but few of the active farmers, comparatively speaking, I have to request that the good suggestions every number is made to contain, may be treated as Indian history, handed from one to another in conversation, and from father to son transmitted to posterity. Country papers dry of news, would greatly improve the value of their sheets, by more frequently copying essays upon agriculture.

Remarkable abstinence in a Calf.

Washington, D. C. July 13, 1838.

Jesse Buel, Esq.—Sir—A fact, singular to me, came to my knowledge a day or two since, which I cannot forbear communicating for the benefit of such of your readers as may be curious on such a subject.

A gentleman sent his cow, among his other cattle, into my brother's pasture, a few miles from this city, to feed. After a few days, thinking the cow near the season of parturition, he had her driven up into his barnyard. She remained in the yard with other cattle nearly ten days, when, no signs of "labor" appearing, the owner began to wonder at the cause. It finally struck him that the cow must have calved while in the pasture. He therefore, after the laps of *eleven* days, sent the cow back to the pasture, and his wonder ceased on perceiving the cow hastening to a little copse, where, much to the gentleman's surprise, he found the calf *alive,* but in a most miserable emaciated state. The mother revived her offspring, with the help of the owner, after a little time, and strange to say, the little creature is doing apparently as well, as if he had been ushered into the world under different circumstances and attended with ordinary care.

The cow was fat, and we may hence infer that the calf, when first born, was in good condition. It is probable it never suckled until after the lapse of the eleven days.

I have no time for comment.

In haste, very respectfully, your ob't servt.

THO. ALLEN.

The Strawberry.

New-Haven, Conn. July 4, 1838.

Hon. J. Buel—Dear Sir—I am glad to see that you propose giving, in your next number, some directions for the culture of the strawberry. Before preparing your article, I take the liberty to suggest for your inquiry, whether it is *necessary* to intermix the two sexes.* If it is not, great trouble, expense and eventual disappointment will be spared to the cultivator, by planting females only. I have cultivated what is here called the Chili strawberry, which has no stamens in its blossoms, for nineteen years, wholly by itself, without any mixture of males; and have never failed to have fine fruit. For five years, I have cultivated, also unmixed, the Methven and a seedling strawberry, both with female blossoms only, with entire success. It is true, I have had, at the same time, in my garden, a few plants of another strawberry, whose flower is of both sexes, but at a distance from the rest, and so few in proportion to the others, (say one square rod in eighty,) that I can hardly suppose them to have had any fructifying influence.

From these facts, I have been led to doubt the necessity of mingling the different sexes. That would doubtless be indispensable to the perfection of the *seed,* but please consider whether it is to the perfection of the *fruit.*

We have analagous examples of perfect *fruit* from female plants alone, in the fig, and if I am not mistaken, in the mulberry, at least the black mulberry.

I make these suggestions with no small diffidence; for I know the universal opinion of nurserymen and gardeners is against me. But if I am right, the cultivation of strawberries may be greatly simplified, and success will be certain to the careless as well as the vigilant—an important consideration, especially to the farmer who has other cares enough upon his hands.

Yours, &c. NOYES DARLING.

P. S. My practice has been invariably to plant out my strawberries in the *spring.* I lose none by dry weather; the perennial weeds and grasses are easily extirpated by the hoe the summer following; and the next year brings the beds into full bearing.

National Agricultural Association.

Lake C. H. Ia. June 19, 1838.

J. Buel, Esq.—Dear Sir—I cannot but feel a proper degree of pride to perceive what universal approbation, my proposition for an "American Society of Agriculture" meets with. Not pride for myself, because I happened to be the first to make the proposition; but pride for my country, to perceive that there is so much of the true spirit yet alive in the land. I have received several letters and papers containing notices of the proposition, which indicate to my mind, that "something can be done." Organization is all that is lacking. That "must be done," and then the last affirmative in the proposition is sure to follow. For if all the friends to agricultural improvement are once united, "something WILL be done, to elevate the character and standing of the cultivators of the American soil." There is a charm in the very name of "The American Society of Agriculture," which is sufficient to enlist thousands. Something so ennobling in the thought of being known to be one of the members of such a union of all the most eminent agriculturists in the whole country, moved and actuated by one impulse, and mutually interchanging their views, experiments, improvements, and newly acquired information.

What an immense influence would this have upon the whole country. Look at the influence upon mechanics of the American Institute. Greater still would be the influence of such a union of agriculturists. Look at the influence of agricultural schools and pattern farms. This would be one great agricultural school upon a thousand pattern farms, the annual exhibitions from which would do wonders towards inciting others to go and do likewise.

We cannot look to legislative action, for that encouragement and protection which the agricultural interest is entitled to, until the tone of public feeling is further awakened to the importance of the subject, by the immediate action of the cultivators themselves, and until the subject can be made popular, and then it will lack no assistance.

Can any plan be devised that will have a greater tendency to create that popularity than the formation of the "American Society of Agriculture?" If so, let it be done. I enrol myself one of its friends and supporters. But the time is fully come that "something can be done," and I shall lay my grey hairs sorrowing in the grave, if the whole country does not respond, "something must, something SHALL be done," and done quickly, to promote the great, and good object in view.

Yours, &c. SOLON ROBINSON.

On Curing Clover Hay in Cock—Heaves in Horses.

Queens County, July 4, 1838.

Sir—There is one objection to your plan for curing clover hay in grass cocks, which has always struck me as insurmountable, viz: *that it must be so long out o' doors.* In the Cultivator for this month you say, "leave them (i. e. the grass cocks,) undisturbed at least 48 hours." If we could be certain of good weather, this would do well; but suppose that before the 48 hours are expired, we get a heavy shower of rain, what then? Why the grass after a pretty good drenching, is to be thoroughly cooked in the sun, during which process, its fragrance will most assuredly take wing, to return no more; and next a considerable portion of the leaves will crumble off, before it reaches the mow. My plan has long been to rake and cock in the afternoon what was cut early enough in the same day, to have taken a nice wilt—next morning as soon as the dew is gone, these cocks are turned over, and if necessary opened a little. In two hours they will do to cart. Hay made in this manner, saves perfectly, and is of the very best quality and appearance. If there happens to be a brisk drying wind through the night, the cocks will sometimes do well to cart without opening. I may be mistaken, but I cannot help believing that this process is, on the whole, preferable to the one which you recommend. I know it is not very grateful to have our cherished and proclaimed opinions, successfully assailed; but I have mistaken your character, if fair and manly discussion, is not invited by the Cultivator. We will change our subject. Do you know of any effectual remedy for heaves in horses? If not, perhaps you may consider what follows worth noticing. I have a valuable horse—one of a pair—which threatened more than a year ago, to become utterly useless in consequence of this complaint. At the expiration of the last grass season, I was induced to try top-stalks instead of hay, and the result has been that the animal is entirely relieved, nor have I the least expectation, that the disease will recur to any extent, so long as this diet is adhered to. Permit me to add, that I have for years, been in the practice of giving my horses each an ounce of fine salt every other day: and that I have good reason for believing that their health is greatly promoted by it. In reference to stalk-fodder for horses, I should like to inquire, through your paper, of southern gentlemen, whether in that part of their country where hay is not made, they ever have heaves amongst their horses. If they do not, I shall consider my experiment conclusive.

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* The winter killing of wheat is to be principally ascribed to the expansive power of frost upon a wet soil; and the evil is annually increasing, by the diminution of the vegetable matter in new settled districts, by hard cropping. This diminution causes the soil, especially where clay predominates, to become more compact, and consequently more liable to be affected by frost. The remedy suggested is a good one; and yet if furrow draining was introduced, the ridges might be laid 18 or 20 feet broad, and thus the objection to six feet or narrow ridges obviated. The land would thus be always comparatively dry, and in condition to work early, and the crops would be certain, and upon an average one-third more, on a field of stiff clay, than they are now. An increased product of ten bushels an acre, would remunerate for the outlay in two or three years. We *know* that under draining almost effects miracles.—*Conductor.*

*We possess no evidence that this is necessary except with one variety of the hautboy—but we think the rule will apply to some other varieties of this fruit.

Very respectfully yours, A SUBSCRIBER.

JESSE BUEL, Esq.

P. S. Our crops of hay will be rather light. Oats were checked in mid career, by a sharp little drought which we had last month; and from present appearances will be nothing to brag of. Wheat *has* looked prodigiously fine, but we are now a little apprehensive of rust. Corn, what the worms have left, is very promising. In sandy soils, these worms made great havoc, while in loam, little harm was done. The difference here named, is obvious; even in the same field, some of our corn has been planted over three or four times; the last time we used the Dutton, hoping it may mature notwithstanding the advanced state of the season.

REMARKS—The objection of our correspondent is more plausible than substantial. The object of curing clover in grass cocks, is to preserve its intrinsic good properties; and although the exterior of the cocks may become blanched by a long exposure, the interior will not suffer deterioration, if they are properly constructed, by a week's exposure, but will be bright and fine. And it makes but little difference on the score of economy whether the hay is housed the second or fifth day after cutting.

We have this year varied our practice somewhat, and we think to our advantage. The grass cut in the forenoon, has been turned in swath directly after dinner, and put into grass cocks the same day. If rain has threatened, the cocks have been opened the second day, and the hay finished; but we prefer to leave them to the third day, when a slight opening, to evaporate the external moisture, suffices. The grass mown in the afternoon is turned the same day in swath, or if not wilted enough, in the forenoon of the second day, and in the afternoon put into cocks. We deem it important, 1st, that clover should stand in cocks some time in order to equalize the moisture—to sweat—that is, that the moisture contained in the thick stems may have time to disseminate itself upon the surface, and into the thin leaves and blossoms. If a slight fermentation takes place in the cocks, so much the better; as the hay, in that case is not likely to undergo a second fermentation in the barn. Secondly, that the curing process should be carried on as much as possible without the aid of the direct rays of the sun, which certainly impair its nutritive properties. Expose a lock of clover two days to the direct influence of the sun's rays, and it becomes blanched and valueless, and cattle will reject it.—*Cond. Cult.*

Draining—Prairie Barrens of Ohio.

Chillicothe, Ohio, June 12, 1838.

J. BUEL, Esquire—I am much pleased that you have so thoroughly taken hold of the subject of *draining* lands. It is a subject which has been but little thought of in this section of the union, though one in which we are so deeply interested; and I am confident that some of our lands, heretofore but little thought of, will by this operation be found among the best in the country. We have done but little in top draining; and under draining, to my knowledge, has not been introduced. On many of our lands in the Sciota valley, I presume it would answer a good purpose; but the scarcity of stone seems to be a difficulty in the way of its introduction, pottery would be too expensive, and wood, though sometimes used in Europe, I fear would be of too short continuance, as it rots sooner than in Europe or in the United States east of the Allegany Mountains. We must, therefore, I presume, be principally confined to top ditches. By the application of this, I am confident, that some of our lands, heretofore but lowly valued, will be found in *reality*, to be among our most valuable. The greatest quantity of our land in this section of the state, which needs the drain, is high and very level; a great portion of it bordering on the heads of the streams, and in many places, with the naked eye, you could scarcely decide, which way the water runs. The channels are in many places to a considerable distance closed. In all these places there is sufficient declivity, as soon as a channel is opened, to carry off the water. I have had a little experience of the effect of *slight* top draining upon a stock farm, which I have, called Wahoo Glade, about 24 miles west of Columbus, in what is called in this country the "Barrens." It consists of prairie and very open barrens. The prairie is a deep black soil, founded upon a hard pan or stratum of dark yellow clay and limestone gravel; and the barrens a dark yellow clay soil. When I commenced the farm, my principal object being grass or grazing, I went to work to put the prairies into tame grass, without breaking the sod. The large glades were then considered so wet that corn or grain could never be raised upon them. This I find a great mistake, and one which has cost me money, and the sacrifice of much time in the improvement of my farm. Experience has taught me, that those glades by *proper draining* are capable of making some of the best and most durable tillage lands in the country; and that the plough is the best instrument for subduing the prairies and barrens, and for putting them into tame grass. I manage it in this way; I run a *large* ditch through the glade, near the natural direction which the water takes in passing off. Then, before breaking the sod, I turn about three furrows down each swell to the main ditch, and throw them out about 18 inches deep, so as to make a flaring passage or ditch to the main ditch. I then commence breaking up the sod, extending my lands across those swale passages, and making them only from one to two rods wide, and cut about nine inches deep. This throws the face of the land into ridges, and gives drains to conduct the water into the swale passages, and thence into the big ditch. The next year observe the same order of ploughing, and keeping open the swale passages, and so on until laid down to grass. After it is laid down to grass, the swale passages sward over, and there is no loss of the use of any of the land. After thus preparing, and throwing the surface of the land into the aforesaid shape, I can raise upon it a good crop of corn, wheat, &c. After laying it down, it swards over thickly, and the grass seems to be of a more substantial quality than the tame grass produced upon the land before draining and ploughing.

I have suggested to several gentlemen of mechanical genius the great utility of a machine for digging ditches,* but have never seen any invention.

Very respectfully, &c.
NATH. SAWYIER.

Singular Effects of Gypsum.

J. BUEL, Esq.—Sir—No doubt your are pleased to hear any remarks that will benefit the agricultural community. I therefore remark, that on Saturday the 16th of this month, we commenced applying gypsum to our corn; we commenced late in the afternoon, and only plastered about one-third of the field, which contains about 4½ acres. The ground was dry when we applied the gypsum. On Sunday, we had a very heavy shower. On Monday we plastered the remainder of the field. There was a drain that led from the highway into the field, which conducted the water into it. A few perches of the land were in puddles; but when the last plaster was applied, the water had subsided, but yet the ground was soft where the water had stood; in those spots we soon after discovered that the corn was evidently perished! and all over that part of the field last plastered turned yellow, ceased to grow, and now looks miserable. That part first plastered looks black, thrifty, and is twice the length of the latter! It is to me a full evidence, that gypsum applied to wet, or moist land is a damage in lieu of a benefit; and never ought to be applied to corn after a rain, until the ground gets dry and warm. It is proper to observe, that the two parts of the field are about as equal as to moistness as you will find generally on high, hilly land; not any of it wet, but dry land. The odd appearance of the corn commencing at a row, and continuing through the field, is so conspicuous that people travelling by, will stop, wonder and inquire. No doubt it is generally understood by farmers, at least by those who have read the Cultivator, that gypsum is a damage applied to wet, or moist land.† The circumstance of the application of it, evidently proves, that it never ought to be applied, even on the dryest land, even in time of a drought, when there has been a dew during the night, until the grass, if applied to mowing or pasture lands, or grain, until the dew be wholly evaporated from the earth. I should say not till afternoon. I am convinced the usual practice of applying it promiscuously, is the cause of farmers saying that it will not have the same effect every year. It is common to commence early in the morning, before the wind rises, and also to escape the heat of the sun, having no consideration to moist effect. Henceforth I shall never apply it only when the ground is dry and warm. I am, sir, yours respectfully,

JN. SEELYE.

Sherman, Connecticut, June 25, 1838.

The Times.

AGRICULTURAL BRETHREN—For some time past, we have seen much written, and heard much said, about scarcity of money and hard times. Great complaints have been made by merchants, manufacturers and mechanics, in every town and state, in this extensive country; and no doubt there has been much difficulty and cause for alarm. The currency has been, and is still, much deranged. In consequence of this, our money concerns have been brought into such a state, that confidence between man and man has been, in a measure, lost. On this account, a vast amount of money has been kept from circulation. On the eve of our late prosperity, many in their eagerness to become rich, took, as it were, a leap in the dark. They were not apprehensive of a change of times, and undertook many things without counting the cost. In this way, thousands have been ensnared; and from their toils have not been able to extricate themselves. Though I deprecate this change, and pray not for a recurrence, yet, in many respects, I think it will eventually be for the good of the people. The change of times has brought folks to see on what they must depend for subsistence. I hope it will have a tendency to check wild speculation and headlong extravagance. These had become very prominent, and needed a powerful restraint. The times have tried men, as a severe drought tries our wells. When this happens, wells, without good bottoms, fail. So fail men in a great money pressure. These things are bad; but may they not be productive of much good in after life, and to future generations? Will it not make them more cautious and provident? I very much rejoice, brethren, that I am able to say, that no class of people have withstood the times so well as the farmers. "The rain descended, and the floods came, and the winds blew, and beat upon their house; and it fell not: for it was founded upon a rock." Yes, we have irrefragible evidence, that agriculture is the groundwork of living. In the many complaints made by the people, we cannot altogether exclude the farmers. We occasionally hear some exclaim, "O tempora!" It is true, they have been somewhat affected by the currency, and the seasons of late have been rather unpropitious; yet, as a whole, the tillers of the soil have had great occasion for thanksgiving. Providence has frowned, but she has also greatly smiled. Almost every thing that the husbandman has furnished for the market has commanded an enormous price. While labor and articles of merchandise have been falling, articles of living have been rising. I very well know, that some of our brethren have met with embarrassments, but I believe it was not so much owing to the *times*, as *other* causes. But on thorough investigation, I find, that this trouble is brought about very much by conforming to a *cruel* and *tyrannical fashion*. Yes, it is a stubborn fact. Extravagant fashions are introduced, and folks, whether they be *rich* or *poor*, must follow them. Consulting ability is out of the question. As I was following my plough, the other day, my meditations were disturbed by the cracking of a whip, and rattle of a chaise. Raising my eyes, I saw a young man passing in the road, in the greatest possible style. Who can that be, said I? Has *Crockett* come among us? Moving in such uncommon style, I had the curiosity to find him out. And, on inquiry, found him to be a man destitute of property and the materials that constitute a good character. By following the extravagant fashions of the day, he became embarrassed; and embarrassment led on to bad habits. He expended much to decorate the *body*, but *nothing* to improve the mind and heart. Here he was unwise. On this rock thousands and tens of thousands split. To this thing, brother farmers, I wish to direct your attention. Is it not a lamentable fact, that we are too much under the dominion of this *hydra, fashion*? Do not these wild extremes *injure* and even *shipwreck* a vast many? We, as a body, can boast of a *competence*, but not of *affluence*. It is not in our power to do as some do, and, if it were, it would not be proper to do it. Persons of real merit appear much the best in a plain, neat and simple dress. "Loveliness needs not the foreign aid of ornament; but is, when unadorned, adorned the most." Simplicity of living is far preferable to epicurism. A snug, decent style of moving is much more commendable than extravagance. Would it not, brethren, be well for us to retrench our expenses, in some particulars, and do more for the improvement of the mind and heart? While we are providing for ourselves and households, and improving our farms, let us not forget the cultivation of the mind. Let us not forget the minds of our children. Laboring people may be reading people. Laboring people may be intelligent people. In this land of free schools and exalted privileges, let no one say (of common intellect) that he cannot get a good education. For every thing there is a time and season. There is a time for manual labor; a time to eat and a time to sleep; so there is a time to improve the mind. Farmers may read much every day, and digest it when about their work. There can be no reasonable excuse offered, why they should not progress *daily* in useful knowledge. I contend that a man may accumulate property as fast, to read some, every day, as to be all the time plodding. Likewise, that a student may labor some with his hands, without detriment to his education. This alternation, experience, (the best of teachers) has proved to have the most salutary effect. It is absolutely necessary, that both body and mind be exercised, in order to be healthy. It is a pleasant consideration, that while the manual laborer is resting his wearied limbs, he may be improving and enriching the mind. That while the student lays aside his books, to relieve the mind, he may, by manual labor, be invigorating the body. Thus, has a kind Providence ordered things for our happiness and interest. And it is astonishing, that people do not more regard her dictates. I have written some, respecting the tyranny of *fashion*. I am very sensible, that people do not consider, what *dupes* it makes of them. How it picks their *pockets*, beggars their *families*, sterilizes their *minds*, and makes them perfect *slaves*. I hope the time will soon arrive, when we can say the times are changed, and we are changed with them.

AN AGRICULTURIST.

Westborough, Mass. June 1838.

Under-Draining.

Countsville, S. C. July 8th, 1838.

HON. JESSE BUEL—Dear Sir—I again intrude with my queries. I have a wet lot of land in which, on a line of springs beneath the surface, I have cut a ditch which has not absorbed the water as I anticipated. My intention now is to underdrain it. As stones are not in any abundance about the place, and tile not to be procured, I wish your advice as to whether an underdrain, constructed of boards of good pitch pine, (which I can procure in abundance,) would serve to carry off the water, and render my land arable? These boards will last, perhaps, a century, when excluded from the air. How would it answer to lay two straight logs and cover the top with a board? As I *have never seen an underdrain*, on a farm, I would respectfully solicit your valued opinion on these matters. I shall be mindful of the instructions which you gave to my queries in the July Cultivator. I am truly yours.

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* A machine of this kind has been patented by a gentleman near Baltimore, and one has been sent by Mr. Ellsworth to the valley of the Wabash for trial.—*Cult.*

† We have not supposed that gypsum is a *damage* to wet ground, but merely that it produced no benefit.—*C. Cult.*

A. SUMNER.

REMARKS.—If the pitch pine boards or plank of South Carolina will last a century under ground, they will constitute an excellent material for underdrains—and we should use them to the exclusion of logs. Let the top of the box be covered crosswise, and not longitudinally, with plank, and take care to sink the drain low enough into the impervious stratum, if practicable, to catch the water coming from above, and to fill the lower portion of the drain with porous materials, that the water coming from the higher ground may settle into it and pass off. If spouts or springs rise in the low ground, these fountains must be reached and conducted off by underdrains; and if the wet lot is large, cross or diagonal drains may become requisite.—*Cond. Cult.*

Beat this, Eastern Farmers.

MR. J. BUEL—Sir—I have noticed in some of the numbers of the Cultivator, what your eastern farmers call brag crops, or raising a great quantity of grain on a small piece of land. I will give you a statement of one or two crops of wheat, &c. that have been raised in this vicinity the last year. A Mr. Arland, who emigrated from N. Y. to this section of the country last season, rented 40 acres of land adjoining the town of Dixon, and the following crop was raised by himself and wife, (by the way he is a German, and the women you know, as well as the men, are cultivators of the soil.)

20 acres of corn, averaging 40 bushels to the acre, which sold for 75 cents per bushel, making	$600 00
15 acres of oats, averaging 35 bushels to the acre, which sold for 62½ cents per bushel, making	323 00
2 acres of spring wheat, which produced 82 bushels of good clean wheat, worth $1.77 per bushel,..............................	143 00
300 bushels potatoes, worth in the fall season of the year about 37½ cents per bushel,	112 00
What was sold from his garden amounted to something like 50 or 60 dollars, say......	60 00
Making in all the sum of	$1,243 00
For the use of this 40 acres he paid $4 per acre,..............................	$160 00
His own labor during the raising and securing the crop, also his wife, is worth..	300 00
Paid hands during harvest, threshing, &c...	90 00
	$550 00

Making a clear profit in six months of the beautiful sum of $693.

Who would not be a farmer on Rock river? The above is no exaggerated story, the facts are known to all who are acquainted with the farm and the farmer who produced the crop.

Now Sir, will you be kind enough to turn the other ear, and I will stuff that with such a crop of wheat as none of the eastern farmers can boast of. A gentleman by the name of Saml. Reed, living in Buffalo Grove, 12 miles N. W. from this place, had a piece of wheat of 14 acres; shortly after harvest he threshed out one acre of this piece, and it produced *fifty bushels* of good clean wheat. I happened there at the time he was threshing. He has since informed me that the whole piece averaged 50 bushels to the acre, making in all 700 bushels. This wheat was sold for $2 per bushel, a great part of it for seed, he being one among the best farmers of our country, and very particular about his seed. Is there a farmer in any of the New-England or Eastern States can raise 700 bushels of wheat from 14 acres? Think of this you that are toiling among the stones and stumps, and pull up stakes, come to Rock river and raise wheat, get rich in ten years, and live on the interest of your money the rest of your life.

A SUCKER RAISED BUT YORKER BORN.

Dixon Ferry, June 25th, 1838.

The Curculio.

Scottsville, Albemarle Vir. 5th July, 1838.

SIR—I like a good idea, come from what source it may. A few days since, a stage coach companion and myself were comparing the relative advantages of our respective regions of country. In speaking especially of the peach and apricot—which with us is barely worth cultivation, being destroyed by the insect, which saps the tree at the foundation, and I presume perforates the fruit and renders it gummy. He informed me that a remedy was in practice in his neighborhood, which very effectually prevented the depredations of this relentless foe to our trees. It is simply paving around the roots of the tree, so as to prevent the insect getting below the surface of the ground. This may be done in a variety of ways: with small stones, using a wooden box to answer as a curbing, extending some 12 inches from the root of the tree: by the application of a well made mortar of lime and sand: or by sawing a hole in the centre of a wide plank, fitting it closely to the tree, then filling the interstices with putty: or, lastly, by what I regard the best plan—mixing tar and sand, to a proper consistence, excavating the earth to the depth of two inches, twelve inches around the tree, then filling up the excavated portion with the cement—this, with a trowel, can be smoothly laid, and accurately adapted to the body of the tree. Whether the theory be correct I know not: there is plausibility in it; it is to some extent new to me, and he informs me unpublished, so far as he knew. If the idea is worthy of notice you can use it; if not let it take the fate it merits. Your most ob't se't.

J. BUEL. G. M. LEWIS.

REMARK.—This preventive, if efficient, can only be adopted on a limtied scale. But we doubt its efficacy. The curculio, which does the mischief, is a winged insect, with locomotive powers. Hogs and poultry, which destroy the insect, are the best preventive. All stone fruits are subject to a like calamity, though in a less degree.—*Cond. Cult.*

Hoyt's Improved Patent Drill Barrow,

Operating upon the principle of keeping the seeds constantly stirred up at the bottom of the seed box, and forcing them out, instead of leaving them to fall out by their own gravity.

Description of the Cuts.

[Fig. No. 40.]

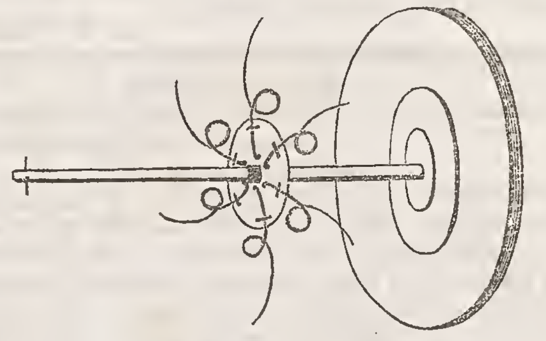


Fig. 40, an iron shaft, ⅜ of an inch in diameter, 7 inches long: on one end a double pulley and six springs or arms, of iron or steel wire, attached.

[Fig. No. 41.]

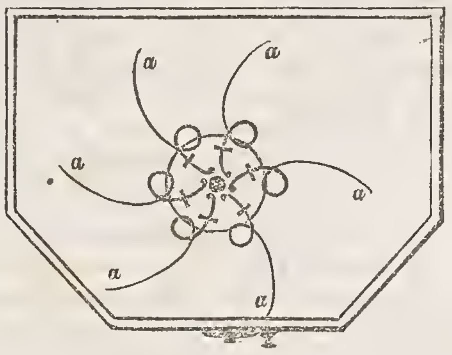


Fig. 41, seed box, of wood, 9 inches long, 7 inches deep, 5 inches wide, represented with one side removed, to shew the situation of the springs or arms inside of the box.

[Fig. No. 42.]

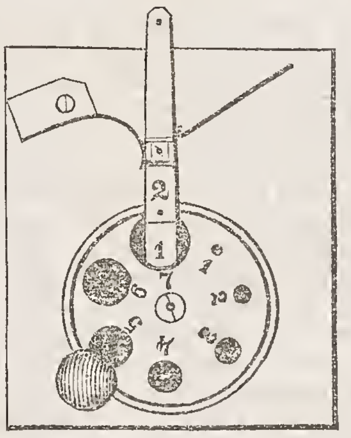


Fig. 42, bottom of seed box of tin, attached to which by a screw in the centre is a brass wheel, 2 inches diameter, 3-16 of an inch in thickness, with holes of different sizes, in the outer edge numbered from 1 to 7: this wheel turns on its centre, and the hole to be used is turned exactly to the centre of a large hole in the bottom of the box, and secured by a thumb screw; the shaft is set in motion by a band from the running wheel of the barrow, and passes the spring arms *a a a a a a* across the hole in the brass wheel, and stirring up the seeds falling into it as it passes with sufficient force to eject any seeds which may not fall out: a valve is placed at the lower side of the brass wheel, which is kept shut by a spring, and prevents any seeds from falling out, except just as the springs are dropping into the hole, when it is opened by the turning of the shaft, lets out the seed, when it instantly closes: the distances between the hills is regulated by the size of the whirrs.

[Fig. No. 43.]

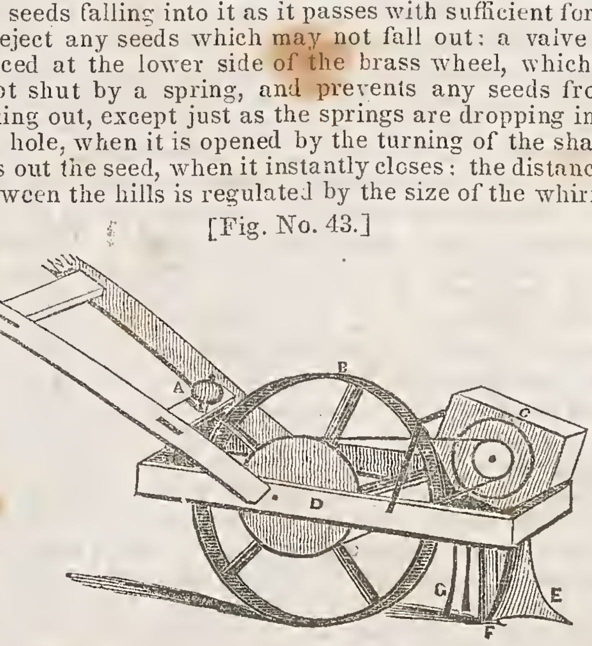


Fig. 43, barrow complete. D, frame; B, cast iron wheel; C, seed box; E, share for clearing away in advance of the plough; F, plough, and the end of the tube through which the seeds are passed to the ground; G, iron rods, to turn the dirt on to the seeds and the wheel passing over it completes the planting; A, a screw to regulate height of handles.

This drill may be used for turnips, carrots, beets, beans, and all like garden and field seeds.

Climate, &c. of South Florida.

NUMBER ONE.

Key West, South Florida, June 12, 1838.

MR. BUEL—SIR—I am desirous of furnishing for your paper, a series of articles upon the character and condition of South Florida; and I send you this my first number for consideration. Should it find sufficient favor in your sight to secure it a place in your columns, the subject will be continued with much pleasure. It is designed to speak of the country as it is—neither to exaggerate its favorable characteristics, nor to omit a sufficient detail of the objections which are justly chargable to this as well as to all other places under heaven.

The fact, that South Florida is the only part of the United States that possesses a tropical climate, is sufficient, it would seem, to give it a peculiar interest in the minds of our intelligent countrymen, both for the advantages which would result to the nation from its settlement, and the satisfaction it would afford to amateurs in agriculture in general, and horticulture in particular; and for the healthful retreat which it holds out to our northern invalids, where they may temporarily withdraw from the severity of their winters, or permanently settle and make for themselves a delightful and even luxurious home.

The little information I possess respecting South Florida, has been gathered during a short residence of only sixteen days at the Cape, where I intend to settle permanently, and a *stay* at Key West for the last two and a half years, where most of the inhabitants of the former place have resided since the commencement of the war. Of all these people I have made diligent inquiries; and upon their united testimony, carefully sifted and balanced, together with my own observations, are based the views and statements now offered to the public.

If it be objected that this information must necessarily be too limited and uncertain to command the reader's confidence, he may be assured that they who have written the most, and been the most liberal and positive in their praises and denunciations of this country, are even less acquainted with it than myself.

It is true, as has often been alleged, that South Florida abounds with inundated lands and swamps, and contains but a small proportion of what is generally termed good soil. Nearly all the interior is an unexplored region of fresh water lakes and wet savannas, whose extent is certainly great, though altogether conjectural. But even in these are wood lands, whose value and extent are also unknown. The lands bordering upon the bay at Cape Florida, (a sheet of water perhaps twenty-five or thirty miles in length, coastwise,) are chiefly dry and fit for immediate settlement. The same may be said of a great portion of the coast to the northward of that place. But to the south, after passing the limits of the bay, the coast becomes low and subject to occasional inundations, in some places by the sea, in gales, and in others, by the fresh water from the interior, throughout nearly its whole extent around Cape Sable as far to the northward as Cape Roman, and from thence there is but little improvement in the coast south of Tampa Bay. This belt of dry land at the cape is not more than from three to perhaps six or eight miles wide; yet here the first settlers of South Florida will undoubtedly make their location.

Having premised thus much, I will now venture the assertion that *that class of people for whom I now principally write, can no where find another place so fully adapted to their wants as Cape Florida and its vicinity;* and I proceed in the sequel to prove this assertion.

The class referred to are inhabitants of the northern states, who prefer their own republican government to all others, and therefore would not willingly leave it, but the state of whose health, impaired by the rigors of their cold and fickle climate, requires their removal to some country where those evils are not felt—who have few motives of pecuniary gain to gratify; no desire to dwell in populous towns in slavery to fashion, folly, and artificial wants; no itching for speculation in lands and paper village lots, or for the sudden amassment of money in any way; but who desire, and have refinement, and taste, and philosophy enough to spend their days in the quiet and virtuous enjoyment of rural life, enclustered in an independent little world of friends and neighbors, where summer reigns perpetual in undying verdure—or again, those of our countrymen who from natural temperament and taste prefer our southern clime; or who, though industrious, intelligent, and valuable members of society, are struggling with the evils of poverty, and harassed with anxiety for the present and future wants of their growing families—who dread the approach of winter for the multiplied expenses which it demands, where the means are already scant, and rack their brains in sleepless nights to devise some change for the better which never comes; and who would joyfully fly to our southern clime, could they but see their way clear to a comfortable subsistence—these compose that numerous class of people of whom I speak, and whose patient attention I now desire to engage.

The climate—particularly at the cape, and adjacent isles, has been sufficiently tested to put to rest all question of its salubrity. That vicinity has been inhabited by a population averaging perhaps about forty in number, for the last forty years; and their united testimony is extravagant in praise of its peculiar healthiness. They assert without exception that there has never been a case of sickness there of any kind; and they frequently compare that place with Key West, giving a decided preference to the former, in which they are never contradicted. Yet Key West is *now* as healthy a place as I have ever known or wish to live in. Therefore, without sanctioning these extravagant assertions, we may safely conclude that the climate at Cape Florida is unusually salubrious. Yet to a person unacquainted with the causes which operate to make it so, it may seem strange that the interminable marshes with which the country is known to abound, do not produce sickness. They undoubtedly would do so, were people to settle in the worst of them, and there spend much of their time at fatiguing labor and exposure. I say the *worst* of them, because many of these swamps, as they are called, and indeed a great portion of the everglade, are merely shoal bodies of pure moving water, covering a bed of white sand—others are low prairies, covered with short stinted grass, sometimes dry, sometimes wet, and sometimes entirely inundated; the soil of which, though I have never examined it, I believe to be a lime marl—and others are doubtless composed of that loamy soil the tendency of which when marshy is always unhealthy. Furthermore, the settlements have been chiefly confined to the coast, over which the easterly winds from the sea are, a great portion of the time, blowing, and driving from them the miasmata that may arise from the wet grounds in the rear. The ridges on the coast are at an elevation of from ten to twenty feet, composed principally of sand resting upon a limestone base, and clothed with extensive pine forests, diversified with intervals of marl prairies. These circumstances are sufficient to explain the cause of the peculiar healthiness of that country.

I am aware that northern invalids often fear the effects of our summer climate. I did so myself before trying it. But they who have any disposition to pulmonary complaints, and indeed most of the inhabitants here, greatly prefer the summer to the winter. There is a purity—a luxury in our summer air which a northerner can never know, and which makes the temperature here of 90° more pleasant and agreeable than that of 85° at the north. The constant gentle breeze by which we are fanned—the pure air which the lungs inhale so easily—and the inviting shade in which the ease of earning our subsistence permits us to indulge, all unite to awaken the consciousness of present calm enjoyment which few other situations in life can impart. Our winters indeed are pleasant, and much praised by the invalids who yearly resort here—even more pleasant than our northern summers. But we complain of frequent and sudden changes of the weather. Yes, we complain; though the extreme winter range of the thermometer is between 50° and 82 or 3°; while the summer range at the north is from 32° to 100°. When the winds in winter are between east and south, which is perhaps two-thirds of the time, we are contented, and we lounge in our piazzas in thin summer clothing. But when the wind comes out of the north, then "stand by" for pinching cold. Woolen clothes become necessary, though some will shiver in their thin ones rather than change; and in the evening, perhaps half a dozen times during the winter, a cloak is very comfortable to sit in. Fire is quite out of the question. I have not seen that strange light in a dwelling since I left New-York in the fall of 1835. On these occasions the mercury ranges about 60° at its extreme depression. It has been known since the settlement of the island, *twice only,* to fall below 50°. And it has been known to rise, in summer, above 90°. So far this season it has not been above 85°.

I speak here of the temperature of Key West. Cape Florida is one degree further north, and of course is some colder; but no thermometer having ever been kept there, its exact temperature is not known. Neither am I satisfied whether frost has ever been seen there or not. It certainly has not on Key Biscaino, which helps form the bay, since the light house has been there, which is ten or twelve years. At all events, garden vegetables thrive there throughout the winter. While I was at the cape, in January, we had green peas, beans, corn, fresh potatoes, and other articles of the kind. Indeed planting and plucking, upon a limited scale, is in progress there at all seasons of the year; and the fruit trees exhibit their flowers, their green and their ripe fruit at the same time and almost at all times.

The title to a large portion of the land at the cape, as well as elsewhere in the territory, is yet unsettled. Before the cession of Florida to the United States, a tract of twelve miles square was granted by Spain to one Don Juan Arrambide, the south line of which passes east and west, through the mouth of the Miami river, about eight miles north of the principal entrance into the bay from the sea. This grant has been decided to be valid by the Superior Court for this district, having jurisdiction of such cases; but the United States have appealed from the decision to their own Supreme Court. When the appeal will be tried is uncertain—perhaps not within two or three years. No doubts, however, are expressed here that the decision will be comfirmed. Still this case will not determine *in whom* the title in fact lies—but merely whether or not it lies in the United States. In the mean time there is a suit pending in Chancery between three several parties, each of whom lay claim to the land under the said Spanish grant. This suit will probably be determined in the course of a year, when, it is believed, the land will be offered for sale, by the successful party, on some conditions to secure the purchasers against loss, in case the Supreme Court should decide against the validity of the grant.

This tract embraces the whole of the north end of Biscaino bay, and extends east and west from the sea to the everglade, including the whole of the Miami and its branches, Little river, Arch creek and the mouth of Rio Ratones, all emptying into the bay. South of the Miami, and stretching along the shore of the bay, lie three donation grants containing one square mile each, all owned by a resident.

With the exception of these grants, the title to the land is clear and undisputed in the government. But inasmuch as it has never been surveyed, nor brought into market, they who settle it must rely, for their title in future, upon their right of pre-emption. Such settlers are furthermore protected by an express provision of our Territorial Statute recognizing in them a property in the lands they thus possess, defensible, transferable, and subject to execution.

I propose in my next to treat of the soil and productions of the country, and the various means of subsistence for those who dwell there.

L. W. SMITH.

EXTRACTS.

From the New England Farmer.

Ashes—Milk—Bog.

We have the pleasure to present to the agricultural public the subjoined highly valuable communication; and acknowledge ourselves much indebted to the kindness of this intelligent and skilful cultivator for having at our request presented it. Our attention in passing on the road from Pawtucket to Providence had been always particularly attracted to the improvements going on on this farm, and the order and neatness which marked the premises. The last spring, on a visit to some relatives, we had the pleasure of examining the excellent management pursued at the establishment. The cultivator it will be seen from the style of address, is a friend. This most exemplary christian sect are always remarkable for their neatness and order, qualities which are so valuable, and produce so much comfort in life. "Thou shalt be neat and clean, and systematic and orderly in thy person and in all thy dealings" is a commandment, which if they have not actually added it to the decalogue, seems to have with them almost as high an authority. A slovenly Quaker is a "rare bird;" an anomaly seldom occuring. We cannot too much commend them for this. "Order is Heaven's first law." Neatness, as a friend was accustomed to remark, is next to godliness; it is essential to good manners and almost equally so to good morals: its opposite is certainly a violation of what are called the minor morals of society.

H. C.

North Providence, 6 *mo.* 4, 1838.

Respected Friend, Henry Coleman—I have never known more profitable results from the application of any manure to light and sterile soils, whether loamy, sandy, or gravelly, than from leeched or unleeched ashes. They have long been used in Rhode-Island with great success, especially in the growing of barley and clover, to which they seem peculiarly adapted. As evidence of the estimation in which they are held by the farmers of the Island, ten cents per bushel have been paid for them in Newport for the last twenty years and upwards, and though considerable quantities have been furnished from different places on the sea-board, the demand for them has always exceeded the supply. They are generally used at the time of seeding, spread on an even surface and harrowed in lightly with the grain and grass seed. The quantity varying from 50 to 100 bushels per acre.

In 1833, a lot of land falling under my management which had then recently been purchased at $30 per acre, seven acres of it and perhaps the least valuable part, which in my opinion never possessed fertility, though it is usually called worn out land, being a sandy plain, gravelly subsoil, were ploughed and rolled, in order to secure for the benefit of the crop what little vegetable matter had been turned under; about 1,600 bushels leeched ashes were then spread on the lot, and it was sowed with 10 quarts millet and 16 lbs. southern or small clover seed to the acre. The season proved dry and the seed took badly, the crop of millet was 10 tons by estimation, and was sold for $180. 19 tons clover were supposed to have been obtained the two succeeding years at four cuttings; this too was sold for $316. The clover having nearly all perished in the winter of 1835-6 it was pastured the season following, and last year 1,136 bushels ashes having been applied to it, it was again sowed with millet, and stocked as before with southern clover, 20 lbs. to the acre. The product was 13 tons millet, for which I credited the owner $221, retaining it for my own use. Like results have been obtained from similar treatment of the same description of soil in various instances, this not having been selected because the most striking, but because the amount for which the crops sold fixes their value, without knowing exactly the quantity produced, which in each case has been supposed. The labor bestowed on the lot was more or less blended with other business of the farm; it is therefore difficult at this period of time to ascertain the amount charged. I believe, however, it did not exceed the charge in the subjoined account.

Cost of land,	$210 00
" ashes for both dressings,	215 54
Seed for do.	41 25
Ploughing 10½ days,	21 00
Rolling 3½ do	7 00
Harrowing 3½ do	7 00
Carting outside furrows,	7 50
Sowing 3 days,	3 00
Carting and spreading ashes,	54 00
Cutting, curing, and housing 41 tons millet and clover,	123 00
5 years taxes,	2 10
Interest accruing on transaction,	46 00
	$737 39
Cr.	
By Produce sold, amounting to	$717 00
Value of pasturage,	15 00
Value of lot in its present condition,	385 00
	$1,117 00
	737 39
	$379 61

There is reason to suppose from present appearances that the lot in question will cut two tons clover this season per acre; it will therefore be seen that my valuation is not a high one. A repetition of the treatment it has received, would no doubt improve still more the texture of the soil, but I am inclined to think there might be a falling off instead of an advancement in the amount of its productions, by subsequent ashings. Should this be the case it would indicate a suitable condition for more permanent improvement by manuring.

There is but one instance in which I can make out the exact quantity of milk sold in a year. It amounts to 11,131½ gallons; this is exclusive of a supply for the family, and was produced by I suppose an average of 20 cows. There have been seasons when I think a larger quantity has been produced in proportion to the number of cows kept, but the manner in which my books have been kept, hardly ever specifying more than the amount received for the article sold, does not enable me to determine with accuracy the quantity sold in any other year. In the instance given the milk was disposed of to one person at a certain rate, which with the amount of sales being known determines the quantity. How much was used by the family is not known, probably not more than 300 gallons.

In regard to the bog there is yet but little to be said, a greater part of it being yet on the tide of experiment, whether successful or not, time will determine. The burnt part has hitherto been most productive. In 1835, ½ acre was pared, the turf burnt, and the ashes spread over the surface. The year following it was planted with potatoes, the crop paying for the land at $30 per acre and all expenses accruing from its improvement. Last year nothing was taken from it, it was seeded the latter part of summer, and now promises a large crop of hay.

Respectfully thy friend,
ADAM ANTHONY.

From the Genesee Farmer.

Different Systems of Farming.

Mr. Tucker—In the management of our temporal affairs, whatever presents itself to our minds in the most clear and distinct manner, as best calculated to promote our interests, we embrace the most cordially, and pursue the most thoroughly. The operation of this principle is manifested in all the events and pursuits of life. And if the question should be asked, 'Why is it that men do not universally adopt the most approved and enlightened systems in the management of their different avocations,' the answer must evidently be, that from want of proper information they are not equally convinced, by a clear and distinct perception, of the superior merits of any system but their own. And in no other business is the practical operation of this principle so manifest as in that of farming; where a great diversity of systems leads to as great a variety of results.

My purpose is to show that farming, in its great fundamental features, is one of the plainest and easiest things in the world, if we but take hold of it in the right way.

Let us first look at the different systems of farming in vogue among us. The longest tried, and most venerable, is that of *Skinning*, whereby the farm and the farmer become impoverished together. This system has yet many advocates in the land, who settle down on good soils, work it hard, and wear it out; then sell cheap, and go to the *west* and buy cheaper and better soils; wear that out, pull up stakes again, and again push off to the west. By this system, new countries are cleared up and settled, and a broader scope given to population; fulfilling the requirements of Scripture, "be ye fruitful, and multiply and replenish the earth." Another system, of a somewhat more modern date, is, *Let well alone.* This system is an innovation on the former,—it keeps the farm and the farmer in *statu quo*, or just as they were; upon the idea, that attempting to improve nature is warring against Providence—it keeps society stationary, as offering no inducements to emigration; the requirements of life are not multiplied, as wealth is not amassed and luxury induced; and population is kept uniform and steady. Another and still later system of farming is, *Improving*; whereby the soil is renovated, the crops more abundant, and the farmer is enriched. This is the latest innovation that has been made upon the old system of *Skinning*, and is antipode to it. It finds but few advocates yet, although its advantages are so superior; as it is hard to prove to men that they are and always have been blind. Men naturally incline to pre-conceived opinions, and do not willingly forsake them, as they are reluctant to acknowledge themselves in error; and their minds are consequently hardened against new impressions, however valuable, and advantages are forsaken which might have been easily secured. But with all man's attachment to old ways and notions, the *Improving* system of farming is gaining ground every day. It is true that this system is somewhat in advance of the times, as the ignorance of the mass of farmers does not permit them to see and appreciate the correct principles upon which it is based. But as its utility and soundness are every day more and more developed and extended, its advantages become more and more apparent; and if its *theory* be not misunderstood, its results being visible, its *precepts* will be adopted and applied.

I have said that farming is one of the plainest and easiest things in the world, if we but take hold of it in the right way; and having exhibited the different systems, *Skinning*, *Let well alone*, and *Improving*, with a brief view of their relative merits, it must be apparent that the latter is the best system of farming, and the right way of taking hold of it. Its advantages over the other systems, I have said, were, it improves the soil, enlarges the crops, and enriches the farmer; it moreover diminishes the relative labor, and affords support to a more dense population. These are advantages of no ordinary magnitude, peculiarly resulting from this system.

The principle upon which the *Improving* system of farming is based, is simply this—so managing the soil as to make it afford to the plants grown upon it, a full and sufficient supply of nourishment, to bring them to the highest degree of perfection; and so managing the plants cultivated, as to keep them in the most healthy state, that they may draw from the earth and the air the greatest amount of nourishment they can elaborate. This is the *Alpha* and *Omega* of this boasted and book-taught system. As different soils and crops require difference of management, I shall, for the purpose of illustrating the principles of this system, barely give a general outline of its features, upon which a fair estimate can be made with regard to its detail. First, and most important, the soil should be well enriched with *barn-yard manure;* whereby it will be made more friable, more pervious to the atmosphere and the roots of the plants, and less subject to be injuriously affected by drought and heavy rains;—manure, besides, affords the most permanent and important supply of nourishment to plants; and should be thoroughly incorporated with the soil, Another peculiarity of this system is *rotation of crops.* whereby the different constituents of the soil are all and equally taxed, and none of its energies left useless and inactive—this is an important consideration. Where the soil can be adapted to it, the root culture should be a primary object, to the full wants and consumption of the farm stock, as affording the greatest profits in the largest amount of animal sustenance, and leaving the soil in a good condition for small grains. Clover is another important crop; it is next to barn yard manure as a fertilizer and pulverizer of the soil, for which it should be ploughed under and permitted to rot. Other crops, as required, and adapted to the soil, following in rotation, with proper dressings of manure, will improve the soil, and yield golden harvests to the farmer—if he will go one step farther, and manage his crops as well as he has his lands. The plants cultivated should have the soil *all* appropriated to their use, by extirpating with the hoe, or otherwise, all weeds and other foreign plants; which, if permitted to grow, would absorb some of that nourishment from the atmosphere and the earth which would otherwise be taken up by the crops, in the more full and perfect development of their quality and quantity. As regards hoed crops, the surface of the soil should be stirred as often as practicable, but not so deep as to injure the roots; leaving the surface as near as may be, the same that it was when the seed was put into the ground. Nature having indicated the proper depth of the roots in the soil, it can neither be increased or diminished but to the disadvantage of the plant.

These general rules, acknowledged correct and important by all who have tried them, could they be reduced to general practice, would have a most salutary influence upon the farming interests, and upon the interests of every other class in society. These rules are simple and easily applied. Always keeping one purpose in view, viz: making your crops healthy, by attending properly to them, and giving them enough to eat, and the great end of agriculture is attained. It is true, that farming requires intelligence to conduct it with pleasure and profit, as what occupation does not? The science teaches us the way of forcing nature to shower her blessings upon us in greater profusion—it enables us to grasp the cornucopia with our own hands, and to pour out its treasures into our own laps. E. W.

Pittsford, June 6, 1838.

From the New-England Farmer.

I have great pleasure in presenting the subjoined statement to the agricultural community. It came to hand some time since, but its publication has been delayed in the expectation of receiving the reports referred to from the other families. Like every thing else which comes from this worthy people, the report is well drawn up; and will be read with much interest. It is impossible I believe to find more striking examples of neat, careful, exact, and skilful husbandry than are to be found in these industrious and temperate communities wherever they are planted in any part of our land. H. C.

Report of the Farm of the United Society called Shakers in Canterbury. First Family.

No. of acres.	Live stock.
Tillage 25 to 30,	Horses 10,
Eng. Mowed 100,	Oxen 10,
Wet Meadow 40,	Cows 40,
Pasture 500,	Sheep 300,
Orcharding 30,	Swine 40,
Wood, Waste, &c. 500,	Young Neat Stock 10,

Soil, Loamy; Dry; Rocky; Hilly.

Shaker Village, Merrimack co. N. H.
Oct. 30*th*, 1837.

Henry Coleman—*Esteemed Friend*—I have annexed a sketch below in answer to your inquiries with as much exactness as practicable, as I had to obtain it from those who had the experience of *actual experiment*, as we have never kept any record of any such thing, hence the difficulty of obtaining the desired information. If any thing that I have written on the subject will be of use or interest to you, you are heartily welcome to the same; and were it not for the pressure of business and the limited time, I should have been glad to have given you a more lengthy and minute report. With much respect, your friend,

WILLIAM WILLARD, for and in
behalf of the first family at Canterbury, N. H.

Amount of hay usually cut is from 140 to 250 tons per year, in this (first) family, exclusive of the other two families, who have made out (or will) their memoranda separate, as you will perceive, viz: in year 1835, 140 tons—1836, 226 tons—1837, 133½ tons.

We have one field of 12 acres, another of 10 acres, and part of another which has not been ploughed for upwards 30 yrs. In one of said fields we cut 32 tons to 12 acres the first mowing, or 2 8-12 tons to the acre, besides the second crop. We apply top dressing once in a few years and roll the same in by means of a roll filled with iron pikes, sharp, 4 or 6 inches long, drawn by oxen or horses.

Wheat.—Our soil not being well adapted to wheat we can say but little about it, as we raise but little; generally not more than from 35 to 50 bushels per year, the most that we ever raised per acre was 40 bushels which is an extra crop for us.

Corn.—We raise but little, from 50 to 70 bushels per acre. On a neighboring farm, 12 miles distant, was raised a few years since 112 bushels 5 qts. to the acre—was planted in hills, not dunged in the hills, but spread on the surface and ploughed in, which we think the best way.

Oats.—Sow annually from 10 to 12 acres, yield on 3 acres in year 1836, 80 bushels per acre—average yield of 10 acres 60 bushels per acre, with exceeding heavy straw; the land was of good quality and prepared in the usual way.

Potatoes.—We usually raise from 2,000 to 2,500 bushels annually. The largest crop we have raised was in year 1833, which was 400 bushels per acre, (common potato) the land had no extra preparation.

Turnips.—Raise from 4 to 600 bushels annually, of the common English and Ruta Baga. In 1836 raised from 7 to 800 bushels of English, have raised from 4 to 600 bushels of Ruta Baga per acre, consider them good for sheep, cows, and beef cattle.

Flax.—Raise but little of this article of late years. In 1822 raised the greatest quantity, which was 900 lbs. Flax from 5 pecks sowing on 1¼ acres of ground, prepared in the usual way.

Carrots.—We annually raise more or less of these, some yrs. 1,000 bushels: one year raised 800 bushels per acre.

Peas.—In year 1836 sowed on one piece 3 pecks, yield 16 bushels.

Beef.—The largest beef we have raised weighed 1400 lbs; fattened on carrots, potatoes, with but a small quantity of meal.

Pork.—There are a diversity of opinions in regard to the best and most expeditious manner of fatting hogs. We have tried perhaps as many different plans as we have had different hands to fat them. Some will say all corn, some part corn with potatoes, &c. We for 2 or 3 years have adopted the plan of gathering our apples into our hog-house instead of the cider mill, and feed them upon boiled apples, potatoes, and pumpkins, with the addition of a small quantity of meal, to be increased as the killing time draws nigh, and under this management we have never known our hogs to thrive better or faster. Another method we have tried, (when fed with corn.) Take a tight barrel, fill it half full of corn, pour boiling hot water until the corn be covered, let it stand a few hours, and the barrel will be full of corn, and very little if any water to be discovered; this answers when at a distance from mill, and is better than dry corn without grinding; but we think it will not fat so well as made into proper meal. We had 20 hogs fatted on meal, began 1st day of August, one of them killed last of October, weight 400 lbs; the other 19 killed 23d December, average weight of the 19, 480 lbs; the meal mixed part of the time with skimmed milk, mixed as dry as possible; gave them at first 1 quart of meal per day each, from that to 3 quarts per day each, and a time before they were killed they refused 3 quarts per day; have frequently had hogs weigh 600, fattened on potatoes and meal. Had one small shoat, very small size, taken away from the rest and fed on one pint of corn per day, with meadow hay, milk, and wash, from September to December, weighed when killed 500 lbs; this pig when separated from the rest was the smallest in the lot. We are decidedly in favor of apples for hogs and cows. We take them promiscuously as they grow, without regard to their being sweet and sour.

Wool.—Average number of lbs. of wool for Merino bucks, from 7 to 9 lbs; have sheared 10 lbs.; average number of lambs per year from 150 to 190 Merino.

Breed of Cattle.—The Durham Short Horn for cows and stall, for labor we have not had sufficient experience of them.

The most profitable article for cultivation are the potato and carrot for fatting hogs and beef, and for milch cows.

Lime as a Manure.—We have used lime as a manure to good advantage; it restores and replenishes the soil that is apparently worn out. We air slack it and spread it and plough it in. Gypsum we have made no satisfactory trial of.

We suggest the idea to all that can obtain it, the use of *saw-dust* as a litter for hogs, horses, cows, oxen, &c. We have tried it for years; litter all our horses with it, like it much better than straw. We in the spring haul the saw-dust from the mill and deposite it in a convenient place to be got at, at night throw half a bushel or more under each horse, taking care to scrape out all that is wet beforehand, and in the morning it mixes in with the manure, goes into the heap, absorbs the wet, and forms a compost, and in a similar way for hogs, oxen, cows, &c.

Another effectual experiment I have tried, which is, before putting a quantity of oats into a close bin, (as we do frequently 7 or 800 bushels,) to throw or sprinkle fine salt among them; this prevents them from heating, also makes them relish better, and finally keeps them entirely free from must.

Horse Rakes we use—when constructed on the right principle are a great labor saving machine; we usually rake at the rate of 4 acres per hour. The same may be said of threshing mills. We have one of our own construction, a description of which would exceed the limits of this sheet. We usually thresh from 100 to 150 bushels per day; at the same operation it is winnowed and cleaned already for putting up.

The report of the second family, I have as yet been unable to procure.

Amount of butter for 10 yrs. past, 2,436 lbs. per year.
" cheese " " 3,265 " "

Hints for Prevention of Disorders in Horses.

Chiefly taken from Messrs. Clarke and White's valuable Treatise on Horses.

STABLES.

Stables should be lofty, light, and airy, and should never contain more than six or eight horses. They are in general kept too close and hot.

Too much clothing also is usually put upon the horses, which thus become so tender, that they catch cold upon every slight exposure to a cool air.

The doors and windows of stables should be thrown open when the horses are out, but care must be taken that a cold current of air does not immediately blow upon them when in the stable, particularly if they are heated.

It is a bad practice to allow herses to stand upon litter in the day time, except they are unwell or fatigued.

FOOD.

The quantity and quality of a horse's food should invariably be regulated by the exercise and fatigue he has to undergo; high feeding, without proportionate work, produces half the disorders to which horses are subject.

Good hay is of much consequence to horses engaged in active exercises; but it should be given in small quantities during the day; and when owing to bad weather, the horses cannot be exercised, they should be stinted both in their hay and corn; and a bundle or two of clean wheat straw may be put before them. All grain given to horses, would be more nutritive if bruised in a mill and mixed occasionally with chopped straw. Carrots are a most wholesome food, and of all roots, rank next to corn in point of nourishment. They are particularly serviceable when a horse's wind is affected.

When horses are first taken from grass they should be gradually brought to a dry diet by giving them carrots, lucern, bran mashes, &c. with their hay. After a few days a small quantity of oats may be given, and the feed increased by degrees till they come to their full allowance. They should likewise be put into a cool stable, and have plenty of walking exercise. If such precautions were attended to, a great saving might be made, both of physic, and the horse's constitutions.

WATER.

Pond water, if it lie on a clay bottom and be sweet, agrees best with horses; hard water may be improved by throwing some chalk or clay into it, and exposing it in cisterns to the open air.

It is proper to let the water, intended for the horses, stand for some hours in pails in the stables before it is used.

Water should be offered to horses frequently; they would then never drink large quantities of it at a time, which is particularly hurtful to them when heated by exercise. It is a good and safe plan when travelling, &c. always to mix hot water enough with their cold to take off the chill.

EXERCISE.

A horse's exercise should be proportioned to his strength, manner of feeding, and the labor required of him. He ought, however, to have at least two hours of daily exercise.

Horses should not be ridden fast after having been newly fed and watered. A fat horse requires a long course of moderate exercise, before he can safely be put to trot, which is violent.

It should be a general rule to ride a horse slowly at the beginning of a stage; afterwards increase the pace, and slacken it again a mile or two before the end of it, so as to bring him tolerably cool into the stable.

If horses come in very warm, they should be walked about gradually till cool, their feet should then be picked, and all dirt and gravel carefully washed out. In hot weather, washing their legs is proper, but they should always be well rubbed afterwards. In winter, cold water is injurious to the heels, and apt to bring on swelling and the grease.

Horses should on no account be permitted to stand uncovered in the stable, much less at the stable doors after being much heated, except the weather be very warm. Road horses should in the middle of a long stage have half a pail of water mixed with a little oatmeal; and on a journey, if no other corn but what is soft and new can be procured, oatmeal just moistened with water or some coarse bread, should be given in preference to such corn, which is extremely unwholesome. If a horse grow costive, let him have some mashes of scalded bran or malt. If he have any difficulty in staleing only, an ounce of nitre may be given in his food for a few nights.

Should he be seized with a violent fit of the gripes, let him be bled, back-raked, and have a glyster of three or four quarts of water gruel mixed with eight ounces of glauber or common salt.

The best instrument for giving a glyster is an ox bladder, that will hold two or three quarts, tied to the end of a wooden pipe about fourteen inches long, one inch and a half diameter where the bag is tied, and of a gradual taper to the extremity, where the thickness should suddenly increase, and be rounded off at the point, and made as smooth as possible. The hole through the pipe may be made sufficiently large to admit the end of a common funnel for pouring the liquor into the bag; no other force is requisite to throw it up, than the holding the bag a little higher than the level of the pipe. If in consequence of violent inflammation and pain, and opiates should be necessary, a table spoonful of laudanum may be given in a pint of water.

Should a horse be touched in his wind, be very careful that he has only moderate quantities of food and water at a time. Two spoonfuls of tar mixed with the yolk of an egg given in a morning fasting will be of great service to him when travelling. In hot dry weather, it is useful to stop horse's feet at night with a mixture of soft clay and cow dung, and to moisten them frequently with water.

FRICTION.

The currying, brushing, and rubbing down horses is of great importance, not only to their coats, but also to their general health; when these operations are neglected, or slightly performed, an obstruction takes place in the pores of the skin producing mange, &c. and the hair instead of being smooth and shining, stares, and stands on end. Nothing tends so much to prevent grease and swelling of the legs, as frequent hard rubbing and carefully cleaning the heels.

TRIMMING.

The ears of horses are covered with a short down in the inside, mixed with larger hairs, to prevent cold air, rain, dust and flies from hurting the internal ear. The trimming therefore this part, is very prejudicial to the horse.

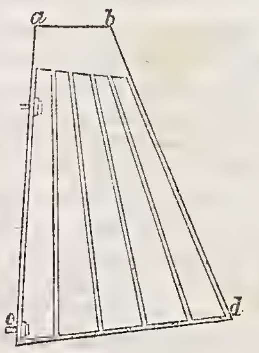
Harvesting Potatoes,

Where the crop is large, is a slow and tedious operation; and when the plough is employed to abridge the labor, great loss often ensues, from the gathering being imperfectly made. Our fellow citizen and friend, Joab Center, of Hudson, contrived a plough two years ago, to facilitate this process, which we were told worked well; but as we never saw it perform, we have not felt authorized to speak of its merits. In the mean time, Mr. Lawson, of Edinburgh, seedsman, has invented a mould board, which may be attached to a common plough, we believe very much on the model of Capt. Center's. We give drawings of this below, together with Mr. Lawson's description of its structure and operation, and in time for those who wish to profit from the improvement, to give it a fair trial the coming autumn. We take the article from the Quarterly Journal of Agriculture.

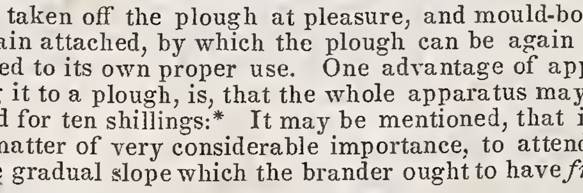
"The machine I am about to describe, and which I would call the *potato-raiser*, besides doing its work more efficiently, a matter of great importance, saves all the *hacking*, and consequently all the expense of the manual labor which that operation incurs, for it throws the greater part of the potatoes on the surface of the ground, and at once enables the women employed for that purpose to gather them by hand into baskets.

"The shortest description which, perhaps, can be given of this machine, is to say that you take a common plough, *deprived of its mould-board*, the share and coulter remaining in their usual position, and in room of the mould board, attach an instrument similar to that which is represented in cut in the margin, and which consists of malleable iron-bars, joined together in the form of a gridiron or brander. It is 26 inches long from *a* to *c*, 18 inches from *c* to *d*, and 27 inches along the line from *d* to *b*, and the breadth *a* to *b* 5 inches. It is attached by the edge *a c* to the furrow side and stilt of the common plough by screws, the fore part, *a b*, resting immediately behind the share, like the common mould-board; the angle at *c* is set about 8 inches above the sole of the plough; the edge *c d* slopes *downwards* in a convex curved form until the point *d* is about 4 inches above the level of the sole. The brander is fixed by screws at *c f*, and one may be required at the solid part *a b*, but these fixtures must be regulated by the construction of the plough. The following cut represents a plough mounted as a potato-raiser in the manner here described. The brander can be taken off the plough at pleasure, and mould-board again attached, by which the plough can be again applied to its own proper use. One advantage of applying it to a plough, is, that the whole apparatus may be had for ten shillings:* It may be mentioned, that it is a matter of very considerable importance, to attend to the gradual slope which the brander ought to have *from* the landward edge. Were it to lean *inwards*, or towards the land-side of the plough, it would do its work but imperfectly.

[Fig. No. 44.]



[Fig. No. 45.]



"The potato-raiser is drawn by one pair of horses, in the same manner as a common plough. In working it, the ploughman inserts the machine into the potato-drill, so as to have the whole of the potatoes on the *right-hand* side of the machine. He then proceeds along the drill, splitting it up in the common way. The earth is thus thrown to the right hand side, and the potatoes lie scattered on the surface of the ground behind the plough.

"Women provided with baskets follow the machine. They gather the potatoes into the baskets, and throw the stems of the potatoes upon the drill which lies to the right-hand of the drill from which they are gathering the potatoes. The reason why the potato stems are thus removed, is, that, as soon as the potatoes which lie on the surface are gathered, the machine returns, and again proceeds as before, through the part of the drill in which the potatoes lay, still turning the earth to the right-hand side. This *second* operation raises to the surface any stray potatoes which the first may not have turned up, and the potatoes raised by the second operation, are immediately gathered by the women who attend for that purpose. This second operation may be delayed till about twelve drills are turned over by the first operation, and the potatoes gathered. The machine may then be put through these twelve drills the second time. By this there will be a saving of labor, as a smaller number of women will gather the potatoes raised by the second operation. If the stems of the potatoes be very *strong and luxuriant*, a few women may be put along the drill to pull them out of the ground, at the same time gathering up any potatoes that may adhere to, and come along with, the stems. If this be done, the potato-raiser will turn up the greater part of the potatoes by going *once only* through the drill; in going *twice* it will do it in the most satisfactory manner. A man with one pair of horses will thus pass over the ground as quickly as with a common plough.

"These two operations are all that are required to raise the potatoes to the surface, the land being afterwards harrowed in the common way. The potato-drills ought to be of the ordinary breadth, so as to give the machine room to work. Very narrow drills do not suit it.

"I may mention, that the farm on which the potato-raiser has been used, is a light loam, and in that soil it performs its work in a very satisfactory manner. It pulverizes the soil in an extraordinary degree, and scarcely leaves a potato in the soil. I have never before been able to clear my fields of potatoes so effectually as by this machine, or at nearly so small an expense."

Dr. Dana's new mode of Analyzing Soils.

[*From Professor Hitchcock's Geological Report.*]

1. "Sift the soil through a fine sieve. Take the fine part; *bake* it just up to browning paper."

2. "Boil 100 grains of the baked soil, with 50 grains of pearl ashes, saleratus or carbonate of soda, in 4 ounces of water, for half an hour; let it settle; decant the clear; wash the grounds with 4 ounces boiling water; throw all on a weighed filter, previously dried at the same temperature as was the soil, (1); wash till colorless water returns. Mix all these liquors. It is a brown colored solution of all the soluble geine. All sulphates have been converted into carbonates, and with any phosphates, are on the filter. Dry therefore, that, with its contents, at the same heat as before. Weigh—the loss is *soluble geine.*"

3. "If you wish to examine the geine; precipitate the alkaline solution with excess of lime water. The *geate* of lime will rapidly subside, and if lime-water enough has been added, the nitrous liquor will be colorless. Collect the geate of lime on a filter; wash with a little acetic or very dilute muriatic acid, and you have geine quite pure. Dry and weigh."

4. "Replace on a funnel the filter (2) and its earthy contents; wash with 2 drachms muriatic acid, diluted with three times its bulk of cold water. Wash till tasteless. The carbonate and phosphate of lime will be dissolved with a little iron, which has resulted from the decomposition of any salts of iron, beside a little oxide of iron. The alumina will be scarcely touched. We may estimate all as *salts* of lime. Evaporate the muriatic solution to dryness, weigh and dissolve in boiling water. The insoluble will be *phosphate of lime.* Weigh—the loss is the *sulphate of lime;* (I make no allowance here for the difference in atomic weights of the acids, as the result is of no consequence in this analysis.)"

5. "The earthy residuum, if of a greyish white color, contains no insoluble geine—test it by burning a weighed small quantity on a hot shovel—if the odor of burning peat is given off, the presence of insoluble geine is indicated. If so, *calcine* the earthy residuum and its filter—the loss of weight will give the insoluble geine; that part which air and moisture, time and lime, will convert into soluble vegetable food. Any error here will be due to the loss of water in a hydrate, if one be present, but these exist in too small quantities in 'granitic sand,' to affect the result. The actual weight of the residuary mass is 'granitic sand.'

"The clay, mica, quartz, &c. are easily distinguished. If your soil is calcareous, which may be easily tested by acids; then before proceeding to this analysis, boil 100 grains in a pint of water, filter and dry as before, the loss of weight is due to the *sulphate of ime*, even the sulphate of iron may be so considered;

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* For the sake of those who desire to fit up ploughs in this manner, it is desirable that the strength of the iron of the brander had beeen particularized. We conceive the external frame should be five-eighths of an inch square, the internal bars one half inch diameter.—*Editor.*

for the ultimate result in cultivation is to convert this into sulphate of lime."

"Test the soil with muriatic acid; and having thus removed the lime, proceed as before, to determine the geine and insoluble vegetable matter."*

Sources of Geine or Vegetable Nutriment.

[*From Prof. Hitchcock's Geological Report.*]

Having now pointed out the situation and value, so far as known, of all the calcareous deposites in the state that can be applied to agriculture, and of other substances whose action on soils is somewhat analogous to that of lime, the next grand inquiry is, whether there are any sources in the earth from which additional quantities of geine can be obtained, or matters convertible into geine. I pass by the whole list of common manures, presuming that they will be fully discussed by the Agricultural Surveyor. And I shall merely notice the natural sources of vegetable nutriment within our limits.

PEAT SWAMPS.

The peat swamps of New-England have become a vast repository of organic matter, which is, and has been for ages, increasing. In addition to the larger vegetables, which, as they die, fall and are enveloped in the soft matter on which they grew, there is a thick mat of moss, which—especially the sphagnum—continues to flourish at the upper part while the lower part dies and decays. In favorable circumstances as to wet and temperature, this mass of vegetable matter becomes converted into peat. Only a small part, however, of what is thus accumulated, becomes peat of such a character that it answers well for fuel. Often it is too much mixed witn mud to be easily burnt, and sometimes the vegetable fibre is scarcely changed. Yet the whole of it is capable of being converted into vegetable nutriment. And I am convinced, from all that I have seen and heard, that Massachusetts contains enough of this geine and vegetable fibre in her swamps, to render all her fields fertile for centuries. In other words, here is an exhaustless source of geine. Some of it is already in a soluble state; and therefore the black matter from swamps, is rarely spread upon soils without producing some benefit. Yet for the most part the geine is in such a state as to require some chemical change before it will become soluble nutriment, fit to be absorbed by roots. It is an important inquiry then, what is the best mode of accomplishing this change. This has been attempted, first, by mixing the peaty matter with good manure in alternating layers, and suffering them to ferment for a long time, the peat being in much the greatest quantity. Secondly, by mixing it in a similar manner with lime; and thirdly, by mixing it with alkali, or some compound containing alkali. The principles respecting geine which have been advanced in this report, will probably enable us to decide as to the preference to be given to any one of these methods. And here I have it in my power to give the opinion of Dr. Dana, whose remarks I am always happy to substitute for my own, on a subject with which he is so familiar, and which he has done so much to elucidate.

"The fact," says he, "that peat or turf is very soluble, in alkali, seems not to be known among our farmers. The usual practice of mixing lime with peat or turf is decidedly the worst which can be followed. The geine which constitutes a large part of peat bogs, forms with lime a compound little soluble in water, requiring at least 2000 parts of water to one of geate of lime: and if the compound has been dried and sun-baked, a still larger portion of water is required: it becomes, in truth, almost insoluble. With alumina, geine forms a compound still more insoluble than with lime; and though the vegetable matter in combination with these earthy bases, is actually absorbed by the roots of growing plants, still the geine is in a state much less favorable than when in combination with alkali. Mix ley of wood ashes with peat, and we form a dark brown vegetable solution: the alkaline properties are completely neutralized by the geine, and very often ammonia escapes from turf when treated by caustic alkali. When we add, that this geine absorbs and retains nearly its own weight of water without seeming moist, it is evident, that with the use of ley or wood ashes, the value of peat as a manure will be very much increased."

I will only add, that in my opinion it would be very desirable to have a series of experiments performed by a practical chemist upon the different varieties of our peat, and especially upon the best mode of converting it into soluble geine. Since by the old methods of analysis the different varieties of peat would be found to differ from one another only in the quantity of organic matter which they contain, I supposed it would be useless to analyze them, and therefore did not collect specimens of the peat and other vegetable matters that occur in our swamps. The doctrines respecting geine put a new aspect upon the case, and lead me to regret that such a collection was not made. The labor of doing it now, however, is small; and when it is considered what an immense mass of organic matter now lies useless in our swamps, while the fields around them yield but a scanty crop, and that the chief reason why our farmers make so limited a use of this manure, is, that they find it difficult to convert it into soluble nutriment, I sincerely hope that the government will do all in its power to bring into use this important part of our fossil resources.

MARSH MUD.

Every intelligent farmer probably knows, that this substance forms an excellent manure; although I apprehend it is employed far less than its value demands. An intelligent farmer in Maryland states, that he "deems it more valuable than barn-yard manure;" and that "it never failed in any application he had made of it." He also prefers it to marl, because "it is more accessible, its effects are quicker, and much more can be done in the way of improvement for the same money." At the same time he confesses, that the permanent advantages of marl are much greater; and thinks that marl and marsh mud will both be improved by combination.* This last remark appears still more important, when we ascertain what it is that gives an agricultural value to this substance. The fact is, it sometimes contains a large quantity of geine, and sometimes but little, while the quantity of the salts of lime, soda, and magnesia, is rather large; so that sometimes a mixture of marl will be of service, and sometimes not. The following analysis of a few specimens of marsh mud, both in the ordinary way and by Dr. Dana's method, will show us, I think, what it is that constitutes its fertilizing power, and afford some useful hints as to its application.

Analysis in the dry way by Alkali.

Number.	Locality.	Water of Absorption.	Organic matter.	Silica.	Alumina.	Oxide of iron	Lime.	Magnesia.	Salts soluble in water.	Sulphuretted hydrogen and loss.
135	Newburyport, ...	3.2	3.3	68.1	14.7	7.4	2.0	0.8	0.2	0.3
136	Medford..................	9.5	12.5	50.95	14.9	8.15	1.1	0.2	0.6	2.1

Analysis by Dr. Dana's Method.

Number.	Locality.	Soluble Geine.	Insoluble Geine.	Sulphate of lime.	Phosphate of lime.	Granitic sand.	Specific gravity.
134	Cambridge, ...	13.0	7.4	2.3	0.4	67.9	1.92
135	Newburyport, ...	1.5	0.1	3.0	0.5	95.1	2.52
136	Medford, ...	7.5	5.6	2.6	0.3	84.0	1.92

A substance so rich in geine, or salts of lime and soda, or in both, as the above analyses show, cannot but prove a fertilizer of the soil if spread upon it. If a soil be quite poor, those varieties should probably be chosen that contain the most geine; and this can be judged of by their comparative lightness when dry; the lightest abounding most in organic matter. But if the soil already contain a good deal of inactive vegetable matter, the varieties that abound most in salts will probably be most efficacious; though an additional quantity of geine can do no harm, and may do much good. If marsh mud be applied at random, it is not strange that varieties of it, almost destitute of geine, should be sometimes put upon exhausted soil, and that no good effects should follow. Hence the necessity of some fixed principles to guide the farmer. And since Massachusetts contains so much sea board, and so much land near the coast that may be benefited by this substance, a correct mode of applying it is of great importance.

Depend upon it, that if you do not fulfil what nature intended for your fate, you will be a morbid misanthrope, or an indolent voluptuary—wretched and listless in manhood, repining and joyless in old age.

Young Men's Department.

Hints to Young Farmers.—No. 10.

GOOD AND BAD LUCK.

We are in the daily habit of hearing the casualties and misfortunes of life, and particularly in the operations of the farm, ascribed to *bad luck;* and on the contrary, of hearing the blessings, comforts and enjoyments of life imputed to GOOD LUCK—as though these things were casual, and did not depend upon the discreet or indiscreet conduct of those whom they befall.

If we will but scan this matter properly, we shall be convinced, that our good and bad luck most generally comes through our own agency; and that we are in a great measure left to choose our own fortunes in this matter. The faithful practice of known duties with a due restraint upon our baser passions, seldom fails to insure GOOD LUCK;—while indolence, extravagance, the lack of probity and good will to our fellows, are almost the certain precursors of BAD LUCK. And even though our crops may grow, from the exuberant bounty of nature; and although our patrimonial wealth may extort for us the fickle applause and sycopancy of the multitude, the pleasures which they afford are unstable, and are not to be put in comparison with those which result from a course of prudent industry and rectitude of conduct—from a consciousness of having performed, and of performing, the high duties imposed upon us, to our families, to society, and to our Creator.

Let us trace some of the instances of good and bad luck, in the business of the farm, to their palpable causes.

The diligent farmer, who personally superintends his business—who rises before the sun, *sees* that his laborers are at their appointed business, that his farm stock are in condition, his implements and fences in order, and his work timely and properly done, is pretty certain of enjoying a round of *good luck* in all his farming operations. He will have good cattle, good crops, and good profits—and, if he takes care to bring up his sons in the ways of their father, he will have good luck with his family.

On the other hand, look at that man who gossips away a portion of his time at public houses, at political clubs, and among his neighbors—and who trusts the management of his affairs to the discretion and fidelity of others, and ten to one but you find him an heir to *ill luck;*—that his land is annually becoming poorer, his crops lighter, his cattle diminishing, his fences and his buildings dilapidating, his children idle, and perhaps dissipated, and his fortune going to wreck. Who does not see, in such a man, a fountain of *bad luck.*

Our young readers have most of them, perhaps, heard of the *bad luck* that befel the man who neglected, in time, to get a nail in the horse shoe: the shoe came off; the horse became lame, and ultimately died—so that the owner lost his horse for want of a nail. The same *bad luck* attends him who neglects his fences: a rail or a board is down; cattle get in and destroy his crops, and he is obliged to buy bread for his family. The drone too, is generally late with his work—he plants and sows late—and suffers the harvest to waste in the field, before his crops are gathered or housed.

The diligent farmer destroys the weeds that rob his crops, and the bushes that uselessly encumber his grounds: he carefully economises and applies his manures, destined to feed his crops, and keep up the fertility of his soil; and he brings the best portion of it, though naturally wet and unproductive, into a productive state, by a system of judicious draining. All these are certain precursors of *good luck.*

Now mark the farmer of almost inevitable *bad luck* upon that farm down yonder, who, although in the harvest time, is from home, gone to attend a petty law-suit, in which he is a party. Look at the fences, the buildings, the bushes, the weeds, the swamps, the cattle, the crops—at every thing. Do they not all betoken *bad luck?*—and speak in language not to be misunderstood, that the unfortunate master is going *down hill?*

We have one other suggestion, which we may even extend to the fair. Idleness is the parent of tattle—of mischief. Now the man or woman who attend to their own business as they ought, have neither time nor disposition officiously to intermeddle in the domestic concerns of their neighbors—they have no interest in sinking the reputations of others—but would rather raise them to their own level. Their habits, therefore, tend to diffuse *good luck* to all around them.

Chemical Catechism—Chapter IV.

OF WATER.

What is water?

Water is a compound, consisting of hydrogen and oxygen.

In how many states do we find water?

In four: solid, or ice; liquid, or water; vapour, or steam; and in a state of combination with other bodies.

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* In applying Dr. Dana's rules given in the text, to the soils of Massachusetts, I found it necessary to adopt some method of carrying forward several processes together. I accordingly made ten compartments upon a table, each provided with apparatus for filtering and precipitations, also 10 numbered flasks, 10 evaporating dishes, and a piece of sheet iron pierced with ten holes, for receiving the same number of crucibles. I provided, also, a sheet iron oven, with a tin bottom large enough to admit 10 filters, arranged in proper order, and a hole in the top to admit a thermometer. The sand bath was also made large enough for receiving the ten flasks. In this manner I was able to conduct ten processes with almost as great facility as one could have been carried forward in the usual way. *Prof. Hitchcock.*

* Farmer's Register, July 1834; p. 93.

What is the most simple state of water?

That of ice; because water contains a larger portion of caloric. (*a*)

How do we define vapour?

Vapour is water combined with a still greater quantity of caloric. (*b*)

What are the properties of vapour?

Vapour, owing to the large portion of caloric which is combined with it, takes a gaseous form, acquires great expansive force, (*c*) and a capability of supporting enormous weights; whence it has become a useful and powerful agent for raising minerals of all kinds, and even water itself, from deep pits, and for other very important purposes. (*d*)

In what proportions are oxygen and hydrogen combined to form water?

Water is composed of 88 parts by weight of oxygen, and 12 of hydrogen, in every 100 parts of the fluid.

How is it known that water is a compound substance?

Several methods have been contrived whereby water may be decomposed, and the exact proportion of its constituent parts ascertained.

Do you know any of the methods of decomposing water?

Yes, there are several: it may be done by forcing it through a tube over red-hot charcoal, by passing repeated electrical shocks through it, and also by means of the galvanic apparatus.

Does nature decompose water in any of her operations?

Certainly, by many: particularly by means of every living vegetable; all vegetables having the power of decomposing water, by a secret operation peculiar to themselves. Fish, in general, and all cold-blooded amphibious animals, we have reason to think, are endowed also with the same faculty.

For what purpose are vegetables endowed with this power of decomposing water?

They combine part of its hydrogen, as well as of its oxygen, with the carbon of the atmosphere and of the soil, to form the vegetable compounds, oil, wax, gum, resin, sugar, &c.; while the superfluous oxygen is abundantly evolved by the leaves;

> "Killing infectious damps, and the spent air
> Storing afresh with elemental life." (*e*)

Can you recapitulate what has hitherto been detailed of the nature of oxygen?

Yes: oxygen is the basis of vital air, as well as one of the constituent parts of water; it is the chief support of life and heat; and performs an important part in most of the changes which take place in the mineral, vegetable, and animal kingdoms.

What is hydrogen, the other constituent part of water?

Hydrogen is the base of that gas which was formerly called inflammable air, and is, when in the aeriform state, the lightest of all ponderable things.

Has any method been discovered of composing water by a mixture of oxygen and hydrogen?

Yes: there are several ways of doing this, so that the composition of this fluid is now ascertained beyond all doubt.

Do you know any of the methods which have been employed to form water by a mixture of its constituent parts?

If a mixture of oxygen and hydrogen gases, in proportion, be fired, the inflammation will unite the basis of the two gases, without separating the whole of their caloric, and water will be the product.

Is there any reason to suppose that water is thus formed in any of the great operations of nature?

Yes: it is probable that the torrents of rain which generally accompany thunder storms, may arise from a sudden combustion of hydrogen and oxygen gases.

How is the atmosphere furnished with this hydrogen gas?

Hydrogen is continually emanating from, and is the consequence of, every species of vegetable and animal decay or putrefaction; and it is also evolved from various mines, volcanoes, and other natural sources.

What is the specific gravity of water?

A wine-pint measure of water weighs rather more than one pound; and a cubic foot of water weighs about 1,000 ounces, or 62½ pounds avoirdupois. It is 825 times heavier than atmospheric air.

What change does water undergo in order to be converted into ice?

The atmosphere, when its temperature is sufficiently low, deprives the water of a certain portion of its caloric—crystallization then ensues, and the water solidifies and beomes ice. (*f*)

What do you mean by crystallization?

By crystallization, is understood the concretion of certain substances into regular forms, occasioned by the loss of a portion of their caloric.

To what substances is the term usually applied?

The term is generally applied to compound bodies of the saline kind, and to their separation in regular and peculiar figures, from the water in which they were dissolved.

You have said that ice is the most simple state of water: do you then imagine that water is naturally solid?

Near the poles water is eternally solid: there it is similar to the hardest rocks, and may be formed by the chisel of the statuary, like stone.

Is this great solidity of ice at the poles owing to its being frozen in such large masses?

The great solidity of ice at the poles is occasioned by the very low temperature of the circumambient air; for in very cold countries ice may be ground so fine as to be blown away by the wind, and will still be ice.

Is ice the only instance of water existing in a state of solidity?

No: water becomes still more solid in the composition called mortar and in cements, having parted with more of its caloric in that combination than it does in the act of freezing. (*g*)

What other instances are there of water taking a solid form?

Water is also combined in a state of solidity in many alkaline, earthy, and metallic salts, (*h*) both natural and artificial; and most of these, when deprived of it, lose their transparency and also their crystalline form.

What are the general and more obvious advantages which we derive from water?

Water is a necessary beverage for man and other animals; is perpetually used as a solvent (*i*) for a great variety of solid bodies; acts an important part in conveying nourishment to the vegetable world, and giving salubrity to the atmospherical regions; and lastly, by its accumulation in the ocean, affords a ready communication with distant countries;—the whole of which evidently teaches how provident the great AUTHOR of nature has been in his attentions to to the comforts and conveniences, as well as to the wants, of his numerous creatures.

(*a*) Ice at 32° must absorb 140° of caloric before it can become fluid; or such a quantity as would raise a body of water of equal bulk with itself from 32° to 172°. This may be very evident to a youth who has been taught the use of a thermometer, by the following direction:

"Take any quantity, by weight, of ice or snow at 32°, and mix it with an equal weight of water heated exactly to 172°. The snow instantly melts and the temperature of the mixture is still only at *thirty-two* degrees. Here the water is cooled 140°, while the temperature of the snow is not increased at all; so that 140° of caloric have disappeared. They must have combined with the snow; but they have only melted it without increasing its temperature. Hence, it follows irresistibly that ice, when converted into water, absorbs and combines with 140° of caloric. Water, then, after being cooled down to 32°, cannot freeze till it has parted with 140° of caloric; and ice, after being heated to 32° (which is the exact freezing point,) cannot melt till it has absorbed 140° more of caloric. This is the cause of the extreme slowness of these operations. There can be no doubt, then, but water owes its fluidity to its latent caloric, and that its caloric of fluidity is 140°.

(*b*) However long we boil water in an open vessel, we cannot make it in the smallest degree, hotter than its boiling point. When arrived at this point, the vapour absorbs the heat, and carries it off as fast as it is generated. Yet by continued heat, united with additional compression, both the expansibility and temperature of steam may be greatly increased; and some constructors of steam engines have lately availed themselves of this property, to augment the power and diminish the expense.

Owing to the quantity of caloric that liquids require to convert them into vapour, all evaporation produces cold. It has been remarked before, that an animal might be frozen to death in the midst of summer, by repeatedly sprinkling ether upon him. Its evaporation would shortly carry off the whole of his vital heat. Water thrown on hot bodies acts in the same way; it becomes, in an instant, converted into vapour, and thus deprives these bodies of a great portion of the caloric they contained.

(*c*) The expansive force of steam is found by experiment to be much greater than that of gunpowder. Some volcanic eruptions and earthquakes, it is supposed, owe their terrible effects to this power of steam; the water of the sea finding its way to subterraneous fires. In boiling oil, the workmen are very careful to prevent any water coming near it; for a single drop coming among it would instantly, by the excessive heat of the oil, be converted into vapour, and would force part of the oil over the sides of the boiler.

It is to the expansive force of steam, that the well known motion in water, called boiling, is to be ascribed. The vapour is first formed at the bottom of the vessel, and, passing through the water, causes that motion in it which we call ebullition.

(*d*) Steam is now employed in a vast variety of ways in the different manufactories of this kingdom. It is used with much economy of fuel in a great number of dye-houses in various parts of Great-Britain. It should, however, be remembered, that whenever it is intended to heat water by means of steam, the steam must not be thrown in upon its surface, but must be conducted to the *bottom* of the cold liquor before it can be disengaged, or the effect will not be produced, water having but little power of conducting heat *downwards*.

(*e*) When a living vegetable is moistened with water and the sun shines upon it, two very important operations are performed at the same time by the decomposition of the water which the sun's rays enable the plant to effect, viz; the plant is nourished by hydrogen, and the atmosphere is purified by the restoration of its oxygen.

(*f*) Water in freezing crystallizes in filaments, which are uniformly joined at angles of 60 and 120 degrees. The word *crystal* originally signified ice.

It is owing to the *expansion* of water in freezing, that rocks and trees are often split during intense frosts. According to the calculations of the Florentine academies, a spherule, or little globe of water, only one inch in diameter, expands in freezing with a force superior to the resistance of 13½ tons weight. Major Williams also attempted to prevent this expansion; but during the operation the iron plug which stopped the orifice of the bomb-shell containing the freezing water, and which was more than two pounds weight, was projected several hundred feet with great velocity; and in another experiment, the shell burst. The imbecility of man never appears so conspicuous as when he attempts to counteract the operation of laws which were designed by infinite beneficence for his preservation and comfort. The law in question is eminently important, and nature has made it unalterable.

(*g*) Though water takes a solid form in its various combinations, such as with lime, saline crystals, &c. we know of no method of compressing it when in a fluid state. The Florentine academicians filled a globe of gold perfectly full of water, and submitted it to a very powerfull press; but could not perceive that they were able to make it occupy a less space than it did at first. They gave it such a degree of pressure that at length the water exuded through the pores of the metal.

(*h*) If water be thrown on quick-lime, it will be retained by it with such force that nothing less than an intense *red* heat will separate it. In its combination with lime it becomes much more solid than when in the state of ice; which may be proved by direct experiment. Calcined plaster of Paris, in a pulverulent state, becomes quickly solid by mixing it with water. Saussure has proved that alumina, when mixed with water, retains a tenth of its weight of that fluid at a heat which would melt iron.

(*i*) It should be remembered, that all bodies which are soluble in water, form during their solution, a chemical combination with the water, and that solutions in water, are not mechanical mixtures.

Water is not only employed as a solvent for many solid substances, but has important uses in a variety of compounds. Besides imparting solidity to the classes of salts, it gives energy to the action of many of the acids, and is even necessary in their formation. Muriatic acid and nitrous acid gases are condensed so as to form liquid acids, merely by their union with water.

Beauty has little to do with engaging the love of women. The air, the manner, the tone, the conversation, the something that interests, and something to be proud of—these are the attributes of the man made to be beloved.—*Bulwer*.

PRICE CURRENT.

ARTICLES.		New-York. July 23.	Boston. July 18.	Philadelphia. July 19.	Baltimore. July 21.
Beans, white,	per bush.	1 25.. 1 30	1 25.. 1 75	1 00.. 1 12	1 00.. 1 25
Beef,	cwt..	7 50.. 7 75	7 50.. 7 75	7 00.. 9 00	7 00.. 8 75
Bacon, western,	lb....	10..	11.. 12	8 00..10	10.. 13
Butter, fresh,	lb....	18.. 22	16.. 25	14.. 18	11.. 17
Cheese,	lb....	7.. 9	8.. 9	9.. 10	9.. 10
Cotton, best,	lb....	9½.. 12	9.. 13	....	11.. 12
Flour, best,	bbl..	6 12.. 6 25	7 50.. 7 75	7 87.. 8 00	7 25.. 7 50
GRAIN—Wheat,	bush.	1 50.. 1 55	....	1 37.. 1 40	1 40.. 1 55
Rye,	bush.	80.. 83	85..	95.. 97	65.. 66
Oats,	bush.	25.. 37	33.. 35	35.. 40	.. 25
Corn,	bush.	78..	70.. 73	66.. 70	65.. 66
Hams, pork,	lb....	10.. 12	11.. 12	10.. 12	12½.. 14
Pork, in hog,	cwt..	....	8 00.. 8 50	....	6 75.. 7
SEEDS—Red Clover,	bush.	12 00..13 00	10 80..11 00	10.. 11	11 00..
Timothy,	bush.	....	2 63.. 3 00	2 ..3 25	2 25.. 2 50
WOOL—Saxony, fleece,	lb....	45.. 50	52.. 57	48.. 50	40.. 50
Merino,	lb....	37 . 38	48.. 50	45.. 50	35.. 40
1-4 and com.	lb....	32.. 36	33.. 35	33.. 38	25.. 30
Sheep,	head,	....	3 33..	....	....
Cows and Calves,		30 ..45	25 00..37 00	20 ..38	35 00..46 00

FROM THE STEAM PRESS OF
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THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Rules and Suggestions in Husbandry.

We shall now proceed to give, agreeable to the promise in our last number, some rules and suggestions in husbandry, of general application, to enable farmers, and particularly novices in the art, to judge of the character and qualities of their soil—of its adaptation to particular crops—of the causes of its deterioration—and of the means of perpetuating its fertility; or, if worn out or impoverished, of restoring it to its pristine vigor. The facts and suggestions which we shall give are the results of our reading and our practice; and though they may not in all cases prove to be sound, we think that in the main they will be found to be so.

1. The essential elements of a good soil, are sand, clay, lime, and vegetable or organic remains. Magnesia, iron, and other matters, are often found blended with the preceding; but, in general, they are not considered as exercising a great influence on its fertility, except they exist in more than ordinary proportions.

2. The presence of sand, clay, and vegetable matter, in a soil, is deemed essential to all crops; and lime, in some of its forms, is considered indispensable to many crops, and particularly to wheat.

3. The presence of sand and clay is readily detected by the experienced eye; that of vegetable matter by the consistency and colour of the soil; and that of carbonate of lime, by drying a portion of soil, and pouring upon it some acid, having a stronger affinity for the base than the carbonic acid, as muriatic acid, or even strong vinegar—if it contains lime, effervescence will ensue—the proportion may be ascertained by the modes of analysis we have published.

4. Sand is the most essential in the earthy ingredients of a soil, and most preponderates; though where it exceeds eighty per cent, the soil is virtually barren. Clay is next in proportion; but where it greatly preponderates, the soil becomes stubborn, is hard to be worked, and more or less unproductive. Lime exists in the smallest proportion; and from two to ten per cent of the upper or tillable stratum is deemed sufficient for all the purposes of profitable husbandry. When in excess, it induces barrenness. A calcareous soil is considered conducive to the health of the neighborhood. Organic matter, that is, vegetable or animal, is indispensable in a soil. It is the food of plants. Yet even this is often found in excess, as in peat earth, and is often infertile till mixed with earthy ingredients, or brought in contact with fermenting materials.

5. When an excess is discovered to exist of sand, clay, lime or vegetable matter, the fault may be remedied by an admixture of the deficient element or elements. When one of the elements is found wanting, it may be supplied by art. Thus a load of clay upon an arid sand,—or load of sand upon a stubborn clay,—or a few bushels of lime, or marl, or ashes, upon a soil deficient in calcareous earth, are often of more ultimate service than a load of barn yard dung. But,

6. Both dung and lime are consumed by the growing crops; and if the crops are carried off, the land must be periodically replenished with these, or it will often become deficient in these material elements of fertility.

7. The sand and clay of the soil, may be likened, in their offices, to the stomach of the animal; the lime and salts to the gastric juices which assist to dissolve the food in the animal stomach—and to the condiments, as salt, pepper, &c. which we employ to stimulate and aid the organs and process of digestion;—and the organic matter in the soil, to the food itself, which feeds and nourishes the animal system.

8. If the crops grown upon a soil are permitted to rot upon, and return to it again, its fertility is not impaired, but improved. Nothing is lost, but something gained, from the fertilizing influence of the atmosphere. But when all the crop is carried off, and nothing returned, deterioration must take place—the vegetable food must undergo a continued diminution. This is a plain exposition of the cause of lands *wearing out;* and at the same time it explains the necessity of applying manures to keep up their fertility.

9. All the elements of a good soil being present, its fertility, and consequent profit, will in a measure depend upon its exemption from an excess of water, which, like fire, is a good servant, but a bad master. This excess may arise from spouts and springs bursting up from below, or from surface waters, where the ground is level, or nearly so, settling and reposing upon a tenacious subsoil, or from waters flowing from higher grounds. Hence the importance of draining. We do not know of any farm crop which thrives well upon a soil that is habitually wet, either upon its surface, or within the natural range of its roots. Water-meadows and rice profit by periodical floodings; but they are injured by habitual wetness.

10. Fertility depends much, also, upon the quality and properties of the subsoil. If this is defective, or comes too near the surface, its faults may be corrected, and the tilth deepened, by bringing it up, in small portions at a time, with the plough, to the ameliorating influence of the atmosphere, and by blending it with the upper stratum.

11. If a soil, under proper management, does not return good crops, or if the crops are found annually to diminish, it is a sure indication that there is a deficiency in one of the primary elements of a good soil, that the subsoil has a malign influence, or that there is an excess of water. It is the province of the manager to search out the cause of the evil, and to apply the proper remedy, be it lime, manure, drainage or a deeper tilth.

12. Grain crops are the greatest exhausters of the fertility of soils, on account of their narrow system of leaves, and the great quantity of nutriment they extract from it to mature their seeds. The remark extends to the narrow-leaved grasses, converted into hay, when they are permitted to ripen their seeds in the field.

13. Indian corn, tobacco and beans may be embraced in the second class of exhausting crops; for although they have broad leaves, and are supposed to derive much of their nourishment from the atmosphere, they are nevertheless gross feeders, and are bulky crops, and leave very little upon the soil to compensate for what they take from it. But great economy in feeding these crops may be effected by applying to them the long manure of the yard and stables, instead of summer yarding it, as many farmers are wont to do. These crops will feed upon what is otherwise lost in the yard, the gaseous matters. These afford exactly the food that the crops named want, and at the very time they want it.

14. Roots come next in the order of exhausting crops; but they compensate, in a measure, by the ameliorating influence they have upon the soil—in dividing, pulverizing and freeing it from weeds—by their roots and the culture they demand.

15. Green crops, that is, clover, buckwheat, rye, oats, &c. *ploughed under as food for plants,* are enriching crops, and powerful auxiliaries to the fold-yard, but they are too seldom resorted to for this purpose.

16. Depasturing with cattle, and particularly with sheep, enriches a soil. According to Van Thaer, it adds 20 per cent annually to the fertility of an ordinary soil, probably for a limited period. This results from the fact, that the crop is returned to the soil, in the droppings and urine of the animals which graze it.

17. Lime and clay are essential in a wheat soil. Indian corn delights in a rich, dry sand loam. Turnips excel on dry sandy soils. Rye is impatient of wet. Barley does best on a clay loam, as do beets, carrots and peas. Oats and potatoes find a congenial berth in cool moist grounds, though for the latter the surface stratum should be light, or mellow. Of the grasses, the tap-rooted, as clover, lucern, &c. require a deep soil, permeable to their long roots, and free from water; the fibrous-rooted, as the tall-oat, orchard, &c. thrive upon soils that are shallower; and the rough-stalked meadow, red-top, bent, and some of the festuca family are congenial to, and often natural in, moist or swampy grounds. The timothy, or meadow cat's-tail, the main dependence for winter forage, in the northern states, adapts its roots, it is said, to its location—being fibrous-rooted upon dry, and bulbous-rooted upon moist grounds—and therefore adapted to any situation.

18. The natural fertility of a farm cannot be kept up, or increased, where arable and mixed husbandry prevail, from the resources of the farm stock, without resort to an alternation, or change of crops. Although the diminution of fertility may be imperceptible, in some extraordinary cases—and although some soils seem naturally and peculiarly adapted to certain crops,—yet where the same crop is grown on one piece of ground in successive years, deterioration as certainly goes on as the sun shines by day. Whether, according to the modern theory of certain European philosophers, and men of high repute, the excrementitious matter thrown into the soil by a growing crop is poisonous to its species;—or whether, as we mantain, each species requires and exhausts, or partially exhausts, a specific food in the soil, suited to its particular wants,—we will not now stop to inquire; but it is a fact established by general experience, that an annual change of crops upon a field, while under tillage, tends very much to economise is fertility, and to increase the profits of the labor bestowed upon it. Hence,

19. It has been laid down as a sound rule in farming, that two white, or grain, or culmiferous crops, should not be made to succeed each other in the same field; but that each of these should be alternated with, or followed by, a green, a grass, a root or a leguminous crop

20. Where the soil of a farm will admit of it, a good course is to alternate, 1, roots or Indian corn, with long manure, upon the sod; 2, grain, with grass seeds; 3, grass for two years. The poorer the soil, the oftener should it be returned to grass, particularly to clover and pasture.

21. Geologists refer to three distinct formations as constituting the crust of the earth—the *primitive,* containing little or no lime, or organic remains: the *transition,* containing lime and organic remains;—and the *secondary,* abounding extensively in both of these elements of fertility. Their natural relative *fertility* is in the reverse order in which they are named, the secondary being best, and embracing most of the great basin of the Mississippi and the country drained by its tributary streams. We say nothing of alluvial formations, made by the ocean and streams. These partake of the character of the country from which they are brought, and are more or less fertile, according to the fertility of the districts from which their soil is derived, and the force of the currents by which the deposites have been made—a rapid current leaving only the coarser or heavier materials, while the lighter and richer matters do not subside until the current becomes slow and less agitated. A sluggish current, therefore, deposites the richest soil.

22. The three great formations which we have mentioned, possess, it is well known, characteristics different from each other. They grow, naturally, many plants peculiar to each, and they are adapted to different branches of husbandry, or to different farm crops. The primitive will not generally grow good wheat; but is suited to grass, oats, potatoes, &c. The transition is adapted to natural grasses, and to most of the arable crops, particularly to the cereal class; and the secondary to the cultivated grasses, to roots, and particularly to wheat.*

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* An able writer in the Edinburgh Quarterly Journal of Agriculture, in reference to these formations, terms the primitive, which it seems comprises the most elevated lands in Scotland, the region of heath and coarse herbage; the transition, the natural region of the grasses; and the secondary the region of cultivated grasses, and particularly adapted to arable and alternate husbandry. He assigns to each a particular and distinct breed of cattle. To the first, or higher region, a thick haired, small hardy breed; to the second or middle region, those of larger size; and to the third, or lower region,

23. There are other circumstances, in regard to the location of a farm, which demand the consideration of the master, which refer to latitude and elevation. Plants have their natural zone, or climate, beyond which they do not grow, or thrive but imperfectly. There is a difference in every degree, or seventy miles, of latitude, upon tide-water, of five or six days, in the forwardness of natural vegetation in the spring, and nearly a like difference in the blighting indications of autumn. But what is of equal importance, but less generally regarded, is the difference in climate produced by altitude. Three hundred feet of elevation is considered equal to one degree of latitude, in its influence upon temperature. Hence it does not follow, that because a crop will thrive and ripen in a given latitude upon tide-water, it will thrive and ripen well in the same latitude at a higher elevation. On the contrary, to be better understood, we say, that, other things being alike, the climate on tide-water, in latitude 42°, is similar to that of a place three hundred feet elevated above tide-water in latitude 41°, or of a place nine hundred feet above tide-water in latitude 39°; so that the table land of Mexico, in latitude 16°, at an elevation of seven thousand and eight hundred feet above the ocean, should possess about the same mean temperature, and produce the same natural and artificial growth, as Kingston, upon the Hudson, though the extremes, both of heat and cold, are probably greater at the northern than they are at the southern point.* These data are assumed from recollection, and may not be precisely correct.

24. The means of preserving, and of augmenting, the fertility of the soil, are sufficiently indicated in the preceding suggestions. They consist mainly in manuring, draining, the admixture of earthy materials, and the alternation of crops.

25. Stable and fold-yard dung is most profitably applied in an unfermented, or partially fermented state, and to hoed and autumn-ripening crops. Fermentation diminishes the fertilizing properties of manure. If this fermentation takes place in the soil, the gases, the volatile portion which first escapes from the putrifying mass, are retained in the mould, and serve to feed the crop. If fermentation takes place in the yard, or upon the surface, the gases are wasted, and the dung undergoes further loss from the rains which ordinarily leach it. Long manure should be spread broadcast, and well buried by the plough.

26. Short manure, or that which has undergone fermentation, is most beneficial when harrowed in, upon arable lands, or spread upon the surface of grass grounds.

27. Old meadows may be kept in a productive state, in ordinary cases, by a triennial top-dressing with manure or compost; or may be renovated, and restored to a productive state, by the modes recommended in the first number of our present volume.

28. Composts are economical, when made to absorb fertilizing liquids which would otherwise be wasted—or to decompose inert vegetable matter, as peat earth, &c.

27. Lime, gypsum, marl and ashes are powerful auxiliaries, when applied to proper soils, or suitable crops. Observation and experience will be the best guides in their application. They should all be applied to the surface, or but superficially covered.

30. All vegetable and animal matters, constitute the food of plants, when they are rendered soluble, or capable of being dissolved in the water of the soil.

31. Bone dust, horn-shavings, poudrette, woollen rags, urine, and animal carbon, or burnt bones, are concentrated manures, and should be used sparingly and with great care, upon or near the surface of the soil. Pigeon and hen's dung partake much of the character of the preceding, and require precaution in their use. We think the best mode of applying the two first named, is to mix ashes with them, or long manure, just before they are put upon the soil, whereby they are brought speedily into a state of fermentation and decomposition.

32. The best guards against drought, are keeping the soil deep, rich, clean, and mellow on the surface.

33. The more cattle that are well kept upon a farm, the more manure; the more manure there is applied, the greater the product and the profit, and the greater the means of sustaining an increased stock of animals upon it. All of these advantages are increased when root crops are made to enter largely into the system of culture.

The Farmer's Garden.

The approaching is the proper season to lay out gardens, or to remodel old ones, preparatory to the operations of the coming spring. We shall therefore offer some remarks upon their formation and preparation; and intend hereafter to speak of the fruits and culinary vegetables most worthy of garden culture; and, subsequently, for the guidance of such as have a taste or desire to mingle the ornamental with the useful—to gratify the eye as well as the palate—we propose to give a list of shrubs, herbaceous plants and annuals which are in most esteem, and best adapted to our climate.

A kitchen garden, to which our observations will chiefly refer, should be near the dwelling, where it is not always practicable to *choose* the soil, the aspect, or the surface; these are in a great measure contingent upon the abiding residence. The best aspect is south, east, and the intermediate points, because it is the earliest; the best *soil*, is a rich deep loam, with a porous subsoil, that the roots of trees and plants may penetrate deep and broad, find plenty of sustenance, and be exempt from standing water. The best *surface* is one that is level or gently sloping, as such is least liable to be washed and impoverished by heavy rains.

Having selected a site, the next step is to enclose it with a substantial durable fence; for without this precaution the usefulness and beauty of the garden are at the mercy of every unruly boy, pig and cow of the farm and neighborhood. A hedge, with a fence to protect it on the exterior till sufficiently strong, is the handsomest, if not the best material. We don't make this recommendation in the expectation that it is likely to be followed by many, or perhaps any—for the idea is a prevalent one, and is sanctioned by the high authority of the Hon. James Garnet, that live fences are neither economical nor practicable in our climate—but because *we* think they can be made both cheap and efficient, when we become better acquainted with their management, and that they will ultimately be resorted to in many districts of our country where the materials for dead fences may become scarce and dear. Our reason for thinking they are practicable, results from our own experience: we have a strong substantial hedge of the three thorned locust growing, one of our native thorn, and one of privet. The two first are already a barrier to cattle, and they are all annually improving in strength and beauty. We have began to rear a fourth with plants of the buckthorn.

The *size* of the garden will depend upon the taste or convenience of the proprietor. It should not be less than the fourth of an acre, and may embrace, if garden fruit is to be cultivated, two acres. The plan which we submit with these remarks, and which we borrow from Cobbett's Treatise on Gardening, embraces about one acre.

In *preparing the ground*, three prominent objects should be kept in view: that the soil be made *dry*, that it be made *deep*, and that it be made *rich*. Underdrains, when necessary will effect the first; trenching, the second, and manure the third. A *wet* soil, or a soil liable to be wet during any part of the growing season, will not grow healthy vigorous plants. A *shallow* soil will not give sufficient pasture to the roots of trees, or a sufficient depth to the tap-rooted plants which must ever constitute a part of the products of the garden—and is soon affected by drought. A *poor* soil will hardly compensate for labor in garden products. But the soil being dry, and deep, and rich, the seeds well put in in season, and the crop well taken care of, no branch of rural labor makes a more profitable return than that which is bestowed upon a kitchen garden, especially where there is a contiguous market to take off what is not wanted for the family. The expenses of draining and trenching may be considered great and unnecessary; but they are not so in the long run. They are for time, and not for a season; and when once well done, need not be repeated. The fibrous roots of plants penetrate deep, where the soil is congenial, and extend to a great breadth. Cobbett traced roots of the common turnip four feet, and Tull proved that they extended to six feet. "It is well known," says Cobbett, "to all who have had experience on this subject, that of two plants of almost any kind that stand for the space of three months in topsoil of the same quality, one being on ground deeply moved [or trenched,] and the other on ground no deeper than usual, the former will exceed the latter one half in bulk. And as for trees, from the pear tree down to the currant bush, the difference is so great, that there is no room for comparison." A tolerable spadesman can easily trench four rods in an October or November day. This, at seventy-five cents a day, would bring the cost of trenching an acre, and of rendering it permanently useful, to $30—and the ploughings, harrowings, &c. would be superseded in the work of preparation.

The process of trenching is this: Begin at one end of the plat of ground, with the spade, a trench, all along, two feet wide, and two feet deep, unless an ungenial subsoil intervenes, in which case you may go some inches into this. "Throw the earth out on the side away from the garden that is to be; shovel out the bottom clean, and make the sides of the trench as nearly perpendicular as possible. Thus you have a clean open trench, running all along one end of your garden ground. You then take another piece, all along two feet wide, and put the earth that this new piece contains into the trench, taking off the top of the new, two feet wide, and turning that top down into the bottom of the trench, and then taking the remainder of the earth of the new two feet, and placing it on the top of the earth first turned into the bottom of the trench. Thus, when you have again shovelled out the bottom, and put it on the top of the whole that you have put into the trench, you have another clean trench two feet wide and two feet deep. You thus proceed till the whole of your garden ground be trenched;" filling up the last trench with the earth taken out of the first; "and then it will have been cleanly turned over to the depth of two feet." *Cobbett*, § 20. There is another strong inducement for trenching, where fruit trees are to be grown. Some gardens are found not to be congenial to the growth of certain fruits, as the pear, the plum, &c. This is often owing to the superficial stratum in which their roots are permitted to penetrate, often to stagnant water, reposing unobserved upon the subsoil, and often to deleterious materials in the subsoil itself. By draining, the water is conducted off; by trenching, the tilth is deepened, and the deleterious matters in the subsoil, within the natural range of the roots, brought under the improving influence of the atmosphere, and its injurious properties destroyed by that influence, and from becoming incorporated with the true soil. To those who know how to appreciate the value and luxury of a succession of choice garden fruit, an outlay of $30, or rather of $20—for the suitable preparation by the plough will cost $10—will think little of the expense, when put in competition with the advantages which are likely to result from trenching. And if a garden is to be trenched, it is better to do it before trees or shrubbery are planted in it, and the ground laid out, than after these operations have been wholly or partially performed.

We copy, as we before observed, from Cobbett, our plan of a garden, because we think it well suited to the wants and convenience of the American farmer; and that it is better to have trees and culinary vegetables in distinct compartments, than to mix them, to the prejudice of both, as is generally the practice. The plan embraces one acre. One-half, or one-quarter, of this space may be taken by those who are parsimonious of means, or who distrust the utility of a larger plat; and with trifling modifications which will suggest on reflection, the general outlines of the plan may yet be preserved.

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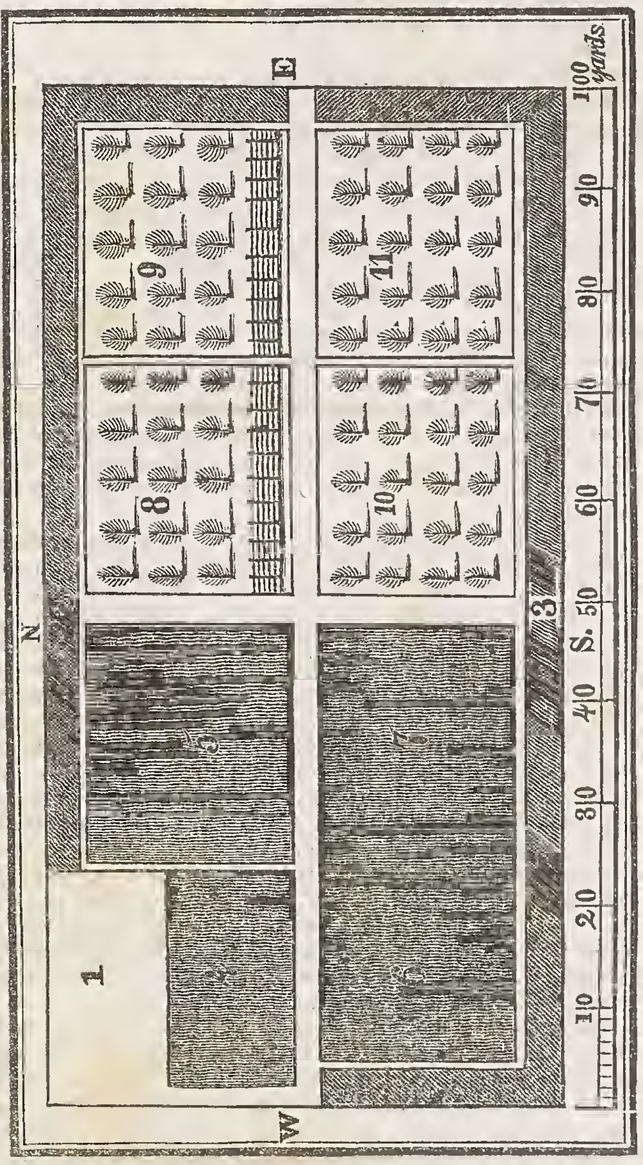
those that are more sensitive to cold, gross feeders, and that acquire the greatest weight. He goes on to show, from numerous examples, that these several breeds are the most profitable in the several districts assigned them; and that they are manifestly improved, in most cases, by a judicious cross with the improved short horns. There is much good sense in the writer's remarks; and although the descriptions of the three formations, as to elevation, does not fully apply in the United States, the facts we have copied afford useful suggestions to the American grazier.

* "All the western part of the intendancy of Vera Cruz," says Humboldt, in his New-Spain, "forms the declevity of the Cordilleras of Anahuac. In the space of a day the inhabitants descend from the regions of eternal snow, to the plains in the vicinity of the sea, where the most suffocating heat prevails. The admirable order with which different tribes of vegetables rise one above another, by strata as it were, is no where more perceptible than in ascending from the port of Vera Cruz to the table land of Perote. We see there the physiognomy of the country, the aspect of the sky, the form of plants, the figures of animals, the manners of the inhabitants, and the kind of cultivation followed by them, assume a different appearance at every step of our progress.

"As we ascend, nature appears gradually less animated, the beauty of the vegetable forms diminishes, the shoots become less succulent, and the flowers less coloured. The aspect of the Mexican oak quiets the alarms of travellers newly landed at Vera Cruz. Its presence demonstrates to him that he has left behind him the zone so justly dreaded by the people of the north, under which the yellow fever exercises its ravages in New Spain. This inferior limit of oaks warns the colonist who inhabits the central table-land how far he may descend towards the coast, without dread of the mortal disease of the *vomito*. Forests of liquid amber, near Xalapa, announce by the freshness of their verdure that this is the elevation at which the clouds, suspended over the ocean, come in contact with the basaltic summits of the Cordillera. A little higher, near la Bandarila, the nutritive fruit of the banana tree, comes no longer to maturity. In this foggy and cold region, therefore, want spurs on the Indian to labor, and excites his industry. At the height of San Miguel, pines begin to mingle with the oaks, which are found by the traveller as high as the elevated plains of Perote, where he beholds the delighful aspect of fields sown with wheat. Eight hundred metres higher, (two thousand and six hundred feet,) the coldness of the climate will no longer admit of the vegetation of oaks; and pines alone cover the rock, whose summits enter the zone of eternal snow. Thus in a few hours the naturalist, in this miraculous country, ascends the whole scale of vegetation, from the heliconia and the banana plant, whose glossy leaves swell out into extraordinary dimensions, to the stunted parachyma of the resinous trees."

PLAN OF A FARMER'S GARDEN.

[Fig. No. 46]



"The *laying-out* of a garden," says Cobbett, "consists of the division of it into several parts, and in the allotting of those several parts to the several purposes for which the garden is made. These parts consist of *walks, paths, plats, borders* and a *hot-bed ground.*"

The length of the garden, from east to west according to the above plan, is 100 yards; the breadth 50 yards. Cobbett's reasons for this form, an oblong square, are, "*first*, that we get by it a *long warm* border under the *north* fence for the raising of things early in the spring. *Second*, we get a *long* and *cool* border under the *south* fence, for *shading*, during the great heats, things to which a burning sun is injurious. *Third*, by this shape of the area of a garden, a large portion of the whole is sheltered, during winter and spring, from bleak winds." The following is Cobbett's explanation of the plan before us:

"The long walk, from east to west, is six feet wide, as is also the cross walk in the middle. All the paths are three feet wide. The borders, Nos. 2 and 3, are nine feet wide. The dimensions of the plats, Nos. 5, 7, 8, 9, 10 and 11, are (each) seventy feet from east to west, and fifty-six from north to south. Plat No. 6, is fifty-six by fifty. Plat No. 4, is sixty feet by thirty-six." And as to the mode of planting, he observes correctly, that all crops of large growth, as corn, peas, beans, onions, beets, &c. should be planted in rows to run north and south; while small crops are best planted in rows running east and west, across the beds.

It will be seen that a third part of the garden is appropriated to fruit trees, as the pear, plum, peach, cherry, &c.; that one-sixteenth is appropriated to hot-beds; and the remainder, embracing six hundred feet of early and late border, to culinary vegetables, medicinal and sweet herbs, small fruits, &c.

We would suggest that a portion of one of the borders be appropriated to a *garden nursery*; in which cuttings of the grape, currant, gooseberry, &c. and seedlings of fruit trees, may be planted, and budded or grafted, to replace those which decay. The currant will not do well in the same ground more than ten or a dozen years. The currant may be raised on a single stem, as a dwarf tree, if, previous to the cutting being inserted, all the eyes but two or three of the upper ones, are cut out with a knife.

An *asparagus bed* should be placed in an early border. It may be made from roots or seeds. The plants or seeds should be in rows across the bed twelve inches apart, the plants six inches in the rows. It will last many years if taken care of, pay well for the labor bestowed upon it, and yield one of the finest delicacies for the table.

We shall continue the subject, and proceed, in our next, to give some directions for filling the different compartments embraced in the above plan.

Prevention of Smut.

We extract the subjoined table from the Quarterly Journal for June, as particularly applicable and useful at this season. It gives the results of trials with various liquids, as steeps for seed wheat, made by Mr. Bevan, on a sandy soil in Bedfordshire. The columns in the table which are marked A. contain the result from the steeped grain which was sown; and those marked B. are the results from smutted samples.

LIQUIDS EMPLOYED.	No. of smutted ears in three sheaves.		Bushels of good wheat per acre.		Cwts. of straw per acre.	
	A.	B.	A.	B.	A.	B.
Solution of potash,......	1	81	21.6	13.6	36.6	29.1
——— muriate of potash,.	3	218	20.2	10.1	36.0	21.1
——— muriate of potash, (salt petre,)..	7	115	23.8	14.3	36.9	31.9
——— soda,...................	9	159	20.2	11.7	35.6	26.7
——— muriate of soda, (common salt,)	0	290	24.0	14.5	41.5	33.3
——— sulphate of soda, (glauber salt,).	12	241	21.6	12.3	38.5	27.8
——— muriate of ammonia, (sal ammo.)	1	150	19.8	17.6	35.4	30.2
——— soot,......	0	123	20.8	11.4	34.8	25.3
——— lime, saturated, ...	0	2	21.9	12.4	38.7	25.9
——— nitric acid, (aqua-fortis,)	Seed	did not	vege	tate.		
——— muriatic acid, (spirit of salt,) ...	0	136	20.7	16.1	35.7	34.1
——— sulphuric acid, (oil of vitriol,)..	0	0	20.4	17.8	35.4	37.1
Dry, in its natural state,.............	0	323	20.3	14.7	35.7	31.1
Washed in common water,............	......	107	.....	18.3	....	35.8

It will be seen that the seed steeped in a pickle of common salt was free from smut, gave the greatest product in good grain, and the greatest weight of straw. This steep may be used by every farmer.

The article from which the above table is extracted was written by George W. Johnson. The writer examines the erroneous theories and opinions which have prevailed as to the origin or cause of smut in grain, and we think satisfactorily shows their fallacy. Mr. Johnson then proceeds to detail what he considers correct knowledge upon the subject, and quotes some of the most eminent naturalists in support of the opinion, that what passes by the different names of *smut, dust-brand and burnt corn* is a parasitical fungus, which preys not only upon the sap, but destroys the very organic structure of the grain and chaff upon which it fixes. Botanists generally distinguish this fungus by the name of *urido segetum.* Chemical analysis has shown it to consist, 1st. Of about one-third of its own weight of a green, butryaceous, fœtid and acrid *oil.* 2d. Nearly one-fourth of a vegeto-animal substance, perfectly similar to that which comes from *putrid gluten.* 3d. A *black coal*, one-fifth of its weight, similar to that which is found in all remnants of putrified organic compounds. 4th. Free *phosphoric acid*, amounting to scarcely more than .004 of the smut. 5th. Phosphates of ammonia, magnesia and lime, in the proportion of a few thousandths." "The contagion attacks especially the gluten, and precedes, indeed prevents, the formation of starch." It has also been shown, by Duhamel, Kirby and others, that the disease exists in the affected plant, before the development of the head; that it is propagated by minute seeds, which attach to the kernel, and which are so light as to float buoyantly in a damp atmosphere; that the vitality of these seeds is not destroyed by frost; but that they will contaminate seed grain, with which they come in contact, after being long in the soil. In early spring, when the plants were but a few inches high, upon carefully opening the hose or blade which covers the ear, M. Duhamel found this embryo already black and distempered. After quoting the results of many experiments besides those in the above table, made by Mr. Bevan, Mr. Johnson adds—

"The conclusion from these and many other accordant experiments is, that washing the seed is effective in preventing the communication of the disease to the crop to which it gives birth. If the washing was frequently repeated, or the cleansing made complete, by passing a continued stream through the wheat for some hours, it is probable that simple water might be employed for this purpose as effectually as any saline solution. But as this would require more labor than is desirable, and as the salts, &c. employed are beneficial in other ways, by protecting the seed from vermin, and ministering to the future vigor of the plants, steeps are generally and very properly adopted."

If lime be adopted, it is recommended to prepare it by mixing "one pound of fresh lime with three gallons of boiling water, allowing these to stand for two hours, and the clear liquor then to be poured off and immediately used. In this liquor the wheat should be soaked for twelve hours, stirred twice or thrice during the time, and then mixed upon a floor, with the powder made by pouring three gallons [pints?] of boiling water upon five pounds of lime."

Mr. Johnson has had no experience with lime himself; but he has witnessed many experiments with stale urine and a solution of common salt. He thinks the latter the most agreeable; and although both were completely effective, without exception, he has used the salt, as being most cleanly as well as convenient. His mode is, to wash the seed with pure water, to skim off the floating light grains, and then to soak it twelve hours in a pickle made with common salt, strong enough to float a hen's egg. Mr. Johnson is satisfied, from experiments he made, and which he details, that the soil is one source of infection, and that salt is an antidote to this infection; and he thinks the truth of these opinions is confirmed by the fact, "that fields in the vicinity of the sea are rarely injured, and never extensively, by the ravages of the smut."

Green's Straw Cutter.

Our ingenious countryman, Mr. Green, has received a high compliment, in the encomium which has been passed upon his machine by the Highland Agricultural Society of Scotland. A description of this machine was sent from Canada to the secretary, by Mr. Ferguson, who pronounced it "the easiest and the most effective cutter he ever met with—a real first rate machine." The communication was laid before the committee on machinery, who, after making a machine according to the description, and sufficiently testing it, reported that they found it "to bear out all that was reported of it by Mr. Ferguson;" that "it is now ascertained, that it will cut *three times more* than the best of the common sort, and with *less force;*" and that "one person driving the machine will cut with ease five hundred weight of hay or straw in an hour." This is a high, but deserving commendation. The notice, with a cut of this machine, is published in the society's papers for June.

Suggestions to the Wool Grower.

Hitherto the attention of the farmers has been principally directed to the rearing of sheep for the profit of the fleece, or of the carcass separately, without reference to the advantages to be derived from both conjointly. Hence the Saxon, Merino and New-Leicester breeds have been principally sought for, the two first on account of their fine wool, and the latter on account of the great weight of carcass. The great increase in the number of fine woolled sheep, and the serious depression for some time in the wool market, render it worth the consideration of the sheep master, whether he cannot vary the character of his flock to advantage.

The South Down sheep of Britain have the reputation of making the best mutton of any breed; and this mutton sells for a penny a pound more in the London market than any other. We have ate of this mutton several times, and recently, and think it deserves all the commendation bestowed upon it. The sheep are hardy, and are peculiarly adapted to light upland soils. They take on fat quick, and come to early maturity. This breed has been recently improved by a cross with the improved Cotswold, with great advantage to the fleece, without seeming prejudice to the mutton. A Mr. Troynam states in the July number of the Farmers' Magazine, that he obtained from 300 ewes of this cross, while suckling their lambs, an average of five pounds of wool each, and from 110 yearlings, an average of seven pounds two ounces each. The wool sold at 42s. per tod of 28lbs. which is equal to 32 cents per lb. or $1.60 for the ewes, and $2.24 for the yearling fleece.

Harvesting Corn.

As the Indian corn harvest comes in this month, we would suggest to those who have not adopted the practice, to cut the crop at the ground, and immediately to deposite it in stooks, as a means of lessening the harvest labor, of securing the crop from the injurious effects of early frost, and of materially enhancing its value, over the old mode of topping. The crop may be cut as soon as the grain has become glazed. By our experiments, made with great care, the details of which will be found in our last November number, we gain six bushels an acre, in heavy corn, by cutting up the crop, over what we obtain by topping it, and make a still greater gain in the forage.

A Steam Plough,

Is now being constructed in New-Jersey, designed for operating on the western prairies. An intelligent gentleman who has examined it, has so much confidence in its success, that he tells us he has ordered one for his own use, in the valley of the Wabash.

The Crops—(Private Correspondence.)

After ordering a quantity of Rohan potatoes and Dutton corn to be forwarded to him the coming fall, our Baltimore correspondent, G. B. Smith, adds: "I would remark, that I place great value on the fact of getting these articles from you direct, for our farmers have been so greatly hoaxed or cheated by seedsmen, that they have little confidence in them. I could not have sold the spring wheat (Italian) had Mr. B. not been able to have brought a letter from you. All I sold has turned out well. The extreme heat has caused much of it to *shrink*, but it has all made a good crop. What little Siberian was sold here has not done well at all; and a great deal that I knew was of a doubtful character, and refused to have any thing to do with, has, as I expected, resulted very badly. At present the prospect of the Dutton corn is favorable."

Mulberry Farm, N. J. July 29.—"Our harvest is over, and we have but a poor crop,—I mean a light one. Rye is meagre enough. Some of our best farmers say they have not half a crop. As a general remark, I believe we shall not gather more than ten bushels to the acre, this section of country over. This region is one of the best; indeed more rye is raised upon an equal number of farms than on any other in the state. The grass crops are proportionably light. Oats are not half a crop. Corn is so injured by drought, that one and all agree there cannot now, if rain should come within a few days, be more than half a crop. There has been no rain for six weeks past, and vegetation generally is suffering beyond recovery. Pasture there is none. Potatoes are scarce—buckwheat destroyed by grasshoppers. Truly the farmer's prospect is discouraging and dark enough. J. N. B."

Knoxville, Te.—"The small grain harvest was never better in East Tennessee. The crop from the golden chaff, alias Missouri wheat, is unusually large. It is decidedly the favorite of our farmers. It was from its first introduction into this climate excellent—but the acclimating process has improved it essentially. We have been experimenting with the Siberian wheat, but as it is not yet matured, I cannot say how it suits our soil and latitude. *J. G. M. Ramsey.*"

Braintree, Mass.—"Wheat has failed with me, (the Siberian spring.) It has rusted; the kernel has not filled. The land was limed, and the produce of straw is estimated at two and a half tons per acre —so we are here at a loss for some crop to seed down with in June, from our lands being springy, as our farmers reject oats and barley. Of hay our yield has been abundant, I should judge a quarter more than the last season, and it has been got in well. Corn promises well. Potatoes in many places lack rain. Fruits not so abundant as the blossoms indicated, though the growth of wood has been great. On the whole, the countryman has this year more than usual to be grateful for. *B. V. French.*"

The rust is a sufficient cause of the shrinkage of the wheat, and the crop should be cut as soon as it appears. It seems to us, besides, that the soil of East Massachusetts lacks something besides lime, to fit it for the wheat crop, viz. animal matter, an essential element of the gluten of wheat. Barley and oats are good crops on soils adapted to their growth; and we suspect, by the greater amount of their product, on such soils, would make a better return than wheat does there. We advise our correspondent to try again. First to underdrain his wet grounds, which will enable him to sow early; and if he is anxious for the wheat bounty, let him apply some concentrated manure, containing animal matter, as bone dust, horn shavings, poudrette, animal carbon, urine, fish or slaughter-house manure. These article are all *comeatable* in the vicinity of Boston.

Greenwich, N. J. August 9th, 1838.—"The wheat crop with us was quite promising, but suffered from the rust, and many of our farmers have their crops injured by the smut. The corn crop never looked more promising than at the commencement of last month, but we have had no rain for more than four weeks, and much of it is now entirely dry; but I suppose that rain in a few days would probably make half a crop. Some buckwheat was sown before the ground became too dry for vegetation—some have been waiting for rain, and have not sown; and some that was sown since the ground was dry does not vegetate. Respectfully. *Benj. Sheppard.*"

From the various notices in the newspapers, and from information derived from travellers, it seems certain, that the early harvest, embracing winter grain and hay, has been unsually abundant throughout our country. Yet we regret to learn, that the drought of July has been severe and disastrous to the late crops, all along our Atlantic border, from Virginia to Massachusetts.

In Virginia, it is stated from Norfolk and Winchester, that the corn crop has been greatly injured, and upon light soils nearly destroyed.

In Maryland, the injury is still greater; in Frederick and Washington, two of the best agricultural counties, "many farmers have cut down their corn stalks, with the intention of putting wheat in the fields. In many fields the yield will not be half a barrel ($2\frac{1}{2}$ bushels) the acre. The clover and pasture fields have also suffered dreadfully, and upon many farms they have had to resort to their hay to sustain their stock."

In Pennsylvania, the injury has also been very serious. It is stated from Harrisburgh, that "the corn and potato crops are considered as gone past recovery. The farmers are turning their cattle into their corn fields, and cutting their stalks up for fodder." Fruit, also, has been much injured.

In New-Jersey, the south part of New-York, Connecticut, Rhode-Island and Massachusetts, the drought has also been severe. It has been less so in this vicinity; though here the corn, potatoes, and late sown wheat and oats will be sensibly diminished in product. The heavy rains which fell here on the 5th and 6th August, completely saturated the soil, and revived and gladdened animated nature. In the northern and some portion of the western parts of our state, there has been no want of rain.

On Earthing Potatoes.

The general practice has been, and now is, to earth the potato crop, by making conical hills or ridges.—But, within a few years, the propriety of this mode of culture has been doubted, as tending to curtail the pasture of the plant, and to expose it to greater injury from drought; and several, who have experimented in the matter, have come to the conclusion, that the crop is most productive when but partially, or not at all earthed. A French Journal gives the following as the result of one experiment made by M. de Dombale:—Eight rows were horse-hoed; some little time after they were earthed up, and when five inches high they were again earthed up. Other eight rows in the same place, and under exactly the same circumstances, were *only horse-hoed*, at the same time with the others, but received no earthing up or subsequent culture. The product of the earthed up potatoes was 1,222 lbs; of the others 1,408 lbs. and in a very fertile spot, the difference was one-third in favor of the latter.

Effect of Steam Power.

The effect of steam navigation in enlarging the commerce in eggs, has been wonderful. The importation of eggs from Ireland, during the last year, to Liverpool and Bristol alone, amounted in value to $450,000. The importations into England from France, were probably much greater. The egg commerce of our country has also been greatly increased, by the facility of transporting them to our large towns by means of steam. Equal facilities have been afforded, by steam navigation, for the transportation of beef cattle. Thousands of fat animals are now annually taken down the Hudson, on board of boats towed by steam. Rail-roads are also now being employed for the transportation of fat animals, and promise important advantages, not only in diminishing the expense of marketing, but in preventing the waste of flesh incident to driving a distance.

Horticultural Society of the Valley of the Hudson.

This society was organized in May last. We have not hitherto noticed any of its proceedings, from the hope, that ere this, we should have been able to publish them entire, with a notice of the first exhibition. The proceedings and notice came to us first in a printed form after the present number of our paper was prepared for press. We are obliged, therefore, to be content with giving them a brief notice for the present, reserving to a future opportunity a more detailed statement.

The plan of this association originated with a few individuals, who were desirous of profiting themselves and the public, by the improvement of horticulture and rural embellishment, in the valley of the Hudson—by introducing and disseminating among us, all the choice garden and orchard fruits, culinary vegetables and ornamental plants, that are congenial to our soil and climate, and suited to our wants and comforts. A circular, inviting a meeting at New-York on the 30th May, for the purpose of organizing an association, was printed, with the following respectable names attached to it, viz: Morgan Lewis, James G. King, J. Buel, Stephen Van Rensselaer, Ed. P. Livingston, John W. Knevels, Theodore Allen, J. R. Stuyvesant, John Torrey, Alex. Walsh, Geo. C. Thorburn, Ph. S. Van Rensselaer, James Wilson, A. J. Downing, Wm. Thorburn, J. A. Thompson, Jas. A. Hamilton and Freeborn Garretson. From an untoward series of disappointments, these circulars had but a partial circulation, and did not arrive in N. York for distribution till the day before the time appointed for the meeting.

A meeting of respectable gentlemen, from different counties on the Hudson, did, however, take place at the rooms of the Lyceum of Natural History, in New-York, on the 30th May—a constitution was adopted, officers were chosen, and preliminary steps were taken to have a semi-annual exhibition of horticultural productions, together with a suitable address, at the rooms of the Lyceum, No. 563 Broadway, this fall. The time of the exhibition has now been fixed for the 27th of the present month of September.

The *objects* of the society, as set forth in the constitution, are—"the promotion of horticulture, and the taste for rural improvement in general—by comparative exhibitions, at which medals and premiums shall be awarded—by procuring and disseminating choice fruits and plants—by experiments in culture throughout different sections of the territory embraced—by lectures and essays on various subjects connected with the science and practice of horticulture—and in such other methods as shall be deemed advantageous by the association." The constitution also declares, that there shall be semi-annual exhibitions—first, the summer meeting, for the smaller fruits and earlier flowers, to be held in June, at Albany, Poughkeepsie and Newburgh, alternately; and second, the autumnal meeting, for the larger variety of hardy fruits, and late floral and vegetable productions, to be held in September or October, in the city of New-York. The terms of admission to members, are an initiating fee of *Five Dollars*—no annual contributions are exacted.

The following officers were elected for the ensuing year:—J. Buel, of Albany, President; A. J. Downing, of Orange, Corresponding Secretary; N. G. Carnes, of New-York, Recording Secretary; G. C. Thorburn, of New-York, Treasurer; Ph. S. Van Rensselaer of Albany, Ed. P. Livingston of Columbia, E. Holbrook of Dutchess, N. Becar of Kings, Alex'r Walsh of Rensselaer, John Torrey of New-York, C. Ludlow of Orange, R. Arden of Putnam, J. E. Dickey of Queens, Eleazer Lord of Rockland, Samuel Young of Saratoga, A. B. Hasbrouck of Ulster, James A. Hamilton of Westchester, and William Emerson of Richmond, Vice-Presidents. *Executive Committee:* Theodore Allen, J. R. Stuyvesant and J. W. Knevels, of Dutchesss; Henry Robinson, J. F. Betts and C. Downing, of Orange; J. M'Donald M'Intyre, William Thorburn and James Wilson, of Albany; and John J. Palmer, James Pennell, (M. D.) J. A. Perry, James R. Hamilton, John Groshon, and William R. Rushton, of New-York.

Gentlemen throuhout the valley of the Hudson, and elsewhere, are requested to bring to the exhibition, on the 27th September, such horticultural and agricultural products as may serve to make up a complete comparative exhibition of the various fruits, flowers and vegetables, produced upon our diversified soils.

The Horticultural and Pomological Societies of Europe, have effected important benefits to mankind, by their labors in producing new varieties of fruits, flowers and enculents, and in collecting, and disseminating the choicer varieties. We are indebted to their labors, at this day, for many new and valuable kinds, which otherwise would probably have remained unknown to us. Nor do we lack evidence, at home, of the utility of these associations: the societies at Boston, Philadelphia, Baltimore, Washington, and in the western part of our state, have done, and are doing, much, to multiply the sources of human enjoyment, and to promote a laudable taste for rural embellishment and social enjoyments. When we consider the science, the wealth, the taste, and the professional talent, that may be found in the valley of the Hudson—the liberality and enterprise of its population—the susceptibility of our valley for high and picturesque improvement—and the advantages which may be made to flow from the labors of the society,—we cannot hesitate in expressing a conviction, that the project will be promptly and generously sustained and supported by our enlightened citizens.

Application for membership may be made to the officers named above, who will furnish the printed proceedings, embracing the constitution, and a diploma, under the seal of the corporation.

Great Sale of Short-Horned Cattle.

The Short-Horned stock of C. S. Clarkson, of Cincinnati, full and part blooded, was lately sold at auction. It comprised 91 animals, and sold for the gross amount of $27,802—averaging $305 each. One of the cows with a calf, sold for $1,075; a cow, 12 years old, sold for $1,000; a yearling heifer at $700; a two year old heifer at $875; a three year old bull $1,450; and a bull calf, 9 months old, for $1,000!! When will our farmers learn, from these extraordinary prices, the difference between superior and ordinary cattle? When they appreciate justly their true interests. By the way: we think the Short-Horn fever has attained a crisis in Ohio and Kentucky, and that prices must hereafter retrograde, rather than advance. We remember that in 1815, or thereabouts, some Merino bucks sold for $1,500, and that a few years afterwards they sold at $50, and even at $15. To use a common sense proverb—"there should be reason in all things."

A Flora of North America,

By Prof. John Torrey and Asa Gray, is now being published by Messrs. Carville, New-York, Carey & Lee, Philadelphia, and Little, Brown & Co. Boston. It is to be comprised in three closely printed vols. of 550 pages each, and is to embrace all the indigenous and naturalized plants growing north of Mexico, including Nuttall's collection from the Rocky Mountains. The first volume is to comprise the exogenous polypetalous plants, and to be published in three numbers, or parts, of 184 pages each—price $1.50 for each part.

Flax Culture.

We have been presented with two specimens of flax fibre, one in a greenish unrotted state, and the other, termed short-staple, prepared by a new process, white, soft and delicate, fitted for the finest fabrics. This short staple may be carded, spun and wove, by machinery, like cotton. Three tons of stem will make one ton of unprepared lint—seven tons of stem will make one ton of short-staple lint. This new discovery in the process of preparing the lint, will give encouragement for an extended culture of flax, particularly in districts where it is now raised for the seed only, as in Seneca county—as the stems will be worth $12 per ton to the grower, exclusive of the seed, as soon as they are thrashed. If the anticipations which have been indulged in, of the value and importance of this discovery, should be realized, flax is likely ere long to become one of the great staples of our soil.

Insects—Genus Curculio—Weevil.

A series of papers is being published in the Edinburgh Quarterly Journal of Agriculture, "On insects most injurious to vegetables and animals, and the means best calculated to counteract their ravages," by James Duncan. Of the genus Curculio, Mr. Duncan informs us, no less than five hundred different species have been described as inhabiting Britain.—"Both in the larvæ and perfect state, they feed exclusively on vegetable substances." Since the time of Linnæus, naturalists have subdivided them into a multitude of genera. They are found to be very formidable enemies, both to the farmer and gardener. Some, in their larvæ state, prey upon the roots of plants; some upon the foliage; some upon the blossoms; some upon fruit; and some upon ripened seeds, as the weevil upon the contents of the granary. This last kind, particularly prejudicial to the farmer, is denominated

"*Calandra granaria.*—The extensive devastations of this, the *grain-weevil*, as it is called *par excellence*, have obtained for it a kind of bad eminence among its compeers, and caused its habits to be investigated with considerable attention. Several circumstantial accounts of it have accordingly been published; but we cannot, for that reason, omit to include a resumé of its history in a general notice of the insects destructive to vegetable produce, more especially since the best of these accounts are in a foreign language, and in works not readily accessible to the general reader. It is the only species of the genus *Calandra* that can properly be considered a native of this country, and presents the following generic peculiarities:—Antennæ scarcely longer than the head and rostrum, inserted near the base of the latter, nine-jointed,—the elongated radical joint, when bent backwards, reaching to the thorax,—six following short,—the remainder forming a narrow, somewhat ovate club, the apex of which is spongy; rostrum rather long; thorax elongate, a little narrowed in front; elytra scarcely longer than the thorax, and not quite covering the abdomen; legs rather short. The species in question is nearly two lines in length; of a brown or pitchy colour when mature, but pale on first emerging from the pupa; the thorax is nearly as long as the elytra, rather depressed above, and covered with large oblong punctures; elytra scarcely so wide as the thorax at their base, the surface marked with deep lines faintly punctured in the bottom; under side of the body also punctured; legs rusty red.

"This insect frequents granaries and other repositories of corn, where the female buries herself in the heaps, and deposites her eggs in the grain. For this purpose she makes a small hole with her rostrum in the skin of the grain in an oblique direction, and, after having placed an egg in it, closes the aperture by means of a glutinous matter. Never more than one egg is consigned to a single grain, as the whole of the substance of the interior is insufficient for the support of no more than one larva. The latter is hatched in a longer or shorter time, according to the temperature, but usually after a few days. It is a small vermiform creature, of a white colour, and about a line in length, composed of nine segments, the body soft, but the head of a harder consistency, in order to afford sufficient support to a pair of strong jaws, which are the only external organs it has either space or apparent inclination to employ. With these it erodes the farinaceous substance of the grain, continually enlarging its dwelling as it continues to increase in size; and by the time that the whole of the interior is scooped out, it is prepared to assume a different form when food is no longer necessary. The pupa into which it now changes is also white, somewhat transparent, and lies like the kernel of a nut within its shell, the latter being formed by the exterior envelop of the grain. When the perfect insect is matured, it makes its escape by gnawing a hole in the walls of its tenement.

"The period when these changes take place, and the duration of each successive state, are greatly influenced by the temperature. In the south of France, for example, the female commences laying in the month of April, and the insects continue to propagate till September. In this country they increase rapidly only during the warmer months of summer. As might naturally be expected in such circumstances, the geographical distribution of the *Calandræ* is likewise dependent on temperature; they occur in profusion in the south of France, and similar latitudes in Europe; are likewise too abundant in London and the southern districts of England, but gradually become less plentiful as we advance northward. We believe that they seldom occasion any serious damage in Scotland. On an average, it may be stated, that from forty to forty-five days elapse from the union of the sexes till the evolution of the perfect beetle, the greatest proportion of which is spent in the larva state. From the number of eggs laid by a single female, it has been calculated that her descendants may amount, in a single season, to 23,600 individuals; a degree of fecundity which may enable us to judge of the evil they are calculated to produce when their numbers, in the first instance, are considerable.

"Although the larva is of course the principal cause of this injury, the perfect insects take likewise a direct share in it, by gnawing the grains. It has, indeed, been denied by some observers, that they ever do this, except when making an opening for the admission of the egg; but it is utterly improbable that they should, for such a length of time, frequent places where they can have access to no other kind of food, without using the grain as such. In this condition, however, probably very little food suffices, and the injury done consists rather in the frequent breaking of the skin of the grain, than in the actual quantity of its substance consumed.

"The grain into which this insidious foe has been so expertly introduced, presents no external appearance of being unsound, but when immersed in water, it floats on the surface, a circumstance which intimates that the farina has been destroyed. When this is the case, the infected particles should be removed, if possible from the heap, and the enclosed beetles killed. But in an extensive granary, this is obviously no easy task, and the loss arising from the insects will not in many instances, greatly exceed the trouble and expense incurred by any means of separation that has yet been employed. If the damaged grain, however, be so much lighter as the above-mentioned circumstance seems to indicate, it appears probable that if the whole were passed through a winnowing machine, it would be thrown out in the same manner as the chaff and light corn are in an ordinary case. If this operation were found to answer the purpose, it could be more easily carried into effect than any other plan that has been recommended. That of exposing the corn to heat, is liable to this objection, that before the eggs or larva could be destroyed, the temperature would require to be so high that it would dry the corn too much, and even calcine it.

"The principal object ought to be the destruction of the beetles before they have had time to lay their eggs; after that operation is accomplished, they spedily die of their own accord. Of the various schemes that have been proposed for this purpose, the following is the most approved. When the individuals have passed the winter in a torpid state, are beginning to recover their activity, and to move about among the grain, a small heap, composed of that kind of corn to which they are most partial (which is said to be barley,) should be placed at a small distance from the principal store. The latter should then be turned over, and tossed about as much as possible, at intervals, that the weevils may be fairly disturbed and put in motion. Naturally very fond of quiet, and anxious to escape from such unceremonius treatment, they take refuge in the undisturbed heap placed as a decoy. When collected there in numbers, they are speedily incapacitated for further mischief by having boiling water poured over them in such quantities as completely to saturate the heap. Such individuals as escape to the walls or elsewhere, may be swept together by a broom, and easily disposed of.—The corn of the decoy-heap may afterwards be separated from the dead insects by sifting. Even though this plan may appear not to promise much in the recital, it is affirmed that, in practice, it has been attended with highly favourable results.

"As these creatures do not propagate except at a pretty high temperature, attempts have been made to check their increase by keeping that below the requisite degree. The only means employed for this purpose is free ventilation; but this must necessarily prove inefficient; for it is obviously impossible, in the summer months, thereby to effect such a reduction as is at all likely to influence their economy. More might be expected from mixing the corn with quick lime, sulphur, or some other substance which seems fitted to disgust them; but this could only be done with grain designed to be used as seed; for the taint they are likely to communicate, render such applications inexpedient when it is to be employed for other purposes."

It is our intention hereafter to make further extracts from the interesting numbers of Mr. Duncan.

Suggestions, &c. in Husbandry.

[*Abstracted from foreign publications.*]

BONE MANURE.

C. W. Johnston, who has recently published a work of repute on liquid manures, in an article on bone dust, in the Farmers' Magazine, condemns the practice of mixing plaster with it, for turnips, as the latter, he says, is not a fertilizer to the turnip crop. The price of bone dust in England, is from £4 10*s* to £5 5*s* per ton (20 to 24 dollars.) Thousands of acres have been brought into a productive state, by the use only of this fertilizing material. The introduction of the use of bone dust into the United States is very recent. But two or three crushing mills have yet been erected; and the demand for agriculture is likely to keep pace with the supply. There are three advantages arising from the use of this and other concentrated manures, as poudrette, horn shavings and animal carbon, &c.: they are portable—enough for an acre of land can be carried at a single load—they act speedily—their effects being immediate—and they promote clean husbandry, being free from all seeds that annoy the crop, and of course save labor in weeding, where they are applied. Diminutive in quantity as they may seem, they have nevertheless become, in Europe, auxiliaries to the cattle yard, and are becoming so with us, in the improvement of the soil. Our practice is to mix the horn shavings and crushed bones with our recent yard dung, when on the eve of applying it, at the rate of a bushel of the one to a load of the other. This induces fermentation, and we think the effect is highly beneficial.

THE TURNIP FLEA.

We find in our foreign agricultural journals—many communications on the subject of the turnip flea (*Haltica rumosum*). One of these, from Henry Le Keux, is particularly descriptive of the habits of the insect, and details a great number of experiments which the writer had gone into to prevent its ravages. The result of his long continued experiments seems to be, that the best and most efficient mode of preventing their depredations upon the ruta baga, is, as our Dutchess correspondent recommends in regard to the grub—to feed them with a more attractive food, than the plants which we would preserve. And M. Le Keux, therefore, sows the seed of the common white and stone turnip with his ruta baga. "I have *invariably* found," he says, "where this has been done, that the former are first attacked, and sometimes, and indeed generally, destroyed, before the latter have been touched, which by that time have grown to such a size as not to be injured by them; and in seasons when the fly has not been very numerous, the Swede has not had a single puncture upon it, while every leaf of the white stone turnip, by the side of it, has been pierced full of holes." M. Le K. detected the larvæ of this insect *in* the leaf, between the epidermis and lower surface.

MANGEL WURZEL.

Mr. Hillyard, an extensive cultivator of this root, gives the following concise observations in regard to the culture, use and preservation of this root, in the Farmers' Magazine.

"Those who have not a depth of mould free from couch, and a good supply of manure, had better not attempt the cultivation of the mangel. It will grow on soils where Swedes will not grow. For lambing ewes in the spring, it is invaluable. Mangel improves by keeping. It should be drilled or dibbled about one inch deep. *Soak the seed till it sprouts*—[an excellent precaution.] I dibble in single seeds 3½ inches apart, in a hole made by a boy pressing down, by a handle about four feet long, a piece of wood sixteen inches long,* and about four broad, with three pegs in, seven inches asunder, to make 3 holes one inch deep, one seed put in each hole, (two if the seed does not appear good) and rake the holes in. When taken up the latter end of October, [this should be done as soon as the tops cease to grow, or the under leaves turn yellow,] strip off every leaf, and throw into furrows two rows, which pull up by hand, the other with double mould board plough, with shell board off. Dig pits two or three feet deep, and twelve broad; in these the roots are stacked, and ridged up to the height of ten or twelve feet from the surface of the earth. Faggots should be set upright about every two yards in the centre of the pit, [before the roots are put in] and continued to the roof, all along which, faggots should lie. By this contrivance heat is carried off, and rotting prevented. Cover up with dry straw or haulm, then cover with mould, allowing a little time for the heat to escape, before completely covering the stock for winter [or spring] store."

An "Essex Farmer" feeds mangel to his horses, and finds it an excellent substitute for hay. He feeds his horses with it all through winter, at the rate of half a bushel per head, mixed with chaff, and one bushel and a half of corn oats per week to each. His horses are thus kept in good working order, and he says he saves 30 per cent, by thus substituting the mangel for hay.

FEEDING CATTLE—MANURES.

It is customary at the cattle shows in Britain, for the successful competitors for premiums in particular, on receiving their award, to address the company present. We find in these addresses many suggestions of practical use, and from practical farmers. At the Suffolk show last December, on the chairman suggesting, that as it was the expectation as well as wish, to blend instruction with festivity, he hoped that any gentleman present who could afford information with respect to farming operations, would favor the company with it. Mr. Shillitto, one of the successful competitors for good stock, rose, and after some preliminary remarks, proceeded as follows.

"The first step of importance, in his opinion, was to obtain a good *sort* of animal, an animal that would car-

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*We have used a dibble of this kind. It may be likened to an inverted ⊥; the perpendicular being the handle, and the pegs being inserted in the lower side of the cross or horizontal piece. When the dibble is placed down at the right gauge, which may be readily done by placing the last peg of the dibble in the last hole made, the boy presses with his foot, if necessary, upon the horizontal piece, so as to make the holes sufficiently deep. The pegs may be 3½, instead of 7 inches apart, and thus abridge the labor. In well prepared ground a boy may dibble at a good pace.—*C. Cult.*

ry quality as well as quantity—meat as well as size. The next step was its proper feeding, and to this last point he had paid much attention. One thing to which special notice should be paid, was the quantity of food given to animals. It was a maxim with some breeders to give them large quantities—to gorge them. This, however, was decidedly wrong. On the contrary, be careful not to furnish them with too much, or, in plain terms, more than the animal could thrive as well as fat upon. Again, it was necessary the animal should have a variety of food; for he had seen that, if breeders went on with feeding with one kind of food, the stomach got cloyed. As soon as he saw that taking place in his own beasts, he immediately changed the food. Whenever he walked through his yard, and found an animal not taking sustenance in proper quantities, he had him instantly removed from the rest, until his appetite was restored." "Another matter to which the attention of the breeder should be directed, was the quantity of water given to a beast. Every animal should be allowed to drink two or three times in a day, if it had not water always at command."

The brute, like the man, delights in variety. One kind of food soon cloys the appetite, and excess deranges the digestive organs. *We* want drink, and *salt*, with every meal; and why not the brute? On the subject of manures, Mr. Shillito remarked.

"The modern agriculturist, he thought, did not pay sufficient attention to the manures made in the fold-yard. Sometimes he had been asked how his fatting animals paid him for the trouble of producing them. This, however, could not be answered by a mere reference to the sum he obtained for them by sale—but there was a variety of circumstances to be considered before he could answer it properly. For instance—the quantity of manure obtained from them was one—not wet straw, but good manure. There was another thing which required attention—when the manure was carred from the fold-yards into the fields, it was suffered to lie in a large heap for a long time—so long, indeed, that before it was spread upon the land its qualities had perished. He was aware that it required a certain time for fermentation to take place, but it was frequently left till such fermentation had passed off. It was his practice, as soon as the heaps were raised on the field, to throw a quantity of mould upon it, and thus prevent evaporation taking place too rapidly. Proper attention ought also be paid to draining the fold-yard. The produce saved was now in ten out of twelve instances lost. It would be advisable when the yard had a fall, to establish conveniences for catching it, and then convey it to the lands. In France and the Netherlands they were extremely careful in preserving this liquid manure, and the peasants might be seen conveying it out to the fields, and giving each plant a proper proportion."

BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

At the meeting held in December, Dr. Wilkinson communicated the result of a useful invention of Mr. Perkins, for the warming of houses, by which any degree of heat might be obtained, and a room once warmed might be kept at one equal temperature. The expense on the whole would be less than the present mode of warming rooms.

Dr. Wilkinson proposed a premium of £20 for the best essay on the theory of De Candolle and Macaire, that the excrementitious matter of plants is poisonous to similar plants.

Mr. G. W. Hall interposed doubts of the correctness of this theory. He had grown one plant on the same ground for twenty years following. On the subject of lime he would mention to the meeting one other purpose for which he had found it beneficial. It was to convey an increased degree of temperature to lands about to be cultivated, which it did, if used in a caustic state. His method was to break the lime as small as possible, and spread it on the ground, and then half plough it in, and he found that a greater luxuriance of vegetation was produced.

HOLKHAM CATTLE SALE.

The stock sold at this sale were highly commended, and the prices at which they sold are at once an evidence of the fineness of the breeds, and of good management. Four three year old North Devon steers were sold at an average price for each of £36=$160; other oxen sold at £34; South Down wethers, two years old, at £4.8; yearlings at £3.6, and pigs at £5.6.8.

DESICCATED MANURE.

James Sheppard publishes, in the Mark Lane Express, that he can make it fully appear, by experiments he has made the last fifteen months, that the loss consequent upon the waste of the fertilizing matters annually conveyed by the common sewers of London into the Thames, amounts to nearly £500,000, or more than $2,000,000. By means of a disinfecting powder, the mass of putridity is deprived of its noxious effluvia in ten minutes; and in twenty-four hours a fine rich black mould compost is produced, fit for immediate use, or for shipping, either in sacks or bulk. The disinfecting powder, applied to liquids, absorbs the whole, and forms a black mould, and may at any time be removed without any annoyance to the public, or those employed in its transportation or application to the land. A ton of this desiccated manure is stated to be equal, in fertilizing properties, to thirty-six tons of fold-yard manure. It sells at Paris, where it has been longest in use, at 50*s* per ton, or eleven dollars.

An establishment has been made at New-York, by Mr. Minor, for converting the filth of that city into fertilizing materials for our lands, by means similar to those suggested by Mr. Sheppard; and high considerations of cleanliness and health, as well as those which appertain to rural economy, and the productiveness of the soil, forcibly concur in inducing us to wish success to the undertaking. These facts certify to the farmer, that there is fertility and value in every decaying animal and vegetable substance about the farm; and should admonish him to husband and apply them to the soil.

To Correspondents.

STEEPING SEED WHEAT.

We have two communications from Mr. J. Hathaway, persisting in his notion, that the germinating power of Italian wheat is destroyed by steeping it a few hours in brine; though Mr. H. admits, that his results might in some measure have been produced by the grain having been passed through a smut machine. On the other hand, Mr. Hathaway's neighbor, B. P. Johnson writes us, that he soaked the seed for six acres, in a pickle as strong as he could make it, to which he added salt petre, for fourteen hours, and that he never has known wheat come finer and better. In another case his wheat was soaked twenty-four hours, in brine that would bear an egg—and afterwards remained in a barrel ten or twelve days, was then sown, and gave a product of 24 bushels to the acre. We have other notices to the same effect, which it is hardly necessary to detail, as we feel a perfect confidence, from the ten, nay hundreds of thousands of trials that have successfully been made, that steeping seed grain in brine, and liming it, does not destroy its vegetating principle. Yet there is one other case we may quote, which, if there were doubts remaining, would seem to set the matter at rest. Mr. Medary, editor of the Ohio Farmer, steeped the Italian wheat *eighty-four hours*, in a warm temperature, in a pickle so strongly saturated with salt as to coat the grain—and yet *every seed grew.* In another instance, the seed remained in the liquid, or brine, *three weeks*; and of this, too, every seed appeared to grow.

While on this subject of steeps, we will detail a fact communicated to us by Mr. B. V. French, of Braintree, Mass. He steeped seed corn in a solution of salt petre, and planted some of it upon dry, and some upon wet ground; not more than a tenth of the latter grew, while seed not soaked, planted upon wet ground, came well. The steeped seed planted upon dry ground, came up almost without a failure. We leave to naturalists the solution of the questions, why Mr. French's soaked corn, planted in wet ground, and Mr. Hathaway's brined wheat, did not grow. They seem both to be exceptions to a general law.

"*A subscriber*" is informed, that T. A. Knight, the distinguished horticulturist, is dead, and of course cannot answer his questions.

"*A Winchester Patron*" is informed that we do not understand what he means by "tinning" his plum and cherry trees, to prevent the ravages of the curculio. This insect is furnished with wings, and does not, we believe, crawl up the body of the tree. We repeat it, hogs and poultry, if suffered to range among the trees, are the best security we know of, against the curculio which blasts and destroys our fruits. The insect which injures the foliage of the gooseberry, may be destroyed, or avoided, we think, by dusting the bushes with lime, or sulphur, or sprinkling them with a weak brine, occasionally.

Horn-ail—To prevent this, Mr. W. Hardrick, of Bainbridge, wishes us to say, he cuts off only half of the bush of the animal's tail! Rather a dubious preventive, we think.

Rohan Potato and Fruit Trees—J. D. Legare, of Grey Sulphur Springs, Va. wishes us to advise him, to whom he shall apply, at Paris, for Rohan potatoes, and fruit trees. All of these we can furnish to Mr. Legare, as we are growing them all for sale in our grounds; but if Mr. L. is particularly desirous of obtaining them from France, we recommend that he apply through Messrs. Vilmorin, Andrieux & Co. Seedsmen, Paris. As to the character of the Rohan potato, we have no hesitation in saying, that, according to the seed sown, it is far the most productive of any variety we know. We cannot judge so well of its quality for the table, never having tasted of but one. We should class it *second*, though others class it *first*, among our good northern potatoes.

Clover Seed—John Young, of S. Carolina, asks information as to the best method of separating clover seed from the chaff. This operation is performed at the north, after the heads have been beaten from the stems with a flail, by machines, propelled by water, horse, and sometimes by manual power. There are several kinds of machines used for this purpose. Burrall's, (see Cultivator, vol. II. p. 130.) with the attendance of one man, cleans from 16 to 32 quarts of seed in an hour. Price of machine $60.

☞ We beg leave to observe to our brethren who conduct agricultural journals, that the "Hints to young Farmers," are original in the Cultivator—and that *we* design to quote or credit what we borrow from others.

The conqueror is regarded with awe; the wise man commands our esteem; but it is the benevolent man who wins our affections—he alone is beloved.—*Fr.*

Gaming is the offspring of avarice and the father of despair.—*Fr. Prov.*

CORRESPONDENCE.

Climate, &c. of South Florida.

NUMBER TWO.

Key West, July 4, 1838.

The soil of South Florida, especially at the cape, is generally considered the very essence of barrenness. The process of reasoning is, that inasmuch as it will not profitably produce those crops which our fathers were accustomed to raise, it is therefore good for nothing. It is true that in that vicinity there cannot probably be found more than five or six acres in any one body, of a similar character to the rich soils of the north. And these small spots are so few and far between, that if they were indeed the only valuable lands in the country, the whole of it, as General Jessup fretfully says, had better be surrendered at once to the savages and wild animals that now roam there. But happily there are many people of intelligence who would be glad to purchase these worthless lands of the government, and become actual settlers on them for life; leaving to those who are content to follow the footsteps of their predecessors, the privilege of thronging "westward ho!" to raise wheat upon the luxuriant lands of Michigan, or cotton in the speculator's paradise of Texas. And these people esteem it a blessing that neither sugar nor cotton can be profitably cultivated in the country which they have chosen before all others for their permanent homes.

The face of the the country is diversified by ridges of pine land, intervening dry savannas, occasional hammocks, and the wet prairies of the everglade; each of which divisions I intend to describe as particularly as possible. The substratum of the whole country is a solid bed of limestone of unknown depth, but so soft as to be easily broken and dug up by a pick axe, or hewn into form by any suitable instrument. It becomes much harder and white by exposure to the atmosphere.

The pine ridges are the most elevated parts of the country; but I suspect they are nowhere more than twenty feet high. the timber is a kind of pitch pine, with straight small trunks, and irregular branching tops. Their general heighth, were I to venture a *guess*, cannot be more than seventy or eighty feet; and the largest of them do not exceed two feet in diameter. Their trunks are free from limbs, and the ground is entirely unobstructed by underwood, and clothed with grass; thus affording extensive natural pastures for grazing animals, and beautiful fields for horse-back riding, hunting and other amusements. The indigenous grass of the country is not the best that the soil is capable of producing. The Guinea grass has been growing there for many years, and thrives to great perfection. The soil is in some places deep enough to admit of ploughing; but in others it is so shallow and stony as to prevent even the use of the hoe.

The savannas, lying between the pine ridges, are in some places clothed with a thick stout growth of rank grass; and in others, with a more thin and stinted kind, indicating a poorer soil. But what the soil is, I cannot say, never having examined it. These savannas are generally dry, though they are subject to occasional inundations, for a few days in the rainy season, by the fresh water from the everglades. As the glade rises, its surplus water runs over into the valleys, in which it is dammed up by a pine ridge; in some places but a few rods in width, running along the shore of the bay. Behind and parallel with this ridge, for ten or twelve miles in extent, lies a savanna connected with these, which receives the overflowing waters. In all these valleys the water stands until it can find its way to the bay through underground channels, which are not sufficient to conduct it off as fast as it accumulates.

These facts naturally suggest the important inquiry whether the dyke which dams up the surplus waters might not be easily cut away—and if so, whether the current of water which the opening would create, would not of itself wear a number of channels deep enough to admit water at all times of the year, to pass from the glade to the bay. But admitting that artificial streams may not be furnished so easily, it is reasonable to suppose that some such can be made with no great expense in digging away the obstructions which the water alone may not be able to remove. Thus water power would be created in various places along the shore of the bay—the very points at which it would be most useful.

The wet prairies of the everglade would also by this process, in a great measure, be reclaimed, thus rendering large bodies of valuable land susceptible of cultivation, which otherwise would remain useless. These prairies, in some places extend further than the eye can reach, and are so uniformly level, that by lowering the waters of the glade not more than one foot, immense tracts of them would be fully and permanently drained. Though these results are as yet uncertain, they are sufficiently probable to command the attention of the public, and to justify the consideration here given to them.

The hammocks are clusters of dense wood land of live oak, mastic, wild fig, dogwood, gum elemi, cabbage palm, and various other kinds, with an undergrowth so thick as to be almost impenetrable. They lie generally on the borders of streams or fresh water springs, to whose enriching moisture they perhaps owe their existence. The soil contains an abundance of vegetable matter, and in some places, a suitable mixture of clay, sand, and lime to constitute a rich loam. More often, however, it is merely sand and vegetable mould, which, of course, by constant and careless cropping, soon loses its richness. It produces abundantly all kinds of garden vegetables, which are about all the inhabitants have yet attempted to raise. On these lands also abound the red mulberry, and an indigenous species of the grape, which is said to be very good, as well as various other kinds of wild fruit of but little value.

Such being the character of the soil, the reader will naturally ask,—what are the inhabitants of such a country to do for a living? I proceed to answer.

1st. The manufacture of the Florida arrowroot has been, and always will be, a profitable business for the residents at the cape. It grows abundantly and spontaneously upon the very poorest of the sandy pine lands. Indeed it is so very unassuming and modest that it will not grow well upon any other; but it seeks and thrives best in the purest white sand where nothing else will grow. Neither does it ask any favors of man for its planting or cultivation, but freely invites him to the harvest after it has planted and raised itself. The seed which is unavoidably scattered by the process of gathering the roots, produces a new crop, better and more plentiful than the first. This improvement is probably the result of the cultivation effected by pulling the roots. It is manufactured with very little trouble. Many families are accustomed to grate it upon a tin grater, and prepare it in the same manner as potato starch is made; and thus they realize a decent profit. At the commencement of the war there were two mills in the vicinity of the cape, each propelled by a single horse. By the aid of such mills, I am informed by those who have followed the business, that five men with a horse and cart, can dig, gather, manufacture, make the boxes, and pack ready for sale, four hundred pounds of arrowroot per day. The price of the article is yet unsettled. It has varied at wholesale in this market from six to sixteen cents; and it is the opinion of our most intelligent men that the demand for it will increase, as its value becomes more generally known. Now, after making liberal allowances for the price it will permanently have, and the expense of manufacturing it, there can be no question that it will afford a handsome profit to all who may turn their attention to this branch of business. If then the white sands of Cape Florida will spontaneously produce valuable crops, why are they inferior to the rich wheat lands of the north, on which man is doomed to earn his bread by the sweat of his brow at incessant toil? and why are the former called poor, and the latter rich? The proof of a soil is not in the name but in the produce.

2d. There is much reason to believe that the making of silk, may become a good business in South Florida. The native mulberry abounds in the hammocks, and will grow well in the pine lands. The white and the Chinese mulberry have both been introduced here, and have found a genial soil. And as we have no frost to destroy vegetation, the silk culturist may follow his business during the whole or nearly the whole year. It is true that this is yet an untried business with us; but it would seem that if it can be made profitable at the north, with only one brood of worms in a year, it may become more so here, even with very liberal allowances for unforeseen difficulties. I am not aware that any method has yet been discovered, to obviate the supposed necessity of keeping the eggs through a northern winter before they can be hatched. But while I confess my ignorance on this point, I cannot believe that such a practice is necessary. It is unreasonable to suppose that eggs of worms raised where there is no winter, will not hatch in due course of time. It must be that a few well directed experiments, in this climate, will disclose some mode of keeping up a constant and immediate succession of broods of the silk worm, sufficiently regular and perfect, to render the silk business much more profitable here than at the north. Mr. Charles Howe, of Indian Key has made a few cocoons, from northern eggs, which are said to have been of a good quality. He found no difficulty in keeping the eggs from hatching during the summer as long as he pleased, or in hatching them whenever he chose to expose them for that purpose. But on *one* occasion he exposed fresh laid eggs, as he had been accustomed to do his old ones, and they did *not* hatch; and whether he pursued the experiment I am not informed. If, however, the silk worm can propagate its species in this climate, which cannot be doubted; and if we can prevent its eggs from hatching as long as we please—and experiment has proved that we can—we are very near to the wished for discovery, if it has not already been made; and we may calculate with confidence upon the silk business becoming a profitable employment in this country.

3d. The raising of tropical fruits must in a few years become another profitable branch of business here; and we shall be under no apprehension of disasters from frosts, which have proved so fatal to the orange trees at and about St. Augustine. Neither can we fear that this branch of business will ever be overdone in Florida, when we consider the limited extent of territory in which it can be followed, and the numerous markets which the northern states afford. While man has an appetite for the good things of this world, the inviting fruits of the south will always be in demand, and will necessarily command a price sufficient to insure their production and their transportation to market.—Some little time will be necessary to raise the trees; but when this is done, a certain and easily earned income is the inevitable result.

4th. A new branch of American agriculture or manufacture is about to be tried at Cape Florida by Doctor Perrine, late American consul at Campeachy in Mexico. He is sanguine in the belief that the culture of Sisal Hemp, will soon become not only a source of profit to individuals engaged in it, but also of great importance in a national point of view, in supplying a superior article of cordage of every kind and size for our shipping; a cheap, and strong material for the manufacture of every quality of cloths from the finest linen to the coarsest cotton bagging. The doctor is well acquainted with this subject, and has spent several years in preliminary preparations for commencing this business; and people of intelligence to whom he has exhibited specimens of the article—the mode of manufacturing it—and the nature of the plant from which it is obtained, are strongly impressed with the belief that he must inevitably succeed in this great undertaking.

The worst description of land in South Florida—that which is even inferior to the white sand which the arrowroot lays indisputable claim to—is the very soil in which this hemp plant, or properly speaking, the agave, best thrives. Indeed this soil to which it is natural, cannot properly be termed soil at all, for it is little else than stone. This species of rocky land is abundant in this section, particularly on the thousand islands that everywhere surround us, and the extreme limits of the main land. Should this branch of business be found profitable, our Florida archipelago, long the dreaded hold of piracy, and now wild and waste, will soon swarm with a useful and industrious population, and become a paradise indeed.

For the purpose of aiding the doctor and his friends in this undertaking, in connection with culture, and acclimation of tropical plants in general, the legislature of Florida, last winter, incorporated a company with a capital of $50,000, entitled the Tropical Plant Company of Florida. Nothing now delays the commencement of operations except the Indian war. Indeed the doctor had already growing in boxes near Indian Key, several hundred foreign plants ready to be transplanted at any moment.

Besides these distinct branches of business, a few people may profitably engage in the sawing of lumber. For this purpose a gentleman expecting to settle at the cape, now contemplates the erection of a steam mill there, in case suitable water power cannot be found. The settlers may readily be supplied with building materials, so indispensable to all countries in the progress of improvement.

Furthermore, there are numberless auxiliary means of providing the necessaries of life in this country. An abundance of fish, turtle and oysters may be had at all times, merely for the trouble of taking them. Turtle on this coast supplies the place of beef at the north, and it is just as common. They are caught in great numbers and put in enclosures, and fed on grass; whence they are taken and killed as occasion requires. Horses, cattle, and sheep ask no favors of man whatever; but give them their natural and inalienable right of "life, liberty, and the pursuit of happiness," and they will "multiply and bring forth abundantly in the earth;" and then if man choose, they may be made to supply his table or his pocket with the needful. He need not labor in the heat of the sun to make artificial pastures for them in summer, and provide a mountain of hay for their winter store; nor need he brave the piercing cold, for eight long months, in dealing out to them the treasured produce of his summer toil. No—nature obviates this necessity in tropical Florida, and freely feeds upon her verdant bosom the animals she has given to man. Garden vegetables, too, which ought to constitute the principal portion of our food, are raised with surprising little labor. Peas of an excellent quality, grow abundantly on bushes like northern currants, and bear continually. They have also a superior species of white bean growing upon a vine, which though it would be annual at the north, is perpetual here. When once planted it is planted forever. A man might live comfortably on vegetables alone, without devoting to their cultivation more than one day in a month. Sweet potatoes alone might furnish half his constant food, and still be considered a luxury. They who have only eaten them at the north, can have no idea of their true value in their native clime. They will not keep good like Irish potatoes, but generally spoil in a short time. When fresh, they are often exclusively eaten for an entire meal, though the table be well supplied with other kinds of food.

There is another valuable vegetable now growing to perfection at the cape, which not only *may* constitute the greater portion of one's food, but actually *does* furnish almost the entire subsistence for the negroes on the plantations of Cuba. I mean the plantain, of which there are four species. The plant itself is extremely beautiful—fifteen to twenty feet high—leaves, five to ten feet long and one and one-half to two broad—thin, soft and silky in their texture, and of a deep, glossy, green colour. The banana and one other species, bear only one large bunch on a stalk. But it is indeed a large one—as much as a half grown boy could well shoulder, and weighing often times over sixty pounds. In shape, the first resembles the cucumber—about five inches in length and one and one-half in diameter; and from one hundred to two hundred of these grow in a bunch, as closely as they could be packed in a basket. They are covered with a thin skin, which when the fruit is ripe, may be peeled off with the fingers as easily as if it were a paper envelop. The food is then ready to be eaten from the hand, and consists of one solid mucilagenous pulp—mild, easy to digest, and inviting in its flavor. The banana is more fruit than food; but the plantain is more food than fruit, and is generally cooked and eaten at meals.

Both species are propagated by planting the suckers that spring up around the parent stock. After growing eight or nine months, the flower puts forth, and in about three months longer, the fruit is perfected. When this is gathered, the stalk is cut down to the ground, to make room for the young plants which are growing up like a family around a fruitful mother. The first born of these is just putting forth its flower when the fruit of the parent stalk is ripe. In this order they proceed continually. But as all the stalks do not ripen their fruit, or need not be planted, at the same time, a field of plantain and bananas need never be without a constant succession of ripe fruit.

Under all these facilities for easy living, it strikes me that no one need be apprehensive of starving at Cape Florida. L. W. SMITH.

Use of Plaster on Fruit Trees—Canker, &c.

Liverpool, July 23d, 1838.

Jesse Buel—Sir—Two of my plum trees in my garden, five years since, were heavily laden with fruit; the two succeeding years they flowered, but bore no fruit. Last year and this I dusted ground plaster over the tops, while in full bloom; the effect was they fruited well both seasons.

Black Canker, (I believe you call it,) *in plum trees.*—For about three years I have been in the habit of cutting off the limbs, or that part affected, whenever I discover any canker on them: the consequence is my plum trees are green and thrifty, while I see many of my neighbors' trees entirely killed by canker. I do not burn the parts cut off, as one of your correspondents recommends, but it may be well to do so, as some of my canker bunches contained worms. I have to regret with you that our legislature has done so little, in aid of the great agricultural interest of our state. Administration and anti-administration, all seem equally culpable in this respect. We have sent a majority of farmers to the legislature, with but little effect; they too have been tardy in legislating any thing to aid the all important business of farming: this is a no party business, and would it not, I ask, be well for all political parties to select their candidates for the legislature with more reference to this subject, who will truly represent the great agricultural interest of our state? For it cannot be doubted that a vast majority would agree with you and me that the legislature should do something more efficient to give a stimulus to the agricultural interest of our state. It is of little use to petition the legislature, unless we have representatives at our capitol who will listen to our prayers. I observe you notify us that the three first volumes of the Cultivator are to receive a new edition. Why not include the fourth volume; so as to have all the small size in one book. I for one would like to obtain all the numbers up to the enlarged volume, and I believe others would.*

JONATHAN P. HICKS.

Culture of Spring Wheat, &c.

Judge Buel—Sir—I am much more in the habit of ploughing than writing, but thought that I would make a few statements relative to raising spring wheat. I sowed about fourteen and an half acres last year; the return four hundred and sixty-eight bushels, the most of it Italian spring wheat: five and an half acres in one piece yielded two hundred and ten bushels, about forty bushels to the acre. There was some difference in the piece; it was thought by the reapers that about two acres of the piece would yield full fifty bushels to the acre: land ploughed once; except about an acre, which was the poorest of the wheat. The land had lain to pasture I should think about six years. I sold the wheat for two dollars a bushel. I believe that I could have sold ten times as much if I had had it. The rest of my Italian wheat was sown on poorer land, and did not yield so much. The return of all my wheat thirty-three bushels on an acre.

I will now state to my brother farmers what I think the most profitable way of preparing land for spring wheat, which I can do for four dollars an acre. As labor is dear it is of importance to use economy. In the first place, let about all the stones be taken off: if the land is in good heart, put on about ten or twelve loads of unfermented dung; if the land is somewhat worn, fifteen or sixteen; if it is very much exhausted, twenty or twenty-five will be all the better; this we shall make no account of; all this must be done if you sow winter wheat : plough the land once, the earlier the better, and do it well: make no bauks, as the farmers say, but let it all be turned over; that you can do for two dollars Give it a good dragging, no matter how soon: let the sheep and cattle run on it as much as they please, all summer: go over it now and then with your drag and cultivator, so as to keep the grass and weeds down: by fall, your land will be very mellow: all this you can do for one dollar more. Sow your land, as early as you can in the spring, with Italian wheat, or Siberian spring wheat, which should be very clean; which you may do in the following manner: let your wheat be put into a tolerable strong brine the night before; put about a bushel in a box, or tub; put in as much lime or plaster as you can make stick to the wheat; lime is rather the best: if the land is rich, sow at least two bushels to the acre: I sowed ten rods of my piece two and a half or three bushels to the acre: the wheat was monstrous, and I could not perceive but that it was just as plump as any part of the field. I should think that the return of an acre of such wheat would be at least sixty bushels. As I stated, sow as early as you can: after sowing, go over your land both ways with the cultivator, and once with a fine patent drag: if the land is dry, let the roller pass over it once; this you can do for one dollar more, which makes four dollars an acre, about half the expense of preparing land in the old way for winter wheat. Your land will then be as mellow as ashes. If you have done the work well, you may calculate for about forty bushels an acre the first year. After harvest, as soon as you can, you may plough the same land again, turn the stubble all under, which will be a pretty good dressing for the land. I practice what I call a foot on my plough, to prevent it from clogging up, a piece of wood about eighteen inches long, perhaps six wide and four thick, with a mortice in the middle near the end of the beam, with a wedge the upper and under side; it will crowd the stubble down before the point of the plough, and you will plough it about as well as if there was no stubble there. Drag your land once or twice in the fall: sow it the next spring, in the same manner as before: you may then calculate for about thirty bushels an acre. I would also recommend to sow the same ground the third year,† in the same manner: you will be likely to get about twenty bushels an acre. Seed it down the third year with clover, if you want it for pasture; if for meadow, clover and timothy: in about three or four years more you may plant the same land again. Perhaps it would be better to put different sorts of spring wheat every year; I have sown five different sorts of spring wheat this year; I have the Italian bearded, the Italian bald, the Siberian, the old white chaff, and a sort that I call the Syracuse wheat, said to be a great yielder, sixty-two pounds to the bushel: the season was remarkably wet; and this season I began to sow the thirteenth of April and finished the twenty-fifth of May. I thought I should not have half a crop for a long time, but lately it has done remarkably well: if the remainder of the season should be good, I should think the crop would be abundant. I have but little doubt but that, in the great wheat growing districts in the west, where the winter wheat begins to fail, or on the rich prairies, that the Italian or Siberian wheat would yield forty or fifty bushels, in a common season, where the work was done well.

One thing more, Judge Buel, and then I have done. I have read much in the Cultivator and Genesee Farmer about bone manure, but how shall we prepare it? It has been said that it could be ground in a plaster mill: accordingly I collected a number of bones last summer, carried them to Ithaca eighteen miles; the man said that he thought that he could grind them, and he would take pains and do them well, in a short time: I sent after them by my son: he informed him that it took him about half a day, with another hand with him, and he could not afford to grind them short of ten or twelve shillings a bushel; and they made such a smell the people wondered what he was about in the village; but he charged me only twenty-five cents a bushel.

I have lately heard that to mix a little lime with straw, as you thresh it out, will make it rot very soon. I should be glad of some information about that. I would also inform my brother farmers that wish to raise the Italian spring wheat, that it is likely I shall be able to supply some of them with seed this year: I expect to thresh my wheat with a machine this year, immediately after harvest: I shall clean it twice over, in a first rate mill, and make it very clean for seed: it is likely that I shall have a thousand bushels, if the rest of the season should be favorable. Any letters addressed to me, from any part of the country, post paid, will be promptly attended to: letters may be directed to Jonathan Edwards, town of Virgil, county of Cortland, state of New-York. Perhaps I have written more already than you will be willing to print, or your readers will have patience to read. You are at full liberty to leave out any part, or the whole of it, as you may think proper. I subscribe myself yours sincerely.

JONATHAN EDWARDS.

Cheap Horse Power and Thrasher.

Butternuts, July 20th, 1838.

Sir—Farmers are aware of the loss of time and labor attending the practice of thrashing with flails: and thrashing machines would be more generally introduced were they not too expensive for the means of most of our farmers; for this appears to be the principal cause why they do not provide themselves with them. We have a machine and horse power, built by our neighbor, Mr. Botsford—cost fifty dollars—which will thrash one hundred bushels of wheat in eight hours, attended by three men and a horse. We have done our thrashing with one horse, but two or three may be attached if necessary. The machine may be attended to very good advantage by a man and boy. It has been examined by several farmers and mechanics of our vicinity, and has uniformly met their approbation. There are several of our neighborhood who will each have one built the ensuing winter. Any kind of machinery may be attached to it capable of being propelled by one, two or three horses. We want a machine for shelling corn, which may be attached to it. Can you direct us?* Very respectfuly yours.

NELSON B. PEARSALL.

"Where did he get his Education?"

Lake C. H. Ia. July 15th, 1838.

J. Buel, Esq.—Dear Sir—This question, which has so often been applied to the writer of this article, has just been brought forcibly to mind by (for the first time) reading in your first volume, an address to young men, in which occurs this golden morsel:

"*Although we may be learned by the help of others, we can never be wise but by our own wisdom.*"

That is our own exertion. There is also another article in the same volume on "Self-Education," by John Neal; which is worthy of a republication in every paper in the union.

It is a settled point that some of the wisest men who have adorned our country were self-educated. Mechanics and farmers *have* "found time" to acquire a useful education. Every one of them *can* still find time for the same purpose, if he will. It is self-exertion that acquires self-education. Who that perceives that the knowledge which his neighbor possesses, and which gives him such a decided advantage in the world, is within his own reach, that will not extend his hand for the golden treasure?

What shall we do to incite young men to exert themselves to procure an education by their own exertions? For they can no longer depend upon government. Not one half of the states have even provided for the lowest grade of schools. And in those where the common school system is in the best operation, what except the veriest rudiments, the mere A. B. C.'s of useful knowledge, can be learned.? 'Tis true this is a good foundation, but we want something to incite the community to add those elegant superstructures which ornament the world. We should have, we can have, shall I add, we will have, in every county and principal town in the United States a well founded agricultural school, in which young men and girls can acquire such an education as will be USEFUL. Not a piano, French, Spanish or flower daub education, but one that will make the men scientific farmers and mechanics, and intelligent public officers and *acting* legislators, and the women fit to become the honored and husband-honoring wives of such citizens—who will never be ashamed to tell their daughters, that they obtained the education that has ever since rendered them ornaments to society, in a manual labor school, where, by their daily toil, they earned their daily acquirements. But let not toil be construed slavery or drudgery, for that never should be in any family, and much more in a school. Useful and healthy labor, judiciously applied without slavish toil, should afford all the necessary means of enjoying life. If ever the false pride of labor hating, and the false and foolish, and for all practical purposes of life, the present prevailing system of fashionable education is improved, it will be by such schools. There is evidently a growing disposition towards improvement in the agricultural community; but until that disposition has grown to a greater maturity, the great ends and objects of the pioneer friends of improvement cannot be brought about. Would not the foundation of "An American Society of Agriculture," be the means of increasing the little band of pioneers now in the field, until every town boasted of its useful agricultural school, and every legislature its majority of agriculturists, who would feel proud of being dressed, and elegantly too, in American silks and broadcloths?

Such a body of men would not need to be petitioned, year after year, before they would enact laws for the purpose of preserving, improving and strengthening the base upon which rests the whole superstructure of civilized society. Fearing I am falling into a popular error, a tedious, lengthy list of words, I close abruptly. Your friend.

SOLON ROBINSON.

The Cotton Culture, and its Profits.

Marlborough District, S. C. July 15, 1838.

J. Buel, Esq.—A friend has just handed me the Cultivator of December, 1837, with the request that I would answer the following questions, propounded by your Princeton, (N. J.) correspondent, on the culture of cotton, &c.

Question 1. *What soil and climate is the most suitable for cotton?*

Answer. The first branch of this question would be difficult to determine conclusively, there being almost as many different opinions as you would find planters. But for myself I should prefer a mixture of clay and sand in equal proportions, and for these reasons: Such a soil has the power of absorbing both heat and moisture in a greater degree than where clay much predominates; the young and earlier growth of the cotton, hastens more rapidly to maturity (which is a matter of the first importance)—is more easily cultivated—and is more certain in obtaining a *stand* with an unfavorable spring. The climate most suitable for the growth of cotton, is between 30 and 35 degrees.

Question 2. *What kinds of seed are found in the southern states to be the most productive and profitable?*

Answer. For upland or short staple, the Alverado or Petit-Gulf is preferred, as being easier gathered, yielding more, and having a longer and stronger staple than the green seed and other varieties. I know not of any particular kind preferred by the Sea Island, or long staple planters.

Question 3. *What is the best method of, and the best time for planting?*

Answer. The usual method is to drill upon the bed with a very simple plough made for the purpose, of a piece of timber a foot and a half in length, and from one inch and a half to two inches thick, and a foot in width; there is then attached another piece lengthwise on the centre of its bottom, so as to make the drill from two to two and a half inches in depth and width at top, sloping to a half inch at bottom, with two handles, a beam and helve, and the plough is complete. The reasons why the drill is so made are these: it gives sufficient space at top for the seeds to enter, without requiring the sower to stoop too much; and at the same time brings them to a narrow compass at the bottom, which is a very great advantage in after culture—enabling you to plough nearer, and thin out with much more regularity and exactness.—After the seed is sown in the drill it is sometimes (in very stiff lands,) covered with a small harrow; but when the soil is light and will permit it, a plough similar to the one above described, without the longitudinal piece at bottom, answers very well the purpose. The best time for planting will much depend upon the land and season. The usual time in South Carolina, is from the first to the tenth of April. Farther south they plant a little earlier.

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*The three first volumes are re-printed on a page to match with the fourth, of which latter we made 25,000 impressions, so that the whole may be had bound together, or in two vols.

†Bad! Bad! Very bad! 40—30—20!

*Yes—to Thorburn's, Albany.

Question 4. *What tillage must precede and succeed the planting? can two crops be made in a season?*

Answer. It is necessary that the land should be well pulverized, and the bed of an even and uniform height. The distance between the rows and height of the bed, will depend entirely upon the fertility of the soil and its location. For some, three feet distance is sufficient; and in others, six is not too much. In the drill it may be crowded very thick, say from six to eighteen inches—but it is indispensably necessary to give it sufficient space the other way—light and air being all-essential in every stage of its growth. When the cotton is fully up to what is called a *stand,* a hoe from six to ten inches in width, (the size depending on fertility of soil) is passed through it, leaving three or four stalks at a place. This *chopping out* as it is termed, is immediately preceded or succeeded with the plough. This ploughing is not a deep one—it is chiefly intended to stir the land a little, and throw whatever young grass may have come up on the beds into the furrow, thereby lessening the work of the hoe very much. The next working with the hoe, is an exceedingly important one. It takes a very skillful and experienced *hand,* to do an hundred rows, an acre in length, as it should be. The bringing it down to the permanent *stand* is tedious; and very much so if it should be a little grassy, (as it is but too apt to be at this stage.) The plough immediately follows and dirts the cotton, cleaning out the entire space between the rows, leaving it in beautiful order and appearance; the plant now having four leaves. This routine is continued throughout the whole season. The culture should be continued (at least with the hoe) until the middle of August; it is sometimes necessary to extend it even beyond that period, when the spring is very backward, and the fall very wet. The kind of plough used is of cheap and simple construction. Our own blacksmiths and carpenters are usually the manufacturers. Two crops cannot be obtained in a season; for I believe there is no portion of the vast cotton growing region, from the Sabine to its utmost northern limits, in which it is not occasionally cut short by the frost.

Question 5. *When and how should it be gathered, and how can it be most expeditiously cleaned, pressed and prepared for manufacture or exportation?*

Answer. It should be gathered so soon as it commences opening; and with the hand. The labor of gathering and preparing a full crop for market, is nearly equal to its culture. Surely not so heavy, but tedious; and nothing can be done at it in wet weather. The season too is not congenial to the disposition of the negro; he is sad and spiritless at a temperature that you would feel but comfortable—whilst his most joyous peals of laughter would be heard under the scorching rays of a meridian sun. It is cleaned with a gin, (Whitney's invention) cheaply and expeditiously, either by water or horse power, from 1000 to 1500 pounds of clean cotton per day; and then packed with a heavy wooden or iron screw; and so it leaves the planter's hands.

Question 6. *What is the fair average yield; the cost of culture, of bagging, of machinery, &c. the nett profit per acre? A numerical statement is desirable.*

Answer. This question I cannot so fully answer as your correspondent desires. It would be difficult to graduate so many items of expense to a single acre—and ascertain its nett profits. The following statement however, is not far from the truth; it is at least a safe one.

Average yield per acre (clean cotton,) 150 pounds: cost of culture, $6: cost of machinery, 12 pounds of cotton: cost of bagging, rope and twine, 75 cents. Nett profits can be ascertained from price of cotton.

Question 7. *To what diseases is the cotton of our country liable, and how may they best be remedied?*

Answer. The diseases to which our cotton is most liable, are the *rust* and *rot,* for which we have found no remedy. The *rust* attacks the leaves, and causes them to shed off. The *rot,* the bowls, and effects them as its name indicates. There are various and conflicting opinions as to the causes of these diseases, which are useless to enumerate, as I believe they are not understood.

I have thus attempted briefly to answer the *queries* of your correspondent, which may appear unsatisfactory. But sir, if you have any idea how little of science or of skill is used in perfecting a cotton crop, you will agree with me that but little can be said about it, except in the way of pointing out its abuses, and suggesting remedies for its improvement. There never was a wider field for agricultural science to exert its beneficent effects, than on the cotton growing states of the south. With a soil fertile in the extreme—and operatives the most cheap and efficient in the world—commanding a staple which gives vitality and existence to industry in a thousand forms—in almost every portion of the universe—they have scarce as yet progressed one step towards improvement. The land is tilled as if its sources of fertility were inexhaustible, and with the most prodigal waste of the choicest and richest blessings, that an all-wise and beneficent Providence could confer. The system (if the term can be applied) is a most suicidal, and ruinous one; it is exhaustion—exhaustion—continual exhaustion, without any return. If you should meet with an exception, as (you sometimes would) it but shows in more glaring colours the prevailing practice. To sow a rich field in January or February with oats, reap them the first of July, and plant down in corn, I have known to be done by those who were esteemed good planters. To plant the same field in cotton or corn for years in succession, is very common, and that too without one load of manure. And if it should be changed it is not for the better. If it will bring any thing at all, it will never do to let it lay out,—and so it is thickly sown in oats; after being reaped clean, (the temptation cannot be resisted) all the hogs, horses and cattle must be turned upon it, producing the most injurious effects. This is sometimes called resting land. What, sir, do you think of it? I mean always to be understood as speaking of the prevailing custom. There may be found (as I have before observed,) a few honorable exceptions in every district of country, and if I am informed correctly, the farther south the fewer. No excuse can extenuate so wretched a system; its parallel is not to be found in any age or country. We need not be told of the energy and enterprise which stimulates a young and vigorous people—that the age is one of rapid and incalculable progress—that its spirit is not to be checked or stifled by the cold and formal rules of science and system. But it is here we can trace the source of the very worst system of agriculture that can be imagined. It is to this headlong energy and enterprise, strengthened and quickened by the insatiable desire of gain, which is laying waste, as with the hand of the destroyer, the entire cotton growing region.

Yours respectfully,
A COTTON PLANTER.

On the Gearing for Working Oxen.

J. Buel, Esq.—Dear Sir—In perusing the April number of the Cultivator, which came to hand but yesterday, I was greatly pleased with a communication, made by Mr. David Allison, on the subject of "Yokes for Oxen."

Although, within the last twenty or thirty years, some improvements have been made in the gear and harness of working animals, especially in those for horses, yet it is believed that some may even yet be made, and particularly in those for oxen.

Humanity, as well as self-interest, would induce a desire in every *rational* owner of laboring beasts, to make their working gear in such form, and of such materials, as would be most convenient for the animal, the most accommodating to the form of his body and natural motions, and attached to him in such a manner as to enable him to exert his strength to the best possible advantage of his master, and the least irksome to himself.

As to the ox, the author of nature seems to have placed the seat of his strength in his head and neck. To these parts, therefore, reason dictates the propriety of attaching his working gear. The question then arises, of what materials, and of what form, shall this gear be constructed, and in what manner attached to him?

In our country, the uniform gear or harness of this useful animal has been, and yet is, the yoke and the bow. In remarking upon a usage so long practised by our fathers and grand-fathers, I would speak with diffidence, while suggesting reasons for my objections to this mode. Where, I ask, can be found an experienced farmer, whose better feelings have not been pained, by seeing the galled and swollen neck of his patient ox, occasioned by the chafing and pressure of the yoke and bow? And how frequently bloated by the obstruction of his breath, caused by the same pressure! If the feelings of the master, on such occasions, are pained, how great must be the sufferings of the poor animal, while compelled to press his neck, swollen and sore with raw cracks in his skin and flesh, against his wooden yoke? The peculiar form of the neck of the ox is such, that it is impossible to construct a gear of wood, or of any other rigid *material,* which shall come in contact with, and bear equally upon, every part of the neck. The perusal of the well written and interesting communication of your correspondent, Mr. Allison, has induced and emboldened me, to offer you this article. He closes by observing—"I have heard that there are modes of bringing the draft on the head instead of the shoulders, practised in the Spanish provinces, the particulars of which I should gladly become acquainted with."

I take much pleasure in stating what I learned on this subject while residing in Spain, nearly two months, in 1828. I embraced every opportunity afforded me to become acquainted with whatever came in my way relating to the agriculture of that kingdom. As the uniform mode of their harnessing or gearing their working oxen was new to me, I took more particular notice of it, and examined it more critically. I had many opportunities for seeing their oxen work, as well with loaded carts on the roads, as at the plough in the fields. Upon the whole I could not resist the conviction that the Spanish method of harnessing their working oxen, is, in all respects, preferable to that which is practised in our country. I will endeavor to describe it, and suggest such reasons as operated with me in support of my opinion.

The draught is wholly by the head, to which the gearing is attached. The yoke for a *pair* of oxen differs but little in its length, thickness and form, from that in use with us. No bows, ring-staple or ring are connected with it. The curves of the yoke, where it rests upon the necks of the oxen, are somewhat deeper, perhaps, than those of ours. On the front side of the yoke, two square staples of iron are placed for each ox, eight or ten inches apart from each other, corresponding in point of distance from the end of the yoke and from each other, with the location of our bow-holes. To the inner staple for each ox, a band of strong leather is made fast by stitching. This band is sufficiently broad to fill the space between the swell of the eyes and the but ends of the horns, and is brought round the front part of the head and fastened by a buckle connected with the outer staple. In some instances this band is lined by another piece of leather, with a thin padding, quilted in between the two pieces, in order to render it more pleasant and easy to the head—though I never saw any appearance of chafing or other injury done to the head by the band. The yoking and unyoking are performed with great facility and expedition—it is only to buckle or unbuckle one end of a single strap for each ox.

By this mode of gearing it will be seen that the application of the power of the ox, exerted in the draught of the load, is at the head. As it respects the advantage or disadvantage of holding back on descending ground, I am unable to perceive any essential difference between the two modes, as the holding back in both must be done by the yoke coming in contact with the horns, and without any aid from the bows.

In conversation with a Spanish gentleman on this subject, he remarked, "By harnessing oxen in your method, and making them draw by their *shoulders,* you loose much of the strength of their heads and necks, parts wherein their strength principally lies. Our ancestors in this country," continued he, "took their first ideas about the mode of gearing their oxen for labor, from seeing the uniform manner in which bulls meet each other and fight."

Nature has instinctively taught animals where their strength lies, as well as the best manner of using it in contending with others, either offensively or defensively. The bull presents his head to his antagonist—the horse his heels, and the tiger his teeth.

The facts and reasoning of Mr. Allison are worthy of the careful attention of every farmer in the U. S.—they are *practical.* The use of the single yoke described by him, and the manifest advantages attending it, must, I think, commend itself to every one. But, with due deference, I would submit to his consideration, whether the Spanish *head-band* instead of the *bow,* might not be an improvement?

Very respectfully yours.
SAMUEL WOODRUFF.
Windsor, Conn. August 11th, 1838.

Household Economy.

Schenectady, July 27, 1838.

Dear Sir—Your Cultivator is particularly designed to promote improvements in husbandry. I presume you are equally desirous to aid housewifery.

We often hear lamentations of the loss of fat saved for making soap, by its being in an offensive and spoiled condition, and eaten by maggots—sometimes of the loss of the fat eaten by rats. None of these happen about my house; nor is the fat boiled in ley to make soft soap.

The fat, as it is saved, is put into a cask prepared, and strong ley added to it. As the fat increases, ley is added, and occasionally stirred by a stick kept in it. When the cask is full, the soap is made and ready for use.

The ley cask is filled with ashes for leeching, and drawn off to add to the soap cask, as stated above. When the ley has been drawn off, and by filling with water and draining, it becomes weak, it is used for bleaching, &c.

When the ley cask is emptied, it is filled immediately with ashes, to be used as above mentioned, so that the cask is always in use, by which means it is kept in order, and lasts many years. When left empty, as some persons practise, it shrinks and soon becomes useless. Some quick lime put into the ash cask, near the bottom, causes the ley to be more caustic.

Cedar and white pine make the best casks for ley or soap. The pine should be free from knots and resin, as the ley will incorporate with the resin, convert it to soap, and leave the wood porous and leaky.

When soap has accumulated beyond the wants for soft soap, it is converted into hard soap, by adding one quart of fine salt to three gallons of soap, boiled and put into a tub to cool; then cut it into pieces, scrape off the froth, &c.; then melt it again, (leaving out the ley at the bottom,) to a boiling heat, and put it into a box to cool, and cut into bars for drying. A little resin or turpentine added before boiling, improves the color and quality of the hard soap.

This mode of making soap relieves from the pagan practice of boiling soap at a *certain stage of the moon.*

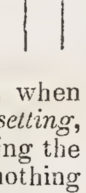
If you think the above will be of much use, you may give it to the public. Most respectfully,

J. Buel. DAVID TOMLINSON.

Fence Making.

Juliustown, N. J. July 14, 1838.

J. Buel, Esq.—Sir—As the expenses of fencing, where the locality of farms requires rails, are often great, I may perhaps advantage some of your readers, by describing a method which I find to be a saving of land, timber, and labor, when brought into a comparison with what is generally called the *worm fence*. To construct a durable and good fence, on what I call the *improved plan*, requires *straight and strong* stakes, of suitable quality, and some seasoned blocks for pins. Trunnels are not wanted. Stakes from seven to nine feet long; pins twelve to eighteen inches, suiting the size of the rails. The pins I make in wet weather or winter season, and also bore holes in the stakes, for a pin on which the bottom rails are laid; this is done with an inch and a quarter or larger auger, agreeably with the number of rails, and their weight or size, as a light or heavily constructed fence is wanted. The lower pin is pointed at both ends, and should be forced in tight, so as to attach the bottom end of the stakes and keep out wet. If for an outside, or fence to turn hogs, the bottom hole in the stakes is bored two feet from the end—if inside or temporary, where hogs or sheep are not to run, two and a half or three feet. To one of these pins, I attach two stakes, and set them in the ground at my beginning, *firmly*, twenty or twenty-two inches, and lay on a rail, the forward end of which will show where to set the next pair of stakes, and thus I lay out the foundation. If I am making a tight, standing fence, I then, on this foundation, lay three or four more rails, according to their thickness; if a meadow or inside, one or two, fitting them neatly in their lap between the stakes, with an axe, so as to have the stakes to touch each rail if I can. I then begin again at my first joint, and with a rope noosed at one end, throw it over the top, and draw the stakes tight together, and adjust the joint properly; then with an inch or larger auger, bore another hole straight through the middle of the stakes as they stand, so as to touch the top rail; here another pin is driven, which must have a head at one end, and be fastened at the other with a light nail, set a little into the outside of the stake; take off the rope when the joint is thus firmly pinned up, and thus go over the whole; when you may put above this pin just as many more rails as you please; and, if it suits you, put in a third pin on the top, or one rail below the top, which will both strengthen your fence, and prevent a mischievous beast from lifting it. A joint with three pins, not set in the ground or railed, has this aspect; the proportions between the pins being as three to two feet apart; after the fence is made, the sharp ends of the pins should be cut off, to prevent mischief.



The labor of making the improved fence, when equally familiarized to the mode, is less, at *first setting*, than cutting and splitting trunnels, and procuring the mass of timber required by the worm. To say nothing of its better appearance, I will state only the following advantages.

1st. *Saving of land.*—A worm fence requires from five to six feet in width from the foot of each outer stake; the improved fence, only the thickness of the rails, say five to eight inches. This will save acres in a large farm.

2d. *Saving of timber.*—A joint of this, (rails 11 ft. long,) reaches over ten feet from centre to centre: of the first, with a safe lap and the usual worm, quite one-eighth less; so that 100 pannels of the worm will make at least 112 to 114 of the improved fence, rating the same number of rails to each joint: but I find four good rails in a pannel to make an excellent fence against horses and neat cattle, thus saving the useless bottom rails of the worm. Trunnells also are saved, and as my fence never settles into the ground, the bottom rail of the old worm which generally comes out rotten, when new set, is always saved. I think I save more than one-third of my timber by this method.

3d. In the highest winds, I have never had a joint to blow down in the *improved;* this rates annually to the labor-saving account.

4th. In cases of *altering or moving*, the posts are taken up without unpinning, and the labor of setting them in another place is trifling.

5th. Hedges and trash, briars, &c. have no room for growth in the joints; mowing is easily performed under them, and stopping against very small pigs between the rails, is easily effected with a few poles of suitable length.

Its duration depends on the material used. I get cedar poles six or eight inches thick for the stakes—cut them in summer, when the bark slips easily, and lay them straight in heaps to season well, and I think they will last twenty years. Chestnut is perhaps better, and white oak and chestnut oak from heart logs are very durable.

Some may perhaps imagine, that this fence cannot be made with crooked rails; I have found by much practice, that I can use them better and confine them to their places better, than I can in a worm fence; straight and even rails, will make the handsomest, and perhaps the strongest fence in this, as in all others; but I think that any rails that will make other fences, may be used as advantageously in this.

Now, sir, you can, without the risk of offence, try a process of "combustion" with the above effusion; or give it to your readers, as may seem best to you.

Your ob't serv't, D. ALLINSON.

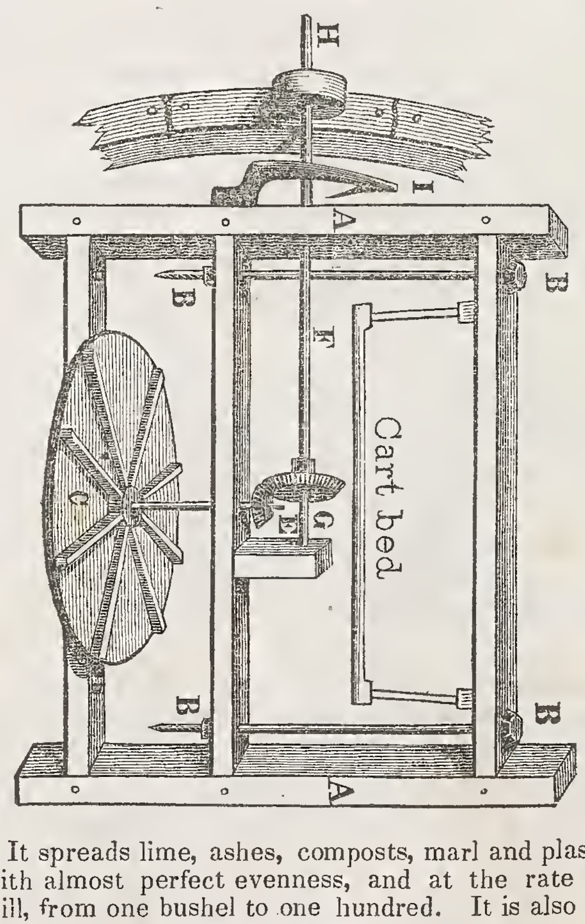
The Centrifugal Disseminator.

New-Brunswick, N. J. June 13, 1838.

J. Buel, Esq.—Sir—I observe, in the 2d number of this year's Cultivator, an inquiry of Samuel Howard, whether there is any mode of spreading lime, at the rate of twenty bushels an acre, other than that of doing it with the hands? Mr. Howard's inquiry is that of every enlightened farmer, anxiously engaged in improving the soil by top-dressings. Their difficulties are, the uncertainty of the quantity, the unequal distribution, and the very unpleasant labor attending the ordinary methods. I have sadly partaken of these difficulties, and it is therefore a matter of high satisfaction to me, that I am enabled to announce to the public the important fact, of the invention of an instrument that will not only remove the objections to the former methods, but enable us to effect the same improvement of land with a saving of at least twenty per cent of manure.

Within a few days, we have had an exhibition in the city of New-Brunswick, of an instrument that may be attached to either a wagon or a cart, patented by the name of the *Centrifugal Disseminator*, a diagram of which I send you, sufficiently perfect to give an idea of its principle.

[Fig. No. 47.]



It spreads lime, ashes, composts, marl and plaster, with almost perfect evenness, and at the rate you will, from one bushel to one hundred. It is also calculated to sow grain and grass seed.

A company in this city purchased the patent right for the counties of Bergen, Passaic, Essex, Morris, Warren, Sussex, Somerset, Hunterdon and Middlesex, of this state; and have appointed Joseph Castner, (carriage-maker of this place,) as their agent, to sell the right to counties or townships. He furnishes the machines complete with hoppers, at twenty-five dollars. Respectfully yours,

W. MYER.

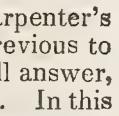
SPECIFICATION.

In order to enable a workman to construct one of my Centrifugal Disseminators, a frame, A, must be made of sufficient strength for the work required; and consists of two uprights, with two or more girts, placed horizontally, and secured to the cart by bolts and screws, B, the upper one of which rests on the top rails of the cart, the lower girts being under its bed, to support the shafts of the revolving platform, C, which may be about four feet diameter, made of sheet iron or boards, and has radiating cleats, to strengthen the platform, and give additional force to the distribution of materials; the lower pivot of the upright shafts which pass through the centre of the platform, rests on the lower girt, D; a horizontal driving shaft, F, is so placed, that a cog wheel, G, thereon, may work into a pinion, E, placed on the upright shaft, the upper part of which is steadied by the frame. On the outward end of the driving shaft, is placed a friction pulley, H, which is pressed against the periphery of the cart wheel, by means of a lever, I, attached to the frame, by the friction of which pulley, the revolving platform is made to disseminate whatever is placed thereon, when the cart is drawn by oxen, horses or other means.

Draining—Bad practices among Dutchess Farmers.

Judge Buel—Dear Sir—There is an article in the June number of the Cultivator, on the "best method of disposing of loose stones," by a correspondent in Ulster county. I think I can suggest a better "method" than the one he has adopted. There are on most farms, at least in this part of the state, wet spots, and springy places in hollows at the base of hills, and often in the middle of tillage lots and meadows, which it is difficult to cultivate to advantage on account of the coldness of the soil, occasioned by the superabundance of moisture, near the surface, and within the reach of the roots of the plants. Every practical farmer knows that the value of land is much lessened by the prevalence of such wet and cold places, besides the inconvenience of having in his fields every here and there a patch that is too wet to plough, or if ploughed and sown as is commonly done, nothing of consequence is ever reaped from them, because in the spring, or freezing and thawing weather, the grain or grass is sure to be thrown out, and of course dies. Now, to make such land dry and suitable for tillage, some means must be devised to get rid of the water, which is the cause of the evil. Draining must be resorted to in order to effect it.

The common practice is, and has been from time immemorial, to drain such wet places where the grain winters out as it is termed, to strike furrows promiscuously, so that the water may settle in those furrows and run off, so as to leave the surface partially dry. This is done after the rest of the field has been made as smooth as the harrow can make it. The practice I consider a bad one, and but a half way method of doing business. It renders the surface uneven and bad for the passage of the cart or wagon over it, and if designed for mowing, it mars that evenness of surface which constitutes the beauty and excellence of such lands, and which is the object of every good farmer to obtain, by the use of the harrow and the roller. Now, on all such wet places as above described, and which occur on almost every farm of a hundred acres in this country, I would dispose of my "loose stones" by digging trenches or drains, and filling them to within a foot or eighteen inches of the surface, so as to clear the plough. In this way, with little expense, two objects can be obtained, viz: the disposing of loose stone, and the freeing the earth of too much moisture; both of which are of the utmost importance in farming. I do not conceive that much art is necessary in forming underdrains of this description; all that is required, is to have them cut in the right places, and at the proper depths. The filling process is but a short job. I fill in this manner: take two of the longest and flattest, and set them on end with the bottoms apart so as to form a channel in the centre, with the tops leaning together, in this manner, and then fill in with others, so as to prevent them from falling. Shavings from the carpenter's shop I think the best to put on the stones previous to filling with earth; inverted sods or straw will answer, perhaps, where shavings cannot be obtained. In this way I have disposed of many loads of "loose stone," and intend to many more, having just made a beginning, enough however, to test the utility of the plan, and for the knowledge of which I own myself indebt-



ed to the columns of the Cultivator, which I have taken from the commencement.

There are many things practised by the good people of this country, which I should like to mention if it would be proper so to do; such as the neglect, by many able farmers, of their outside fences, by letting bushes, briars, weeds, and thistles grow along them; the irregularity of their division fences—laying out their lots in all manner of shapes—crooking this way to leave a piece of moist land in the meadow, (which by cutting a few trenches and filling them with small stone, might be converted into good and dry land for the plough,) and then that way, to get a patch of dry land into the plough land, &c. &c. Another error is, their leaving their barn yard full of manure through the summer, to be drenched by every shower, and exposed to the intense rays of the sun for two or three months; thus wasting and destroying in value, as well as in quantity, to say nothing of the inconvenience of getting ancle deep in filth, every time you have occasion to go to the barn. Another, which I think eqnally reprehensible, is the practice with many, of feeding hogs in the highway; to the total loss of all the manure they make or could be made from them, besides their liability to be run over by carriages and horses travelling the road. It oftimes requires considerable skill in the driver, to avoid being upset, or killing, or wounding a porker or two—for in riding past some rich farmers' door you will find in the summer season, perhaps a half dozen "mother pigs" with a host of young ones, quietly reposing in the middle of the street, totally regardless of the law which requires them to give half the road. If you keep the "even tenor of your way," you will be as like as not to maim, or disable for life, some one or more of the gentry, which is painful to a person of humanity, besides the anger which you are sure to incur of the owner. The best you can do in the case, is to waive your "right of way," and "pass by on the other side," and leave them undisturbed in their glory. I wish you could persuade these breeders of swine in the highway, to abandon the practice; don't you think it a bad one?

Yours respectfully, P****.

Clinton, Dutchess co. July 4, 1838.

Why are our Dutchess correspondents shy of giving their real signatures? Not certainly because they are deficient in practical knowledge. The very date, *Dutchess,* is a passport to notice; but we are sure that the writer of the above would have lost nothing, while the public would have been gainers, by the substitution of *letters* for stars, in the above signature.

Successful Application of Lime in repelling the Grain-Worm.

J. Buel, Esq.—Dear Sir—As the least information relating to farming, may be interesting to those engaged in the business, I state, that Mr. Hardy Bundle, a respectable farmer of Greenville, in this county, informs me that last fall he sowed six acres of land with winter wheat, and fearing that the weevil might destroy his crop, he was induced to try the experiment of sowing slaked lime. He says, that while the wheat was in blossom, he sowed while the dew was on, all the field with slaked lime, except one corner, which corner the weevil have nearly destroyed; and that the remainder of the field is so heavy that he is now looking for sickles to reap it with.

Respectfully yours, C. SEELY.

Athens, July 25, 1838.

Renovation of old Meadows.

Winchester, Ct. 18*th July*, 1838.

Sir—I have a meadow which has remained undisturbed by the plough ten years; the grasses have degenerated, and it has become turf-bound, (if that is a proper expression; if not, it will probably give you my meaning.) It is a great object with me, and also with some of my neighbors, like situated, to regenerate the English grasses, and increase the quantity, without ploughing and re-seeding; as ploughing would produce a resurrection of small stone, which would cost $10 per acre to clear off. I have heard that meadows of this description might be benefitted by a sort of scarification of the sward. I shall feel indebted for any information which you can give me on this subject; whether there is any approved machine or instrument for this purpose, the best season of the year, and the *modus operandi.* I am young in the business of farming, and anxious to learn.

Very respectfully, your obedient servant,

W. S. HALABIRD.

Answer.—Top dress with 15 or 20 loads of barn-yard manure or compost to the acre—spread and sow grass seeds—immediately scarify with Concklin's Press Harrow; then bush the whole well, and sow plaster. Do this in the month of April. Ashes *may* answer as a top-dressing.—*Cond. Cult.*

The Silk Business—A Partner Wanted.

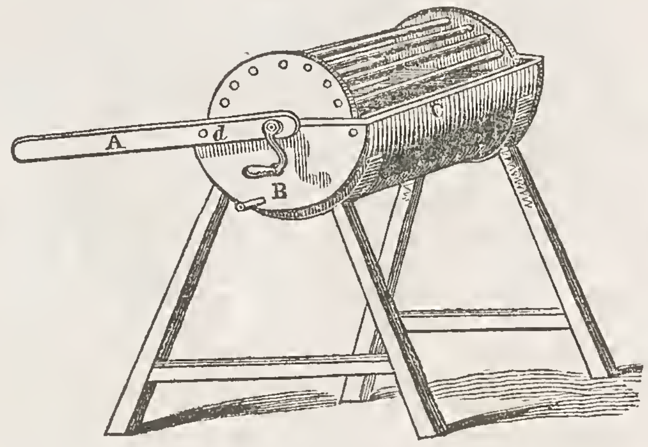
I have 1,800 morus multicaulis roots, with the growth, (most luxuriant,) of this year, for cutting and setting out next winter. I have any quantity of the morus nigra and alba, native mulberries. I have in progress of construction, a silk-house, 25 by 32 feet, 12 feet pitch, with a ventilator at top. My location is high and healthy, 60 miles north of Augusta, Ga. Land plenty and rich. This is to beg of you to make a contract with some man or woman acquainted with the business, to go and take charge of the whole affair for me, on the usual terms of joint copartners, in such business. I want to go into it largely if we find it advisable. My water power is improved and inexhaustible, and right at the spot; the soil suited by nature to the growth of the mulberry. The living is cheap and the country healthy. Rocks, granite and quartz—water, free stone. Yours truly,

J. W. D. WATKINS.

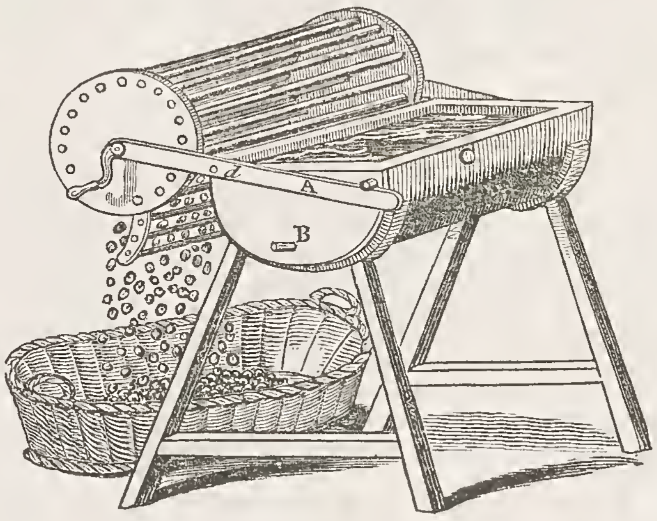
Potato Washer.

J. Buel, Esq.—Dear Sir—Having seen in your publication of July, a description of a potato washer, I beg leave to submit the following sketch to your inspection. It is intended to represent such an one as is used in some parts of England, where a great many potatoes are grown, both for the supply of London markets with the article itself, or indirectly in the shape of pork and beef; and for a cheap article for a farmer's use in this country, (the cost would not exceed $5, if so much,) would answer every purpose for potatoes and apples, if not for turnips.

[Fig. No. 48.]



[Fig. No. 49.]



The water tight cylinder, C, fig. 48 and 49, ought to be made about 6 inches larger in diameter than the inner one, which is made say 2 feet in diameter, with round bars of 1¼ inches, and with spaces of 1 inch between, and is hung on two moveable bars, A, Fig. 48, which when the cylinder is to be emptied of its contents, are to be turned over, as in fig. 49, on a pivot at each end at *d*, and a small door, formed by a few of the bars being fastened together with end pieces, hinged and hasped as is represented in fig. 48.

The hole B, is used for emptying the larger cylinder of water, (in which the filled small cylinder is turned, till the contents are sufficiently clean,) when too dirty for farther use. I am your well wisher,

Lockport, Aug. 1, 1838. J. E——D.

EXTRACTS.

On the Best mode of Applying Manure.

[It takes a long time to eradicate deep-rooted prejudice, or to change long established practices in husbandry, however inconsistent they may be shown to be, with sound sense and experience. The unreflecting or unenlightened farmer knows, that a certain process, to which he has been long accustomed, is likely to produce a given result. All beyond this is, with him, doubt and uncertainty; and he is extremely tenacious of old practices, lest any change should subject him to the charge of previous ignorance, or of copying after those who he is loth to admit are wiser than himself. It is to these considerations that we impute the reckless indifference which yet prevails in regard to the economy of manures. The old system was, not to regard this primary source of fertility; or, if applied to the soil, to allow at least a moiety of the value of it to be wasted by fermentation and exposure, before it was incorporated with the soil, or fed to his crops. The first innovators upon the old system, Young, Cooke, &c. aware of the strength of prejudice, and afraid of innovating too far at once upon old customs, ventured to recommend only a *partial* fermentation of yard dung, before it was applied to the soil; thus allowing a considerable waste of its fertilizing properties. The writer of the article inserted below, Mr. John Baker, of Nassau Cottage, Leeds, Eng. has had the courage to break through all the trammels of prejudice at once, and to apply his dung in its most recent state; and from an experience of twenty-five years, he has been able to demonstrate, from experiments upon a broad scale, that he doubles its value to his lands by the practice.

So far as a twenty years experience has enabled us to judge, unfermented dung, applied in the spring, spread broad-cast and buried in the soil, and to an autumn-ripening crop, either in the field or garden, has never failed (but once, in a protracted drought, applied to a ruta baga crop,) of proving beneficial—we think as highly so as an equal quantity of muck dung; while we feel confident, that by applying it in this state, we have doubled its intrinsic value, over what it would have been if it had summer-rotted in the yard. We cannot but indulge the hope, that the perusal of Mr. Baker's communication will induce some of our old fashioned farmers to adopt his plan, or at least so far as to test its utility.]

[*From the Edinburgh Quarterly Journal of Agriculture.*]

PARTICULAR MODE OF APPLYING FARM-YARD MANURE.

By John Baker, of Leeds.

"The present depressed state of agriculture through the kingdom, invites the serious attention of all connected with that important branch of industry; it being a lamentable fact that, whilst the most splended discoveries in science are daily applied to the improvement of our trade and commerce, agriculture, as a science, remains almost stationary, notwithstanding individual and national prosperity are so deeply interested in promoting its welfare. For more than twenty-five years I farmed from 500 to 1000 acres in the county of Norfolk, during which time my attention was carefully directed to the consideration of every method or system of farming which was calculated to increase the productiveness of the soil, and to improve the condition of that numerous and industrious class of persons who are dependent upon it. The proper use of manure is amongst the most material improvements which I have discovered. By the common, I may say general, mode of managing it, only half the benefit which ought to be conferred on the crops is given, whilst the system which I have adopted doubles the value of all the manure made, and at the same time it really lessens the expense; and it is to this point that I will confine myself in this paper. That "the muck-cart is the best farmer," is a maxim as fully acknowledged as it is oft-repeated, and believing that upon the proper use and application of it the success of the farmer mainly depends, I have never failed to attend to this important branch of husbandry. Having experienced the practical advantages of my system, as well upon land under my own cultivation in Norfolk, as upon farms belonging to my relations and friends in that county, where it had been introduced at my suggestion, I am induced, at the earnest recommendation of many gentlemen who have also witnessed its beneficial effects in Yorkshire, to invite the attention of agriculturists generally to the subject. Manure of almost every description is carried from the place where it is made and deposited on a heap for four, six, or eight months, where it ferments and becomes a soft, black, cohesive mass; it is then put on the land and ploughed down, after which the crop is sown; this may not always be done, but something resembling it is the prevailing and general practice in every part of the country. My method, the success of which have been proved by numerous experiments, is to spread the dung on the land as soon as convenient after it is made, except in winter; the manure made at that period of the year remains in the fold-yard till the spring, where it does not ferment. The whole is taken in the spring, summer, and autumn, fresh to the land; if in fallow, it is ploughed in with a thin furrow; the land is harrowed and ploughed again in a fortnight, and in a fortnight after, harrowed and ploughed a third time; after which the muck, however long it may have been, is reduced, and the soil will be in as fine and friable a state as the land is capable of. From the time the dung is put on to the last mentioned ploughing, nothing can be more unsightly than its appearance. If it is to be applied to pasture, I spread it over the surface of the ground from the beginning of spring to the end of autumn. Three essential points are to be observed: First, to apply the manure to the soil as soon as convenient after it is made (except in the depth of winter;) secondly, to keep it as near the surface as possible; and, thirdly, to mix it well with the soil.—These being observed, I confidently assert, that advantages equal to double those now derived from manure are communicated to the land by an increase in the fertility of the soil, exhibited in healthier and more abundant crops; so that a farm of 200 acres of arable land of medium quality, producing 400 loads of dung, or two loads for every acre, worth five shillings per load, will be benefitted to the extent of ten shillings per acre annually, and where more manure is made, which on every well managed farm is done, the advantages will be greater. This result has been produced upon the farm now in my occupation, belonging to Lord Cowper, in the neighbourhood of Leeds, to which I entered at Candlemas 1831; it was then in the most deplorable condition; so deplorable was it, indeed, as to lead many of my friends and neighbours to predict the impossibility of my procuring a tolerable crop upon one of the fields for seven years to come; but this field, from the application of manure according to my method, has become exceedingly productive. I fallowed it for turnips, and in May (1831,) I put on about twelve and a half tons of good fresh made stable-dung per acre; as much as possible was taken from the stables and carried to the land the day it was made. My proceedings greatly amused my agricultural neighbors. The preceding tenant observed, that however such a system might have answered in other parts of the country, here it would be a useless expenditure both of time and money, and a great waste of manure. To convince him of the benefit to be derived from such manuring, I directed one piece in the middle of the field to be left without covering. With the exception of the land upon which no manure had been laid, the field produced a very fine crop of turnips, worth at least six pounds per acre, whilst the crop raised upon the land not manured was not worth six shillings per acre. After the turnips, the field produced a very heavy crop of barley, averaging not less than seven quarters per acre, and in 1833 I obtained a most abundant crop of clover without any manure except on the land omitted in the first year. I also covered a field of pasture the same summer with the same kind of manure, half of it in June and the rest in August. Six weeks after the first part was done, I shewed it to a very shrewd and scientific gentleman, well acquainted with country affairs, who expressed his astonishment at the improvement. In October, the farmer whose land adjoins my own, said he had never before seen such extraordinary improvement in any ground. Knowing that he was one of those who had ridiculed my system, I hinted to him that the propriety of it had been much doubted. He acknowledged he had condemned it, and said he now saw that which he would not have believed had he not witnessed it, and that he thought the manure must have contained a large portion of white clover and other grass seeds, otherwise, in his opinion, such an effect could not have been produced. In the hottest part of last summer, I covered, in the same manner, the only field on my farm which had not been previously dressed in a similar way, leaving two ridges in the middle unmanured. I removed all the cattle from this field for six weeks, at the end of which the two ridges had scarcely grass to sustain a goose, whilst the rest of the field looked like a field of fog or aftermath. Many gentlemen examined it. Some seemed satisfied that much benefit was derived at very little cost; others expressed their conviction that it was the greatest improvement they had ever seen, and it is my firm belief that, from the time the dung was put on, to the end of summer, I had at least three times as much grass from the land manured as from the other. I must mention another fact. The man who spread the dung had farmed many years for himself, and might be considered a clever man; he said to me, you would not thus waste manure if you had not the means of getting plenty more. I asked him to wait a month before he decided; he then declared that he had never been so much mistaken. I mention these things, knowing that my plan has much to contend against, and hoping that noblemen and gentlemen, who try my method, may not be laughed out of it before they have applied to it the test of due experience. It may be said that, in these experiments, I did not compare different sorts of manure. I have done so repeatedly, but, in truth, I had then no rotten dung by me. I would propose, to any one who doubts the propriety of my plan, to put a given weight of fresh dung on a heap, to remain (turning it over or not) for twelve months, at which time spread it over the land, and at the same time take a similar weight of fresh dung of the same kind, and spread it over double the space, and I doubt not the result. Hitherto I have confined the recommendation of my plan to practical experience alone, but I am not without scientific and chemical authorities to support me. Mr. Joseph Hayward's Treatise on the Science of Agriculture is worth reading by the agriculturist who searches after truth. Being aware of the great difficulties with which the farmer has to contend, I should recommend any new system with great diffidence, if attended with additional expense; but as the plan I am desirous to introduce is alike recommended by its simplicity and economy, and also eminently calculated to promote the fertility of the soil, and to secure, by that means, a more adequate remuneration to the farmer, I cannot doubt of its being generally adopted, whenever its practical advantages are more generally known and appreciated. My subject has drawn me on to greater length than I expected; I cannot, however, conclude without saying, that if, by the system I recommend, 10*s.* or 15*s.* worth of manure can be added annually to every acre of land of moderate quality, at no greater expense than by the old method, I think the landlord, the tenant, and the public, will be great gainers."

On Education.

[*From the Educator.*]

To *educate* signifies, literally to *draw out*—to *lead out;* and implies something within—something concealed, covered over and not to be immediately accessible for present use; but which, by a little careful management and a right use of means, may be led forth from its retirement, and thus become available. Thus the decaying vegetable matter which lies lifeless in the soil, by proper means may be drawn up into the roots and branches of a seedling tree, and finally become apples, pears and peaches; or into the stalks and heads of wheat, and so become bread. Thus by educating the plants of his field, the farmer feeds the world. The steps of his process are immensely various, but they are all connected with the one grand design, viz. the *drawing out* of the earth what lies hid in it. Now it is obvious that he works entirely by the agencies of nature. He cannot make a blade of grass grow on a grain of wheat. It it the Creator's power, operating according to the laws which he has established in his world. And the farmer *leads out* the plants and the trees which feed the race of men, just by using skilfully the agencies of nature. His whole skill lies in just giving his tree or his wheat *food* and *protection*—every opportunity, and no hindrance, in the way of their expanding their powers. He cannot force them.

Thus also with his domestic animals; all he can do to *draw out* their powers and properties is just to afford them protection—defence against themselves, against one another, against the inclemencies of time and season; and food suited to their innate powers and capacities, and that in proper measure and season. For an animal, like a plant, may be injured by excessive or untimely food and drink. If it be the strength of the ox or the horse that is desired, this quality can be *drawn out* most efficiently by a careful observance of the laws of his nature. He must be gradually trained to its exertion, and the less violence he suffers, the more strength will he expend in his master's service.

So also is it with the powers of man. Infant human beings are the germs whose development is the business of the educator. Feeble plants, indeed! needing above all others, and for a longer period, the hand of protection and of sustenance! But it is with these as it is, generally, in the vegetable kingdom: plants and trees of rapid growth are short-lived.—The Lombardy Poplar soon outstrips the Cedar, but i's age is as nothing compared with it. Animals too are somewhat analagous. And in our own nature, the animal frame of rapid growth is not generally robust.

In contemplating infant humanity as the subject of this process of *drawing out*, three classes of powers seem to comprehend the whole nature, viz. the *animal* or *physical;* the *rational* or *intellectual;* and the *religious* or *moral.* To us it appears that under one or other of these may be arranged all the powers, properties, or faculties of our nature, the *leading out* and perfecting of which is the high and noble object of Education. Let us glance at these in their order.

Physical Education first claims our attention. Because, for a long period of time,—a period equal to that in which most animals come to full maturity,—man is to us, an animal only. He is thrown upon our care absolutely helpless; and our first concern is to protect him and to apply such means as are adapted to put into action the powers he possesses.—Warmth and food are his chief wants. These administered in due proportion, and in proper season, will keep his feeble powers in action, and by their action they increase their own strength. The importance of paying strict attention to the bodies of infants, youth and men, it is not difficult to see. True, the body is of small moment in comparison with the mind: but it is equally obvious that it is to us the vestibule of the soul—the door of entrance to the rational mind. Our success in preserving the body in life and health, is indispensable to our introduction to the mind. We can operate upon this only through that, and the existence and healthful action of the one is indispensable to the growth and expansion, *under our influence*, of the other.

Here then opens out before the educator, an almost interminable field; and one too, of a very inciting character. Even in this lowest department of his labors, where he has to do with matter and its modifications, he occupies high ground. For the matter with which he is conversant is organized, and that in the highest degree known to us—so organized as to come into immediate union with spirit. Of all material subjects, the human body, mysteriously connected with an immortal mind, and destined to be connected in an endless duration, is surely the most interesting and the most important. We consider then education as including the entire business of protecting, nourishing, training and governing the body for the perfecting of its powers. Of course the more accurate knowledge the educator has of it, the more likely is he to succeed in his efforts. And we hope to see the day when mothers, to whom the business of education must first of all be entrusted, will themselves be instructed in the general principles of anatomy and physiology; that understanding the nature of the trust committed to them, they may be prepared the better to discharge its duties. And we hope to enrich our own columns occasionally with articles original and selected on all the various topics that relate to the healing art, and especially the art of preventing injuries to the human frame. *A sound body will always have in it a sound mind.*

Under this department also is to be ranked the whole subject of the animal passions, appetites and desires. Every thing therefore that adds to their proper restraint and direction—every thing that goes to explain their connexion with their body on the one hand and the mind on the other, falls within our province here.

But Intellectual Development is the chief part of education—rather, it has so been viewed by mankind. And we are ready to admit that in comparison with the preceding it is chief. Nor is the general principle different here. The powers of the mind are to be awakened, as it were, like the powers of the body, by the application of suitable instruments.—Food is an instrument for awaking and strengthening the powers of the body; knowledge is the food of the mind, by which its slumbering powers are awakened to energetic action, and by which its *dead powers*, to use a contradictory phrase, become living energies. And the resemblance holds to a very beautiful extent between them. Give strong meat to children and you injure their health; give abstruse and difficult knowledge to a feeble mind, and you overwhelm it; it becomes feeble and sickly. But let the items of knowledge be always adapted to the capacity of the learner; still a little beyond his last attainment; just so far as to induce effort, and not to produce discouragement; thus you carry him onward in the endless race.

Now there is one thing we wish to be distinctly understood between us and our patrons in this matter. It is this; knowledge is not the ultimate object in education. It is a means to an end yet beyond it. The end which we shall still hold up as that at which the Educator aims, is the perfecting of the human being. The efforts of mind which we make in the attainment of knowledge, strengthen it and produce habits of systematic and persevering action: and this increase of the power of the mind is the chief gain. It is not the youth who has acquired at school the most knowledge, perhaps, who has received the most benefit. He may have acquired it as the tub at the pump-spout acquires water; what has been pumped in may be pumped out again. But the youth who has been taught to exercise his own power in the acquisition of knowledge; who has wrought it out for himself, with only the direction of his teacher; this youth, though he may have a smaller amount of knowledge than the other, yet has an inexhaustible supply. His is not a tub, but a spring, flowing up from its deep and exhaustless source. The man has made his capital and his ability to use it; the other has fallen upon his by some gambling turn, which threw the product of other men's labors into his hands. The one will wear and the other will wear out. We will never advocate hydraulic force pumps to create stagnant pools of knowledge, whose possessor knows not how to use. Rather let us remove the tall grass in the ravine on the mountain side, and the turf and the leaves, and open up and lead forth the purling stream, whose limpid waters sparkle as they pitch down the precipice and hasten on to swell the waiting brook below.

One other remark on intellectual education. It is interminable—absolutely interminable. That is, the enlargement of the intellectual powers, by their own legitimate exercise, continues through life. It does not stop when a boy leaves the school; that is, if he has been rightly trained: if he has been educated at all. If indeed he be a tub, pumped full, of course he can hold no more. But if his powers have been awakened; if he be a spring from the deep mines of knowledge, then he will continue to flow on for ever.—Through life he is still improving; and after the body shall have ceased to be the vehicle of thought, no doubt the mind will continue to expand in knowledge and perfection for ever.

This suggests our third general branch, MORAL EDUCATION; and the first remark we have here is, that the two preceding will prove a curse or a blessing; an injury or a benefit to the individual or society, just as this last is successfully attended to or not. Every man must see that great physical powers and great intellectual vigor, if not under the wholesome restraints, and government of sound moral principles, must do great mischief. The more power a wicked man has, the more dangerous is he. A man who cannot engrave, is unable to produce counterfeit bank notes; and a man who cannot write at all cannot sign them. Better far for the forger and for society, that he had never learned to write, or even to read. Morality is to education what the compass and helm are to the steam ship. The hugeness of her mass, and the might of her motive power, are the measure of her capacity for working ruin, if that might and mass are ungovernable. But put man's physical strength and his intellectual force under the proper command of a *moral helm*, and neither can ever become too great for safety.

Another remark it is well here to throw out. We do not place moral education third because of its inferiority, nor because of its entire subsequence in order of time; but because the others must precede it in part. Physical education necessarily begins first; then the intellectual, then moral; but they run together from a very early age. They are to a large extent mutually dependent, for every teacher knows how much more successful his labors are with youth whose moral principle, like the fly wheel of a powerful engine, regulates his movements. Sole attention to physical education may produce mammoth strength, but it is mere brute mass. Sole attention to intellectual education may produce monster fiends, with immense heads and no heart. Sole attention to moral education is impossible; for the examination of moral truths calls for the exercise of intellectual power; and therefore this department includes both the others.

Again, morality, as distinct from religion, we do not know. Believing ourselves, that there is no boundary marked out by the Creator between them, we shall not attempt to force nature in violation of her own laws. With Washington, we would ask, "Can it be, that Providence has not connected the permanent felicity of a nation with its virtue?" "And let us with caution indulge the supposition, that morality can be maintained without religion." This moral training begins almost in the cradle, and ends—we were just about to say, at the grave; but no. It never ends. We must think the moral faculties, like the intellectual, capable of interminable expansion.

Now, for the development of the moral powers, the moral government of the family, the school, the state, or the church, are chiefly instrumental. And being Christians, we suppose the sum of all the great principles of moral government is contained in the sacred Scriptures. The general truths, therefore, of the Bible are highly important and indispensable to the highest success of education. No system that excludes the fear and reverence which the immortal mind owes its Maker, can be fully available for the development of its more elevated moral attributes. But whilst we consider the successful educator as under imperious obligations to use the Christian Scriptures as an indispensible auxiliary, yet, being ourselves of different sects, we are perfectly clear, that the narrow spirit which sees excellence only within the precincts of sect, is utterly unworthy of the broad foundations on which popular education should rest. The Educator then, will occupy only general ground in the department of morals. It stands committed to the common Christianity and the morality of the Bible, and will treat of these only so far as may be necessary to the public virtue, and to show, as Washington says, that "reason and experience both forbid us to expect that natural morality can prevail in exclusion of religious principle."

Relative value of Manures.

[*From the Genesee Farmer.*]

Since the great truth in agriculture, that manure forms the basis of all successful farming, has been more fully developed and better understood, the attention of agriculturists in foreign countries and in this, has been directed to the discovery of the most efficient articles for this purpose, and the best methods of applying them. So convinced have scientific, as well as practical men, on this point, become, that on their representations, the government of several European countries have ordered extensive investigations to be made, and experiments carefully instituted, to determine several questions relating to manures, upon which farmers and experimentalists were not entirely agreed.

The Prussian government, which, in every thing relating to the welfare of the people, in giving them every advantage of education, and the benefit of every improvement in agriculture, has evidently taken the lead, and in conjunction with the Saxon authorities, appointed Professor Hembstadt, of Berlin, to superintend a series of experiments, and publish the results for the use of the public. The effect which the application of night soil and urine had produced on the agriculture of Flanders, where they had been most extensively used, induced the governments of Berlin and Dresden to place under the directions of the Professor, the contents of the city drains and cesspools, for the purpose of attempting the recovery of the barren and light soils in the neighborhood of those cities. Thus countenanced, that eminent agriculturist, in conjunction with other learned men and practical farmers, commenced a series of experiments, which were carried on for a number of years, and varied in every possible way, in order to avoid all sources of fallacy. The results of the experiments have been published by Hembstadt, and have led to extensive and successful agricultural improvements.

Professor Schubler, the writer of the most esteemed, and certainly the most able, Treatise on Agronomia, or the best method of knowing and treating every species of land, since the death of Hembstadt, has repeated and added to the experiments of that professor, obtaining the like results in almost every instance. These he has published in a tabular form, which have since passed into the hands of all the large practical farmers of Germany, and have formed the basis of instruction on manuring, in the hands of professors of agriculture, whom many of the continental governments have with great advantage established in institutions purposely formed to disseminate useful and practical truths in the art of farming. From these tables Dr. Granville, in his report to the Thames Improvement Company, in speaking of the immense source of agricultural wealth which the sewers of London afford, but which is now worse than lost, makes the following statement of facts furnished by them.

If a given quantity of land sown, and without manure, yields three times the seed employed; then the same quantity of land will produce—

5 times the quantity sown, when manured with old herbage, putrid grass or leaves, garden stuff, &c.
7 times when manured with cow dung,
9 times with pigeon's dung,
10 times with horse dung,
12 times with urine,
12 times with goat's dung,
12 times with sheep's dung, and
14 times with night soil, or bullock's blood. Or in other words, an acre of land sown with two bushels of wheat, without manure, will produce—

6	bushels,	
10	"	with vegetable manures,
14	"	with cow dung,
18	"	with pigeon's dung,
20	"	with horse dung,
24	"	with goat's dung,
24	"	with urine,
24	"	with sheep's dung, and
28	"	with night soil, or bullock's blood.

But if the land be of such quality as to produce, without manure, 5 times the sown quantity, then the horse dung will yield 14, and the night soil 19⅔ the sown quantity; or land that will yield without manure 10 bushels an acre, manured with horse dung will produce 28, and with night soil about 39 bushels of wheat per acre.

These results, and multitudes of recorded experiments prove that they in no case vary far from the facts, show the immense superiority of night soil, or Flemish manure, over any hitherto employed. In addition, Dr. Granville found that some crops which yield large profits, and are so extensively cultivated in both Flanders, can only be obtained in abundance, and of the finest quality, by employing what may emphatically be termed Flemish manure in the preparation of the soil.

Another important matter in the comparative value of manures, and of essential practical interest to the farmer, has been established by the same authoritive investigations; and that is, that while night soil has produced fourteen times the quantity sown, where horse dung has yielded only ten—the proportion of the former, or Flemish manure, was, to the horse dung employed, only as 1 to 5; so that with one ton of the Flemish, a larger produce was obtained than with five tons of the best stable manure.

Dr. Granville has drawn some valuable inferences from these truths.

"In England a ton of good stable manure sells for five shillings. Now an acre of arable land in an ordinary state of cultivation in England, is manured with 20 tons of horse or stable manure every 4th year, according to Professor Coventry, and consequently entails an expenditure of £5 in that year. It then produces ten times the quantity of wheat sown. But an acre of the same land similarly sown, and manured with Flemish manure, would require only four tons of it, and which at the price we have fixed for it, (12 shillings a ton) would be an expense of £2 8s. It would then produce fourteen times the quantity of wheat sown on the acre. Supposing the produce of the acre manured with horse manure to be 5 quarters of wheat, and to sell for £15, that of the acre manured with Flemish manure, will be seven quarters, and sell for £21. The result of this comparative farming operation, therefore, would be;

1st, a saving in manure of £2 12*s*. per acre.
2d, a surplus produce of 6 00 per acre in money.

Total in favor of night soil, £8 12*s*. per acre.

"Dr. Granville states, that he was assured by Mr. Smet, a great farmer in East Flanders, that a measure of wheat land corresponding to an Englsh acre, manured with Flemish manure, produced last year 7½ sacks of wheat of the best quality. The sack contains four measures, each weighing 180 pounds of 16 oz. each; consequently there grew upon the acre 5,400 pounds of wheat, or 90 bushels."

The heaviest crop of wheat we have ever known produced in this country, was the one for which Mr. Blackmore, of this county, received the premium, 64 bushels per acre. The capabilities of the soil, therefore, when put in the best condition, is little understood, or the amount of food an acre can produce, not generally known. The *science* of agriculture is yet in its infancy, however venerable and ancient the *practice* may be; and perhaps in no branch of it is our knowledge more defective than in that relating to manures.

Professor Johnson's Lectures on Botany.

[*From the Farmers' Magazine.*]

After recapitulating some of the topics of the preceding lectures upon the development of vegetation, the learned Professor commenced with remarks upon the grasses. These grow in all parts of the world promiscuously, and without cultivation, and being the principal nutriment of man, their cultivation follows him in society and his migrations. The Mogul and Caucasian races of men subsist upon wheat and barley; while rice and millet form the food of the Negro and Malay, and the tribes of ancient Mexico were bounded by the cultivation of maize. The cultivation of the earth preceded the improvement of the intellect, and was the herald of civilization. It is remarkble, that we have no direct criterion of the origin of many of those grasses met with everywhere in cultivation, as none of them are to any extent found wild. Some travellers have thought that barley was indigenous to Tartary, rye to Creta, and wheat to Asia; but these might have been diffused from some cultivated some years previously. Corn is not only the support of man, but the grasses are the subsistence of the animals which form his nutriment. The nutritive quality of grasses, is principally owing to the sugar which they contain, and of which some English grasses contain large quantities, but the sugar cane is the only grass that is exclusively cultivated for obtaining this article for commerce. The grasses are applied to a vast variety of important mechanical purposes; they are found in every part of the world, from the Poles to the Equator; on the land, as well as floating on the water, and are the universal food of animals. It has been estimated that the daily consumption of corn in England and Ireland, is, 1,238,096 bushels of wheat and barley; besides annually, 100,000 bags of rice, and 450,000,000 lbs. of sugar. Besides these may be estimated as the immediate products of the grasses, which consumed by animals forms the food of man, a quantity of almost inconceivable amount. In London alone, is annually consumed 155,000,000 lbs. of butcher's meat. Of cheese, another production of grass, 11,500 tons are annually introduced into London, from Cheshire, about 20,000 tons from Warwickshire, besides that from several other countries. Of butter, the annual consumption is almost 50,000,000 lbs. the produce of 300,000 cows; and in London, between 9 and 10,000 cows are kept for the supply of milk to the inhabitants, which produce an annual supply of about 30,000 millions of quarts. All these are the immediate products of the grasses.

Most culinary vegetables belong to the cruciform, umbellate, or papilionaceous varieties of plants.—The first is so named from four petals forming the flower, being disposed in the form of a cross, as in the wallflower. It may be remarked, that not a single species included in this group is poisonous, but that the whole, if not absolutely employed as food, are not deleterious. The cabbage, cauliflower, brocoli, sea kale, turnip, mustard, and almost all culinary vegetables, but spinach, belong to it. Another extensive group, is the umbellifera, so called from the arrangement in umbels, the main flower stalk diverging into a number of spokes like an umbrella. Although this class contains many used as condiment or food, many others which are very poisonous, are associated with them, as the hemlock. We know too little of the natural affinities of plants, to enable us to distinguish the poisonous, from those that are not so; as the sweet chervil of the garden, which is often mistaken for hemlock, nor the common celery, mistaken for the same. Accidents from this kind are not uncommon, and it was from eating drop-wort that grows upon the banks of the Thames and other rivers, instead of celery, that several convicts died at Woolwich, three or four years ago. The papilionaceous, include many used for food, as pulse, beans, peas, tares, saintfoin, and others, and are so named from the fancied resemblance of the flower to a butterfly. The fruit forms a pod, called a legume, and the plants are therefore called leguminous; of many of them, the seeds are food for man, and the stem and leaves of some, are food for cattle; but the seeds of the alburnum, and many others, are poisonous. Although we are not yet sufficiently acquainted with the characters which may enable us to distinguish the qualities of all, yet, De Candolle has furnished us with a sign by which we may in some measure distinguish betwixt those which are poisonous or not. It is by observing how the leaves spring from the seed, which are found to be very dissimilar. Some throw their lobes above the ground, and are of a green colour, as in the laburnum. In most of this kind of plants cultivated for the purposes of food, the leaves remain beneath the soil; but although this cannot be taken as an absolute criterion of a wholesome plant, from the circumstance that some of them throw up their leaves, it is a well recognized fact that no poisonous plant keeps its leaves beneath the surface. The potato is a member of a poisonous and narcotic order, being included in the same as the hemlock, nightshade, and mandrake. The potato being wholesome, seems to mark another feature, that some parts alone are poisonous whilst others are not, and that this poisonous principle may reside in different parts of the plant. In the poppy, the seeds are not poisonous, but on the contrary, highly nutritious; in some parts of the continent being a food both for man and animals. It is used extensively for the adulteration of oil; a large portion of the olive oil imported from France being almost exclusively composed of it. The fleshy part of the plum and other fruits is good for food, and nutritious, whilst the kernels and leaves are highly poisonous, containing hydrocyanic acid. The tubers of potatoes when roasted, are good, but the stem, leaves and other parts of the plant are deleterious. The tubers, when on the ground and exposed to the surface of light, become green, and taste badly. In its history the potato presents the same hemisphere as various kinds of corn. It was not known in the Eastern hemisphere, or the Old World, until after the discovery of America, where it was found cultivated in Peru, from whence it was introduced by Sir Walter Raleigh into Virginia, in 1586. It is supposed to be indigenous to the Andes and Peru, but it is not found there in a wild state by travellers. In many parts of Asia Minor, the soil is covered with the citron, cherry, pear, and other varieties of fruits. Although we are ignorant of their native spot, they may have formerly been introduced into these parts and cultivated, and point out ancient civilization. Many ages ago, science and civilization were confined to certain parts; and from countries in proximity to the Euxine Sea, the gulph of Persia, and other parts, was Europe indebted for its supply of almost all descriptions of fruit and vegetables. In the time of Cato, the Romans were neither acquainted with peaches or mulberries; in that of first Tarquin, the olive was not known to exist in Italy, Spain or Africa; in that of Appius Claudius, olive oil was rare; but now, all the neighboring countries derive their supply from these parts. In the time of Pliny, it was introduced into France and Spain. The vine, all the varieties of which originally sprung from one species, modified by climate and cultivation, is interesting in its genealogy. It was not known originally in Europe, but followed man in his migrations. It is found wild in the Caspian, though we have no reason to suppose it originally to have been so.—From Greece it was introduced to Sicily; by the Phoceans it was carried into the south of France; by the Romans to the banks of the Rhine; from whence it was extended to the various islands of the Mediterranean. Several of the fruits so important in the tropical regions, as the banana, the date, cocoa-nut, &c. have the history of their origin involved in the same obscurity as the European plants just named.

The solid matter of which vegetable substances are principally supplied from the earth, is carbon or charcoal, which principally comes through water. In plants growing in the arid sands of tropical regions, which are scarcely susceptible of supporting vegetation, we find very little carbonaceous matters, a small proportion of the solid principle being combined with a large quantity of aqueous juices. There are certain other principles which must be furnished from the soil; and if it be destitute of these, the plant cannot be fostered, and hence the difficulty of cultivation, from not knowing the chemical nature of the earth and soil. Plants growing in the neighborhood of the ocean, contain soda, which has its origin in the spray of the sea to which they are exposed; the common eryngo will grow in such situations, but not in a garden, from the want of sea-salt. It has, however, been kept alive under such circumstances, by watering with water in which sea-salt had been dissolved. The matter of flint, or silica, is contained in considerable quantities in many plants, as in the common cane; if two pieces be rubbed together they will produce a light from this circumstance.. When we examine the cuticle, we find a considerable quantity of minute flinty matter, which produces the light. Mechanics are in the habit of using a vegetable production called Dutch rush, but which is not common in this country; it is used by cabinet-makers and workers of brass, for polishing, where it acts like a fine file, caused by an innumerable number of peices of rock crystal. Two causes may be assigned for the presence of this:—it is either imbibed by the plant in a fluid state, or produced by a certain specific vital action in the plant. As we do not know any instance of the latter, the former may be assigned as the probable cause. Such plants will not grow without silica, and in situations where plants do not flourish, it is owing to the circumstance, that the soil does not contain its proper quantity of proper earth.

Lime is a well known substance, existing in vegetables in various proportions; in some being contained in a considerable quantity. It is always in combination with an acid, either the carbonic or the phosphoric, analagous to chalk or animal bone. One probable cause of the fertility of lime, when applied as manure to soil, is in the carbonic acid which it absorbs from the atmosphere, presenting it in a form by which it is readily decomposed. The soils which contain lime are most favorable for the growth of corn; and wheat never flourishes more than where it abounds. It is contained in grain in such quantities, that it is computed that every person who consumes 1 lb. of bread daily, will, in the course of one year take into his system 3 lb. 6 oz. 3 drachms, and 44 grains of phosphate of lime. This circumstance is the reason why it is of superior quality over other grain, as it forms the principal part of human bodies. It is found in milk, where nature seems to indicate that it is contained for the nourishment of the young animal, from the remarkble fact that when they are able to take other food, the milk loses its proportion of this substance. Although phosphate of lime is contained in considerable quantities in the adult secretions, it is not known in those of the young, being all taken up for the purpose of nutriment. The shells of eggs are formed of this substance, and Dr. Paris has ascertained the singular fact, that if the legs of a hen be broken, she will lay her eggs without shells until these are repaired, for which the lime is required. Hens will also lay their eggs without shells if there is a deficiency of lime in the yard in which they roam. It is a remarkable circumstance, that although the grain contains the phosphate, the straw contains the carbonate of lime. Carbon is, next to water, the principal support of vegetation. In the formation of soil, the earthy and crustaceous lichens are planted first: these die and form a bed for the seed of the mosses. In the fertilization of land, different operations are going on; the roots of the eryngo run five or six feet from the stem, they then die and form the vegetable matter or black mould which covers the barren rocks that cover the globe. Nature herself realizes the fable of the phœnix. Man, the lord of the earth, is subject to the same laws as all other created beings; furnishing after death food for others, as myriads have done before; and we trample on others alike in beauty and decay.

The Soil.

[*From the Educator.*]

By this term is meant whatever vegetables, plants, trees, &c. grow in. It may to the eye at least, be a collection of stones and rocks. It may be a bed of partially decomposed vegetable substance mixed with small portions of clay or sand—a bog. It may be an almost unmixed clay or sand. Still that substance, from the midst of which the plant thrusts itself forth, and where it grows, is its soil.

The use of the soil is threefold, First, it is the cradle and dwelling place of the embryo plant and its stay and foundation in after growth. It receives the seed and retains the roots of the tree and supports it. The solid parts of the soil constitute the pillars and props which uphold the growing plant. The same friendly office continues even after life has parted from the leaf and vigor of health died in the stem or trunk.

The second use of the soil is to furnish food for the plant. The first of all the ingredients necessary is moisture. The seed cannot expand and thrust into life the embryo tree or plant, without water. The absence of this universal solvent make all soils barren. Water is the universal *physical regenerator* of the vegetable world. Every seed was alive once; viz. when it grew on its native stem, whence it derived its being. The plant that bore it died. It died virtually itself—it exercises no living energy; but water—moisture, with that heat which it includes, penetrates its various parts and swells them into active life; it is regenerate to live, and henceforth, by the power of the same element, it continues to grow. What is the sap or juice of a plant, but water holding in solution in itself, various matters for the nourishment of the plant? Take away all the water out of a tree and can it live? The cedars of Lebanon and the pines of Alleghany, equally with the weeds of our gardens and the green moss that mantles the stagnant pool, are dependent upon water for their growth. Now the soil is a sponge full of water, ready to be applied to the parched lips of the plant it nourishes. This water is a *solvent*; that is, it dissolves in itself the various substances which go to form the body of the plant, just as sugar is dissolved in tea; and thus the water, which in the soil is a solvent, also becomes a *vehicle* to carry the food up the pores of the plant and to distribute it into all its parts; as in our mighty rivers and the great ocean itself, the water is the great transporter of all goods. The very power which calls the plant into life, continues its vivifying influence to sustain and carry on that life. Analogous to this, is the agency of water in animal life. Our bodies are equally dependent for their life, on the active agency of water. A similar analogy exists in regard to mind—there is a spiritual water.

But the *soil* not only *contains* this indispensable solvent; it also *consists* of various ingredients, which become mutual solvents. The different kinds of earths act upon each other, and, especially by the aid of water, act upon the vegetable matter mixed up with the soil, and so reduce it to that state in which it becomes the food of plants. Now it will be obvious, that the goodness of soil, must depend upon its capacity to *prop* up the plants, and to *supply* them with food. If they be well propped up and well supplied with good food, they must grow well: provided, they be not out of their latitude,

These remaks are intended to convince our agricultural readers, that an inquiry into the nature and use of soil, is not a useless speculation: nor is it a dry and uninteresting subject. Science lies at the basis of all art, and it is our wish to aid in lifting up terraculture to the dignity of a science. That is, we wish the farmer and gardener to understand the nature of their soil, and the laws of that nature, whose regular action produces the results at which he aims. We wish to see the cultivator not working blindfolded; but understandingly. We wish him to know not only that some kinds of soils are suited to some kinds of plants; but also why they are so suited—what it is in the soil which suits it to this or that particular vegetable production. For example, we would have the farmer not only to know the general fact, that lime spread on a field infested with sorrel will correct that evil, but also, why it will so operate. We would make the very labor of his hands, the means of enlarging the capacity, by stimulating the activity of his mind. We would have him a student of nature, on her most attractive pages, that his soul may expand indefinitely as it directs his bodily powers to the most profitable exercise.

The soil as a prop.—If you look at any plant you will find its roots are designated first to support it in its natural position. They spread round the stem, stalk, or trunk, in such manner as to stay it, like the bracing of a frame building. Now these braces must have a solid basis to rest on: less or more immediately contiguous to the stalk. Plants that rise high must run deep, or have wide spreading roots. The texture of the soil—whether stiff and tough clay; loose and open sand; moist and almost liquid marsh, or rocks with little minutely divided matter among them; the texture of the soil and the nature of the plant ought to be adapted to one another, and will determine the depth or width to which the roots will extend. In fibrous rooted plants, such as wheat, rye, oats, it is obvious that porous, open soils will afford the roots the best opportunity to run deep and wide. Whereas close, clay soils resist their passage, and confining their range, are unfriendly. Hence one way in which lime is profitable, is by changing the texture of clay lands. It combines with the clay, and causes the mass to granulate or assume the appearance of fine sand. So enabling the roots to spread and the air to penetrate the deeper into the soil. So whatever causes the soil to cake, to become stiff and glazed, as it were, on the top, must become injurious. Whether this is not an effect of anthracite coal ashes, remains to be decided. The small experiments I have made induce me toward this belief.

11th Annual Fair of the American Institute,

OF THE CITY OF NEW-YORK,

At Niblo's Garden, No. 576 Broadway.

This celebration of American industry and the arts will be opened to visitors on Monday, the 15th day of October next, at 10 o'clock A. M. Articles intended for competition for premiums must be delivered on Friday or Saturday previous, viz. the 12th or 13th of October. Choice productions from every department of industry, whether of agriculture, manufactures, or the arts, as well as all kinds of machines, models, &c. will be appropriate for exhibition and competition for premium.

To provide the requisite accommodations for the grand display which the notices already received decidedly indicate, Niblo's entire Garden has been engaged, embracing a part of the promenade, never before occupied by the Institute, with extra room one hundred feet in length and twenty-five in width. A powerful steam engine will be provided, which will afford a continued moving exhibition of machinery. The liberality of the public enabled the managers of the last two fairs to bestow in premiums, exclusive of diplomas, *sixty Gold Medals*, and *two hundred and sixty Silver Medals*, in addition to other not inconsiderable rewards in money.

Prompted by a desire to increase the interest awakened in agriculture, particularly in the culture of silk, a number of patriotic individuals have volunteered to add to the means of the present managers, in order to enable them to extend more liberal bounties, and promote among the silk culturists of our country a fresh spirit of emulation. This laudable example we hope the opulent and public spirited, who take an interest in other departments of productive industry, will follow by associating and contributing with similar high-minded motives.

The enthusiasm with which former celebrations have been hailed, and the cheering influences already inspired by the approaching one,—notwithstanding all our severe business calamities,—confer on them a character and value never before adequately appreciated. By means of these fairs, necessity, instead of depressing invention, has brought forth its mighty powers, and is developing its unbounded resources.

Articles sold during the fair cannot be delivered until the close: and in order to enlarge the amount of sales and bring to fabricators and producers immediate benefits, it is particularly desired that a description should accompany each article, stating the price, by whom manufactured, designating particularly the place where they may be obtained. The uses and objects of each article, if not apparent, should also be stated: such a description will facilitate the distribution of printed catalogues early in the first week of the fair, and will no doubt swell the amount of sales.

The public are invited to attend this anniversary celebration. Distinguished individuals, it is hoped, will be present, countenancing and inspiring as usual. Female delicacy, taste, and ingenuity, have never failed to impart a crowning effect; and we trust they will, on the coming occasion, more than ever command admiration.

MANAGERS.

Thaddeus B. Wakeman, Adoniram Chandler, Martin E. Thompson, Charles H. Hall, W. P. Dissosway, John Sampson, E. T. Backhouse, Timothy Dewey, E. D. Plimpton, Baldwin Gardner, James Hamilton, George Bacon, Joseph Titcomb, Jared L. Moore, John D. Ward, J. Van Norden, Frederick Goodell, H. M. Graham, J. Prescot Hall, Joseph Cowden, Edwin Williams, H. Kelly, *of New-York.*

Jeremiah Johnson, William J. Mullen, James Cropsey, *Broolyn, N. Y.*

Jesse Buel, C. N. Bement, *Albany.*

Paraclete Potter, Thomas W. Harvey, *Po'keepsie.*

William Halsey, James Miller, Stephen Dod, Alex. C. M. Pennington, *Newark, N. J.*

Christopher Colt, Melvin Copeland, *Hartford, Conn.*

William C. Gilman, John Breed, *Norwich, Conn.*

On the Inflammatory Complaints of Farm-Horses.

By Mr. Matthew M. Milburn, Thorpfield, near Yorkshire.

Causes.—In order to clear our investigation of some difficulties, it will be necessary to show that there is not any peculiar predisposition to disease in the breeds of horses usually employed in heavy draught, nor to any particular and characteristic conformation of the animals, which, I think, can easily be done. The coach-horse and the draught-horse are now very frequently bred from the same mare, and the breeds are so completely crossed and intermixed, that further than form and capability, with a sufficient degree of blood in the case of the coach-horse, they have lost their distinctive breeds. The horses employed in the cultivation of light soils, which the introduction of turnip-culture has so much extended, has caused the coach-horse and draught-horse to assimilate very closely. The peculiar characteristics of the old Suffolk breed, is lost in the continual crosses which have taken place to obtain more speed, and the farm-horses generally, perhaps with the exception of those used on very heavy soils, are partaking much of the character of the coach-horses of some ten years ago, and although a lighter class of animals have of late years been held in requisition for light work, to suit the rapid communication which our commerce demands, still so much intermixture has taken place in the different breeds, that no distinction can be pointed out between the one and the other, in so far as liability to the diseases in question is concerned. We are not aware that any peculiar conformation has any connection with the predisposition to such diseases.—The horse required for fast-work must have a capacious chest, to admit of the rapid propulsion of the blood which his exertion demands; but the horse of heavy draught also is valuable for his depth and rotundity of chest, to enable him to perform the tremendous exertion which is occassionally required of him. There are two instances, however, where constitutional peculiarities may predispose to the complaints in question. There are certain horses denominated "*washy*," or horses in which the space between the last false rib and the hip-bone is wide; in the language of the jockey, when he is not "well ribbed home;" such are known to be liable to diseases of the bowels when put to extra exertion,—but upon what principle I am unable to say. Others have a natural or acquired habit of voracious feeding, which is extremely prejudicial to the healthy action of the digestive and excretory organs, and to which I shall presently allude.

The post-horse, and such as are required to perform fast-work, are more liable to attacks of diseases of the brain, the nerves, and the lungs, simply because their work consists of rapid powerful exertion;—the farm-horse,—the animal of long and steady exertion, to gripes, inflammation of the bowels, and stomach staggers,—results, as I shall presently shew of a management unsuited to the character of the labor we require from them. The stomach of the horse is remarkably small;—smaller in proportion to his size, and the quantity of food he requires, than any other domestic animal. Nature intends for him a supply of nutritious food, and that *at short intervals;* wherein he materially differs from the ox, whose capacious stomach will contain food which will not be digested for hours. The post-horse, the hunter, and the carriage-horse, have food of the most nutritious description, and the time during which they are worked is necessarily short, owing to the extreme exertion required; they return to their food, and although their appetite may for a time be impaired, and their stomach and bowels affected by the general debility of the system, yet they recover their tone, as soon as the rest of the frame admits of their taking food. The farmers' horse, on the contrary, has food of a less nourishing nature, his rack is filled with straw, or, at best with clover;—the ploughman rises early, gives him a feed of corn, and leads him to his work, where he continues for seven, eight, and even nine hours, and his whole day's work is completed before he is allowed to eat. We do not find the ox, worked under similar circumstances, so affected in the stomach and bowels, simply because his capacious stomach, when filled, requires many hours to empty, while, as we have seen, it is different with the horse. Debilitated and hungry, the horse returns, and his rack is plentifully supplied, and a good feed of corn given him, and he is left to himself; he eats voraciously, half masticates his food, loads his debilitated stomach, and his digestive organs are weakened, and permanently injured. This course is repeated,—a habit of voracity is acquired, and at no very remote period the food lodges and obstructs the pyloric orifice (the passage from the stomach to the bowels,) fermentation ensuses,—gas is evolved, the stomach distended; he grows sluggish and sleepy,—drops his head upon his manger; or he is delerious, and evinces that the sympathy which exists between the stomach and the brain has excited the latter organ; he rolls, paws, and is seized with convulsions; at length he expires, and he has died of stomach staggers. If the previous history of the horse is examined, it is probable that he has been subject to gripes: thus showing, not only the connection between the common management of farm-work horses and diseases of the organs of digestion and excretion, but between the two latter. The half-masticated food has irritated the bowels, extra exertion of the muscles has been required to propel the dung to the rectum, and cholic or cramp (spasms) of the bowels, has followed, or a course of continued irritation, or of continued cholic, or both, has ended an inflammation of the bowels. I remember a beautiful farm-horse, which, owing to the distance of part of the farm to which he belonged from the buildings, was worked the long hours described, and finished his day's work before his bait. He was constantly subject to attacks of the gripes, which was subdued; but he died of stomach staggers. The same stable, then so often subject to diseases, is now, by a change in the system, completely free from them. Another case, however, occured,—a beautiful compact little mare was constantly afflicted by cholic,—she eventually died of inflammation of the intestines.

There are other parts of the management to which horses employed in agriculture are subject, which induce diseases of the bowels; for instance, a boy returning from work, with heated and sweating horses, to save himself trouble, allows them to drink copiously at some pool or stream he passes. Suddenly one or more of the horses exhibit symptons of gripe, they suddenly lie down, roll about look at their sides, rise up, seem, relieved, and again speedily relapse; the sudden application of the cold water has produced spasms in the bowels, through which it has passed. This is neglected, or perhaps gin or whiskey, aided by pepper, is administered as a remedy, and severe and general inflammation of the bowels is the result; this is mistaken for another attack, and again the poison is administered, and the inflammation increased, and death follows. The horse of heavy work, too, is longer exposed to the inclemencies of the weather than the animal of light work. In the former, the rain is allowed to fall upon him for hours, and it is allowed *to dry upon his back*; the sympathy between the skin and the alimentary organs is known to every groom,—obstructed perspiration, and consequent irritability, is conveyed from the one to the other, and disease is the consequence. It is true, the latter is also partly exposed to the rain, but for shorter periods, and the wisp and brush are liberally applied when he enters the stable; a determination of blood takes place to the skin, perspiration is excited, and diseases thus prevented.

There is another disease to which horses are subject, and which is at once the cause and consequence of inflammation of the intestines. I mean intestinal calculi. Inflammatory action of the bowels, like that of every other part of the system which comes in contact with any foreign body, is liable to produce calculi, which in turn irritate the bowels, and produce a lasting predisposition to disease. For this I am not aware that any remedy has been discovered, and what is worse, they generally accumulate with age, and eventually produce death, the only power over them arising in our endeavors at prevention.

Prevention.—Of the best means of preventing these diseases in farm-horses we will now treat. We have attributed the peculiar liability to them in farm-horses to mismanagement, with the exception of certain instances of peculiar formation of the amimals, and although the farmer must necessarily work his horses longer hours than the horse of rapid work is capable, there is no necessity of depriving the animal so long of food. No horse should work more than five or six hours without a bait. If we examine the history of the stables of large farmers, whose fields necessarily lie at a great distance from the buildings, and where they are worked long in consequence, and compare it with that of small farmers, under the contrary circumstances, we shall find a striking difference as respects the health of the animals. The case referred to above strikingly illustrates the truth of this observation. But, it may be asked, how it is possible to bait the animals so far from home? The difficulty seems to be in procuring food upon the spot, for if this is not done, the precaution will be neglected, and, at any rate, the land will be occupied by it. This, however, may be remedied. In the case, for instance, of a field intended for turnips, which has to be worked during the spring, a part of it, half an acre, or in proportion to the size of the field, may be sown with winter-tares, a few of which may be mown off, and given to the animals green, without carrying them from the field, interfering with any crop, or wasting any time in carrying the horses to a distance. If the field be intended for summer-fallow the spring tare will answer, and which may be used in the same manner, instead of allowing the poor animals greedily and indiscriminately to crop the leaves of the hedges at every turning, from the impulse of hunger. There is another easy way of baiting, which some carters adopt, and which might be applied to the farmers' horse, especially when carting. It consists in securing a bag, containing corn, over the animal's mouth and nose, by a string, which passes over the poll, and is locally denominated a "nose-bag," or "horse-poke," and which should be removed when he has finished his feed. To prevent the effects of the wet upon the skin, an unexpensive glazed cloth may be thrown over the horses backs, and secured to the collar and traces. This may by some be considered very troublesome, but, it will be found, that when it is once begun, it will be considered no more trouble than carrying the rest of the harness, and if disease is prevented, the trouble amounts to nothing. To counteract as much as possible any habits of greedy feeding which the horse may have acquired, his corn should be mixed with chopped straw, or chopped clover, which will secure its proper mastication, and prevent many troublesome complaints, as well as render all the nutrition of the food available. These may be substituted by an admixture of clean chaff with corn, a plan which is pursued in a farm-stable with which I am acquainted, and is found a useful practice. It would save the animals much time in eating, if all their food was chopped, and perhaps steamed; but on this subject we have not sufficient data to determine it with accuracy.

CURE OF THE DISEASES.—The cure, it has been hinted, must generally be left to the veterinary practitioner in the complicated diseases of the horse; but I shall refer to the principles of cure, in order to guide the farmer from some errors into which he may otherwise possibly fall. To begin with the most difficult, stomach staggers, which is distinguished from mad staggers, by the sluggishness or dulness of the animal in the first stage of complaint; but from the sympathy between the stomach and brain, the former often ends in the symptoms of the latter. All the efforts of the practitioner must be to empty the stomach; it is often a fruitless attempt, but a powerful dose of castor-oil (1½ lb.) may be tried, as being rapid in its effects, and mollient to the hardened food in the stomach. Bleeding may also be useful in preventing the delirium. In the early stage of the disease, a stomach pump may be used to wash the food from the stomach; but here an experienced practitioner alone will be able to do it. Gripes or cholic are, fortunately, generally more easily subdued; they are distinguished from inflammation of the bowels by the suddenness of their attack, the temporary relief from pain, and the relief obtained from exercise, the symptoms of the latter being directly contrary. Bleeding alone will frequently relieve the spasm, but I have known a very simple remedy used with almost general success. Goose fat, in the quantity of a pound or three quarters given warm, generally produces relief in a very short time, if accompanied by walking exercise. In severe cases, one ounce of laudanum and a dram of powdered ginger, in a quart of warm ale, may be used with probable success.

Inflammation of the bowels is worse to cope with than gripes, and a farmer should never attempt the cure himself. He should call in the veterinary surgeon *immediately*. The disease may be distinguished by a coldness of the extremities; this at least indicates inflammation, or that the blood is determined to some local part, and the heaving of the animal's flanks, and his anxious looks at his bowels, as well as their tenderness when touched, will indicate the seat of the inflammatory action. The first object is to relieve the system, and counteract the impetus of the blood; bleeding persevered in until the horse drops, is the only chance for saving his life. There is another principle in horse medicine which here will be called into vigorous action. No severe inflammation can take place in two contiguous parts of the system at the same time. To lessen the internal inflammation, the belly must be largely and powerfully blistered, and these are the two means for subduing the disease. No purgative medicine should be given, but the horse back-raked, to prevent the formation of calculi, and a glyster administered in the form of onion broth.—All stimulants must be avoided, as they are sure to act as poison to the animal. In conclusion, I would impress upon the persons concerned to aim at *prevention*, where their efforts will generally prove available, for they seldom are so in the curative process.

Young Men's Department.

Hints to Young Farmers.—No. XI.

ANALOGY BETWEEN THE CULTURE OF THE SOIL AND THE CULTURE OF THE MIND.

The soil is endowed with the elements of fertility, capable of yielding all necessary sustenance to man. The mind is endowed with all the elements of usefulness and intellectual enjoyment, capable of rendering man virtuous and happy.

The soil, left to itself, brings forth noxious as well as useful plants; and the useful, such as minister most largely to our wants, can only be made to thrive by unremitting care and labor. The mind, left to itself, is the prolific source of evil, as well as of good; and it is indebted for its highest attainments, and most elevated enjoyments, to persevering study and labor.

Culture is the application of labor and skill, to increase and improve the products of the soil, for the gratification of our animal wants. Culture is the application of study and labor, to improve the good qualities of the mind, for the gratification of our intellectual wants. We enjoy the first in common with the brute;—the latter is the prerogative of man.—And both the soil and the mind rise in the scale of usefulness in proportion to the good culture that is bestowed upon them.

Soils differ in their natural fertility; yet those of medium or inferior quality, by the application of labor and skill, are often made to excel, in their products and their profits, those of the first class which are badly managed. Intellects also differ in natural fertility—some develop precocious fruits, while others appear tardy and dull—yet by proper culture and discipline, the latter often, very often, excel, in private virtue and public usefulness. In regard to soils, it has been said, that where nature has been less bountiful, man is most industrious and happy. It may be said of the mind, that where fortune is less prodigal, individual effort is most active and successful in developing its treasures. For,

As rich soils are most prolific in a rank growth of weeds, which choke and destroy the corn, unless timely eradicated—so rich men's sons are very apt to abound in rank weeds of the mind—as indolence and dissipation—which obscure or smother the noblest faculties of the soul, unless sedulously watched and manfully mastered.

The soil requires, in order to obtain a full development of its beneficent powers, not only the *preparatory process* and the good seed, but the *after culture*—that the young plants be carefully nurtured, and that all noxious weeds be extirpated. The mind, in like manner, needs the *after culture*. It is but *prepared* for useful knowledge by the elementary teachings of the school. The good seed is here too to be sown, in the spring time of life, the virtues are to be carefully nurtured, and the bad passions and propensities mastered and controled, if we would gather the harvest of renown, or become useful to ourselves and country.

A well cultivated soil not only benefits, directly, its proprietor, but, by the example it furnishes, and the abundance of its products, it indirectly benefits society at large. So the well cultivated mind not only benefits its possessor, but by its example and its fruits, confers blessings on the whole commonwealth.

The good culture of the soil will supply the means of cultivating the mind. The good culture of the mind will fit it to become a powerful auxiliary to labor, in increasing the products of the soil. The culture of the soil and the culture of the mind are, therefore, of reciprocal benefit to each other.

If you would, as Poor Richard says, be "*healthy, wealthy and wise*," cultivate with diligence—and cultivate well—both your soil and your mind.

Industry vs. Indolence.

J. BUEL, Esq.—Sir—Industry produces a stream that flows slowly on to elevate the inquiring mind, which forms a sure foundation and great barrier against every vice. It is a granary to the mind, where every virtue will be stored: it lends a sweet tincture to every action, which is gratefully cherished.

The man who has no occupation must be quite unhappy; toil is the price of sleep and appetite, of health and enjoyment. How nobly every order is displayed! The very necessity which overcomes our natural sloth is a blessing. Every briar and thorn which is strewed in our path; every noxious plant which the world contains, and every annoying insect which appears to surround us, by divine mercy, could not have been spared.

We are happier with the sterility which we can overcome, by our united exertion, than we could have been by spontaneous plenty, and unbounded profusion.

No way can the body and mind be so morally and effectually improved, as by the toil that fatigues them. That toil receives its manifold rewards daily, by the pleasure it bestows. The enjoyments are so varied and peculiar, that no wealth can purchase them, no honor can win them, no indolence can taste them.

Many people imagine themselves in pleasures, provided they are neither in business nor study. Nothing like it; they leave not one trace of their laborious and intellectual exertion behind them, no more than if they were asleep.

By contracting habits from laziness they frequent only those places where they are free from all those restraints, attractions and demands, which do justly surround them.

This sinks the indolent into contemptible obscurity all the days of his life. He only lives to die in a thousand errors, and rather adopt the prejudices of others than give himself the trouble of acquiring true knowledge, which tends to form correct opinions of his own.

Idleness leaves a man in the lowest state; his pleasures are all sensual, no wants are sought after but those of appetite. The man of industrious habits is looking forward, with a degree of superiority, to more noble and higher attaiments in intellectual enterprise. He dicovers that the happiness of individuals and security of society are formed by the industrious habits which elevate the mind, and is carried forward in search of something more excellent, and obtains a proper degree of superiority over the common senses of life by learning to feel himself capable of higher aims and nobler enjoyments. That which abstracts the thoughts from sensual gratifications, and exerts us to look for happiness within ourselves, will surely advance, in a measure, the dignity of our nature: therefore all good pursuits reward themselves; one truth constantly presents another to view, and while our store of knowledge and enjoyments are constantly increasing, kind nature can never be exhausted.

Industry, properly applied, will most assuredly advance our prosperity: the advantages of which are two-fold; it will, in a measure, be estimated by the pecuniary profit produced, but more by the superior tone of industry and economy which the possessor unconsciously acquires.

That which the industrious has obtained by his own proper and well directed exertion at once causes him to feel raised in the scale of being, and endows him with the capacity of enlarging the stock of his possessions.

When property is accumulated by the industrious peasantry, it never fails to produce impressions on their minds, very lasting and unavoided. In such instances it renders them more industrious. They also strive to better educate their children, that they may be better fitted for some good and useful attainment and station in life.

S. W. JEWETT.

Weybridge, Vt. Aug. 8, 1838.

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*Moneys received during the last month, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

		No. Vols.
Albion,	Ill.	6
*Abbeville,	O.	16
Akron,	"	5
*Braintree,	Mass.	20
Bellevue,	O.	5
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*Brinckleyville,	N. C.	11
Brownsville,	"	5
*Catskill, Gr.		13
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*Huntsville,	Ala.	56
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*Lockport, Niag.		23
*Lansingburgh, Rens.		12
Laporte,	Ia.	11
Lancaster,	N. H.	6
Lincoln,	Ill.	5
Liberty,	Mo.	10
*Luray,	Va.	19
*Liverpool, Onon.		14
*Lisbon,	Ct.	42
*Montpelier,	Va.	41
*Mishawaka,	Ia.	23
Millville,	Va.	10
Middletown,	"	17
Mansfield,	"	10
*Montreal,	L. C.	21
Mayfield,	Va.	24
Napoleon,	Mich.	5
*New-York city,		140
*New-Hope,	Pa.	10
Newtown,	Md.	22
New-London, Onei.		6
New-Franklin,	Mo.	5
*Orange C. H.	Va.	29
*Plymouth,	Ct.	11
*Philadelphia,	Pa.	108
*Petit Nation,	L. C.	7
*Po'keepsie, Dutch.		45
Providence,	R. I.	5
Point Pleasant,	Va.	6
*Rhinebeck, Dutch.		30
Racine,	W. T.	6
Rome,	Tenn.	5
*Richmond,	Va.	115
Rushville,	Ia.	6
St. Louis,	Mo.	11
*Sheffield,	Mass.	19
*Stroudsburgh,	Pa.	22
Salina,	Ky.	10
*Schoolcraft,	Mich.	12
*Smyrna,	Del.	28
*Sandersfield,	Mass.	8
Sag Harbor, Suff.		10
*Southbridge,	Mass.	19
*Shaftsbury,	Vt.	21
*Terra Haute,	Ia.	39
*Utica, Onei.		52
Worcester,	Mass.	5
*Washington city,	D. Col.	66
Wardensville,	Va.	5
*Walkerton,	"	27
York, Liv.		6
York,	Pa.	6

PRICE CURRENT.

ARTICLES.		New-York. Aug. 20.	Boston. Aug. 18.	Philadelphia Aug. 19.	Baltimore. Aug. 18.
Beans, white,	per bush.	1 25.. 1 30	1 25.. 1 75	1 00.. 1 1[illegible]	1 00.. 1 25
Beef,	cwt..	7 50.. 7 75	7 50.. 7 75	7 00.. 9 00	7 00.. 8 75
Bacon, western,	lb....	10..	11.. 12	8 00..10	10.. 13
Butter, fresh,	lb....	18.. 22	16.. 25	14.. 18	11.. 17
Cheese,	lb....	7.. 9	8.. 9	9.. 10	9.. 10
Cotton, best,	lb....	9½.. 12	9.. 13	....	11.. 12
Flour, best,	bbl..	6 12.. 6 25	7 50.. 7 75	7 87.. 8 00	7 25.. 7 50
GRAIN—Wheat,	bush.	1 50.. 1 55	....	1 37.. 1 40	1 40.. 1 55
Rye,	bush	80.. 83	85..	95.. 97	65.. 66
Oats,	bush.	25.. 37	33.. 35	35.. 40	.. 25
Corn,	bush.	78..	70.. 73	66.. 70	65.. 66
Hams, pork,	lb....	10.. 12	11.. 12	10.. 12	12½.. 14
Pork, in hog,	cwt..	....	8 00.. 8 50	....	6 75.. 7
SEEDS—Red Clover,	bush	12 00..13 00	10 80..11 00	10.. 11	11 00..
Timothy,	bush.	....	2 63.. 3 00	2 ..3 25	2 25.. 2 50
WOOL—Saxony, fleece,	lb....	45.. 50	52.. 57	48.. 50	40.. 50
Merino,	lb....	37 . 38	48.. 50	45.. 50	35.. 40
1-4 and com.	lb....	32.. 36	33.. 35	33.. 38	25.. 30
Sheep,	head,	....	3 33..	....	....
Cows and Calves,		30 ..45	25 00..37 00	20 ..38	35 00..46 00

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ Farmers' Directory. ☜

☞ We receive almost daily inquiries for seeds, implements, farm stock, &c. many of which it is difficult, and some of them out of our power, to answer satisfactorily. The expense of making and answering these inquiries amounts to no little in the aggregate. To remedy this inconvenience, and to render a service to the seller and buyer, we propose to insert in the extra which will accompany our February number, a FARMERS' DIRECTORY, that is, to give the names, residence and business, so far as they shall be notified to us by the 10th January, free of charge, of gentlemen engaged in vending agricultural seeds, implements, and choice breeds of farm stock, in whatever state they may reside. As for example,

W. Thorburn, Albany, vends seeds and implements.

H. D. Grove, Buskirk's Bridge, Washington co. N. Y. will sell 100 Saxony sheep.

G. B. Smith, Baltimore, Md. sells Rohan Potatoes and Dutton seed corn.

To the patrons of the Cultivator, no charge will be made for this notice—to others, it will be one dollar. Advertisements, more in detail, will be inserted in a separate portion of the same sheet, on our usual terms. The advantages that are likely to result to advertisers, may be judged from the fact, that our edition is twenty thousand copies, and that our paper circulates in every state and territory in the Union, and in the Canadas.

The Farmer's Garden.

FRUIT.

The fruit *trees* that may be cultivated in a garden, where the climate and soil will admit of their growth, are the apple, pear, plum, cherry, peach, nectarine and apricot; the fruit *shrubs*, are the quince, gooseberry, currant, raspberry; to which we may add the grape and the strawberry.

Each of these fruits may be profitably cultivated for market, where a market is contiguous or convenient; and they may all be made subservient to the economical subsistence of the owner's family, to a certain extent,—and certainly furnish some of the most grateful, and at the same time healthful delicacies and luxuries of the table. Hence the extent of their culture may be made to depend upon the demand.

It will be seen in the plan of a garden presented in our last, that nearly one-half, or half an acre, is appropriated to fruit *trees* and grape *vines*. Plats Nos. 8 and 9, will contain each 15 trees, at 12 feet apart, with intervals of five feet between the outside trees and the walks, and a trellis of grape vines along the southern borders of both plats. Numbers 10 and 11 will each receive 20 trees, at nearly similar distances. Thus the fruit department may contain 70 trees, and 20 grape vines, without materially interfering with the vegetable or ornamental departments.

The next question is, with what fruits shall these plats be planted? This depends upon another question—what fruits will thrive and mature in the soil and climate? The apple will admit of general culture; for although Coxe has fixed the northern border of the apple zone in the valley of the Mohawk, this fruit is nevertheless found in high perfection as far as lat. 45°, and even on the island of Montreal. And the defects of soil, it is believed, may in most cases be corrected, by underdraining and trenching. The plum, pear and cherry, do not do well in high northern latitudes, though they are grown to some extent on the borders of the lakes, upon our northern frontier. The peach is not successfully cultivated north of 42° upon tide-water, until we get west into the valley of the Seneca river, and within the influence of the predominating south winds, which come from the Gulph of Mexico. These winds are believed to be the trade-winds of the tropics, turned out of their western course by the high table lands of Mexico; and their mild influence is felt, more or less, as far north as the island of Montreal. The nectarine and apricot, so far as our observation has gone, seldom repay the expense of culture north of the city of New-York, unless protected by glass. The grape, even the hardier varieties, seldom ripens well north of 43°, and the fruit of the foreign varieties is very subject to be destroyed by mildew, or to lack fine flavor, unless secured in a house.

But supposing all the fruits we have named may be cultivated, we would appropriate the northern row in plats 8 and 9, to early apples, suitable for the kitchen and dessert; and instead of ten we would plant but six trees, which would give intervals between the trees of about 20 feet. As the apple is the largest growing tree, we would plant it on the north, as its shade, in that position, will be least prejudicial to other garden crops. The fruit never comes amiss in the family; if there is any excess, it is readily converted into pork; and if early apples are grown in the garden enclosure, they are most safe from depredations, and more convenient when wanted.

The next, in the size of fruit trees, are the cherry and the pear, and these may be made to occupy the other two rows in the plats under consideration; and as these should have intervals of at least 15 feet, the space will admit of but 16 instead of 20 trees. Should grapes not be made to occupy the place assigned them in these plats, the intervals, north and south, may be extended to 15 feet; or the spare strip may be profitably appropriated to nursery rows, to supply trees and shrubs to replace those which may fail or die, for the propagation of new varieties, and as a school of instruction in budding and grafting.

Plats 10 and 11, may be appropriated to the smaller growing trees, as plum, peach, &c. and will each contain 20; or the nursery may occupy a part of this ground. The rows of the nursery should be three feet asunder, and the plants one foot apart.

Many persons, to avoid the trivial expense demanded for good fruit, content themselves with seedlings, or inferior kinds, which they can obtain without price. This is bad policy. Good fruit is pleasant, healthy and profitable. Bad fruit has neither of these properties to recommend it. We have seen a cherry tree whose fruit had brought its owner fifty dollars; a pear tree which yielded its proprietor twenty dollars every bearing year; and plums which have readily commanded five dollars a bushel in the market. And we have seen other trees that virtually brought no profit to their owners, or food to the family, for the reason, that the fruit they produced was actually worth nothing. The catalogue of the London Horticultural Society, contains the names of more than 1,400 varieties of the apple, 700 of the pear, and nearly a like number of the peach, plum, &c. These fruits are arranged in three classes, according to quality: No. 1 being very good; No. 2 so so; and No. 3 comparatively worthless. Probably not more than one-tenth of these fruits belong to the first class.—We mention this fact to show, that superior fruits bear but a small proportion to the inferior kinds which are cultivated. An outlay of a few shillings in the purchase of good fruit in the outset, will, when the trees come into bearing, annually and amply compensate for the expense; and when once obtained, good fruits may be as easily propagated in the garden nursery as bad fruits. Young men, of ordinary capacity, *can* acquire the art of propagating, if they will but try, after a little practice.

The quince, the currant, the gooseberry and the raspberry, may occupy the east and part of the south border. The first should be planted 8, and the others 4 feet asunder. The strawberry may be grown in the southern edge of the fruit plats, or be assigned a place in the outer borders.

In recommending varieties of fruit for garden culture, we shall name such as we *know* to be good, without meaning to say that other varieties are not equally so. Every district of country has some kinds peculiar to itself. Besides, a list of all the good fruits would swell our article to a tedious and useless length. We therefore content ourselves with naming but a few varieties of each. But we remark, that new varieties are every year produced by the natural process of crossing. On a late visit to our friend I. Denniston, Esq. who perhaps has the best collection of plums of any man in America, he gave us to taste some fifteen new seedling varieties of this fruit, all of exquisite flavor.

EARLY APPLES.

Juneating, tart bough or harvest apple, strawberry apple, sapson, early French reinette, pumpkin sweeting, fall pippin, and for baking, the sweet bough, or Jersey sweeting. The apple should be raised from seed, and choice kinds may be multiplied in the garden nursery, by grafting or budding. Graft in April, and bud in July and August. Bud when the plants are the size of the little finger. For directions see the Cultivator, vol. II. p. 18, 65, 66.

PEARS.

We name those that ripen at different times, and in the order in which they ripen: Jargonelle and Williams' bonchretian for summer; autumn, or Gansell's bergamot, vergaleu, capiaumont, seckle, &c. for autumn; beurre diel, chaumontelle, colmar, easter beurre, &c. for winter; catillac or bell, for baking. The pear may be propagated and worked like the apple. If dwarf trees are desired, they may be worked upon stocks of the quince or thorn, at the surface of the ground.

CHERRIES.

We would have among these the morello, mayduke, black heart, white heart and late duke—the common red cherry should also have a place here, or in some other part of the premises. The cherry is generally budded, and this should be done in June, or while the plants are in thrifty growth.

PLUMS.

The green, purple, yellow, Bleecker's, Flushing and blue gages, are all excellent, as are the Bolmar, Nectarine, Orleans, St. Catharines, Jefferson, and many others. The egg and magnum bonum, belong to the second class as to flavor, though they are of the first class in size. Plums are propagated by budding and grafting; often upon succors which grow from the roots of old trees, though better stocks are readily obtained from seeds. The plum should be budded in June, or early in July—grafted in April.

PEACHES.

These are generally short-lived trees, and where they can be raised and fruited well, a supply of young trees should be constantly kept up in the nursery.—The peach should always be budded, as not one seedling in fifty turns out good fruit. The stones may be buried in the ground during winter, and those that are not cracked by the frost should be broken before they are planted. They may be sown thick, like cabbages, in a seed bed, and like cabbages transplanted into nursery rows with a dibble, when they have grown six inches high. They *may* be budded early in September, the same year, and *should* be budded as early as the second year. There is no fruit more easy of propagation, or that comes earlier into bearing, than the peach; and where it thrives well, there is no apology for neglecting its culture, or for not propagating the choice varieties; and nearly all that are worked in nurseries are of this description.

QUINCES

May be propagated by layers, by cuttings, or by seeds. Seeds may be sown like apples and pears, and transplanted when of sufficient size, in two or three years. The apple shaped, the pear shaped, and the Portugal quinces, are the principal varieties, of which the latter is generally preferred. It is of a fine purple colour when dressed, and is more juicy and less harsh than the other kinds.

GRAPES.

The Isabella, Catawba and Bland's Virginia, are the most esteemed native varieties; and the Sweetwater, Chasselas and black Hamburgh, the best foreign varieties, for culture in the open ground. The grape is propagated by layers and cuttings. For the management of the vines, see the directions of Alden Spooner, in the May number of the current volume. It is considered prudent in the climate of Albany, to lay grape vines, in autumn, upon the ground, even of the Isabella, and slightly to cover them with earth, after being previously pruned.

CURRANTS

Are a valuable fruit in family economy, are a long time in use, and are a marketable crop. New plantations of this fruit should be made every ten or a dozen years, as old wood becomes diseased, the ground upon which it grows exhausted, and the fruit upon it inferior. The varieties are the black, common red and white, the Dutch, or large, or grape, white and red, champaign, &c. The Dutch are the best. They do not produce so much wood as the common; but they give proportionally more and larger fruit, particularly the red.

GOOSEBERRIES

Are liable to be spoiled by mildew; but we have reason to believe, from the experiments we have made, that the disease may be prevented by a strong pickle being poured about the plants in winter, when vegetation is dormant. The varieties of this fruit are very numerous. The thin skinned of medium size are the best.

For directions for propagating the gooseberry, currant and grape, by layers and cuttings, see pages 29 and 30 of vol. III. of Cultivator.

RASPBERRIES,

Particularly the white and red Antwerp, are deserving of culture, where this fruit does not abound in a wild state. They are propagated by succors, that is, shoots which come from the roots of old plants. The canes, or stems, of the Antwerp raspberry, bear but one season, and are succeeded annually by a new growth. We cut away the dead wood in autumn, reduce the canes to four or five in a place, cut in the laterals, and also the top to the height of about four feet, and as a precaution against the frost of winter, bend down two stools towards each other, secure them at the surface of the ground by a crotched stake, and slightly cover them with earth. The raspberry requires a new berth once in four or five years, to bear well.

STRAWBERRIES.

We treated of this fruit so fully in our August number, as to supersede the necessity of adding any thing more at this time.

TRANSPLANTING.

We will only state, briefly, that in transplanting, care should be taken to give the roots their natural direction—to surround them above, below, and at the sides, with rich surface mould—and to bring this mould every where in close contact with them. As to the SEASON of planting, we should prefer early autumn, as soon as the functions of the leaves are destroyed by frost, and while there is yet a sufficient flow of elaborated sap, to produce new fibrous roots—or late in the spring, before the leaf buds have burst, and when there is a brisk circulation of ascending sap. "If trees have been planted in autumn," says Reynolds, in his Guide to the Orchard and Kitchen Garden, "they will, by the following April, have made fresh roots, and their buds will begin to push." If transplanted in autumn, it is well to throw around the plant two or three forks' full of mulch or coarse dung, to protect the roots from severe cold; and the like precaution will prevent excess of evaporation in summer.

Having thus disposed of the fruit department, we shall, in our next, treat of the culinary department of the garden.

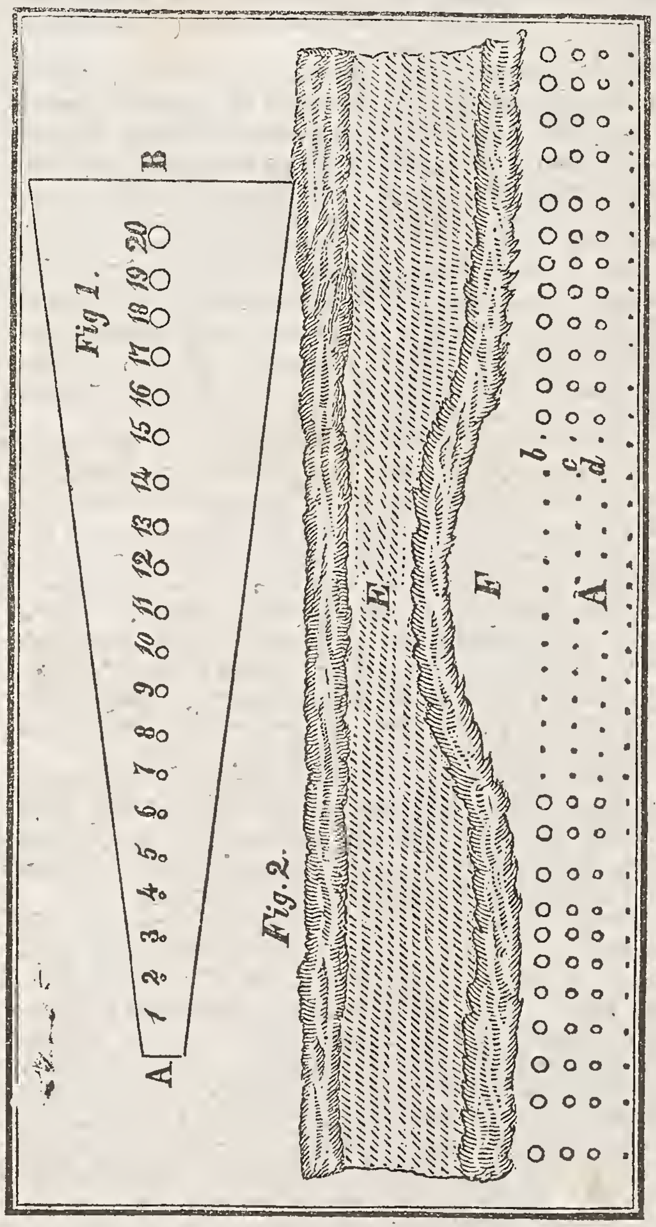
Office and Extent of the Roots of Plants.

Roots perform a double office to plants: they serve as braces to keep them in an upright position; and they are purveyors to supply them with food suitable to their growth and maturity. To enable them to perform these offices well, three requisites in the soil are essential. *First.* It is important that the soil be mellow, that the roots may penetrate in it freely, not only to strengthen their bracing properties, but to extend their range for food, this being absorbed or taken up by the spongeoles, or extreme points—and the greater their range the more abundant the food which they supply. *Secondly.* It is important that this food be in the soil, in a soluble state, that is, in a condition to be dissolved by, and incorporated with, the fluids in the soil. This food consists of vegetable and animal matters,—or of whatever has been such. *Thirdly.* It is important that a quantity of moisture be always present in the soil, to dissolve the food of plants, and to serve as the medium for conveying it first to the spongeoles, and from thence into and through the plant. Air, heat and moisture, are all essential agents in preparing the food of plants, in the soil, and in giving vigor to vegetable growth.

It should be the object of the farmer and gardener to aid these natural operations in cultivated crops; and to repay the soil, by labor and skill, for the annual tribute which they draw from it. These labors consist in returning to it vegetable food—dung—equivalent to that which they annually take from it,—in rendering it mellow and permeable to the roots of the growing crop—in regulating the supply of water, for too much is as hurtful as too little—and in keeping the surface loose and porous, for the free admission of air, heat and moisture. Hence the advantage of deep tillage, perfect pulverization, of draining, manuring, and the frequent use of the cultivator among drilled or hoed crops; and these considerations also suggest one objection against using the plough in the after culture of these crops, and of earthing or hilling them to any considerable extent—as both of these modes of culture, ploughing and hilling, tend to curtail the natural range of the roots, and consequently to diminish the pasture and food of the crop.

The depth and horizontal spread of roots, is greater than is generally apprehended, and they often branch into minute filaments imperceptible to the naked eye—and yet these minute imperceptible filaments collect food for the parent plant. Jethro Tull, the father of drill husbandry, has given us a good and satisfactory illustration of the great extension of the roots of the common turnip, which we transfer to our columns, not only to convince our readers of the fact, but to illustrate the importance of good ploughing and thorough pulverization in tillage husbandry. We invite attention to the cut, and then to the explanation in the words of Tull.

[Fig. No. 50.]



"*A method to find the distance to which roots extend horizontally:* A piece, or plat, dug and made fine, in *whole hard ground,* (Fig. 1,) the end A two feet, the end B twelve feet, the length of the piece 20 yards; the figures in the middle of it are 20 turnips, sown early and well hoed. The manner of this hoeing must be, at first, near the plants, with a spade, and each time afterwards a foot distance, till the earth be once well dug; and, if weeds appear where it has been so dug, hoe them out shallow with the hand hoe. But dig all the piece next the out-lines deep every time, that it may be the finer for the roots to enter, when they are permitted to come thither. If the turnips be all bigger as they stand nearer to the end B, it is a proof that they all extend to the outside of the piece, and the turnip 20 will appear to draw nourishment from six feet distance from its centre. But if the turnips 16, 17, 18, 19 and 20, acquire no greater bulk than the turnip 15, it will be clear that their *roots* extend no further than those of the turnip 15 does; which is but about 4 feet. By this method, the extent of the *roots* of any plant may be discovered. There is another way to find the length of *roots,* by making a long narrow trench, at the distance you expect they will extend to, and fill it with salt; if the plant be killed by the salt it is certain that some of its roots enter it.

"What put me upon trying this method, was an observation of two lands or ridges (fig. No. 2,) drilled with turnips in rows, a foot asunder, and very even in them; the ground at both ends and one side, was hard and unploughed. The turnips not being hoed, were very poor, small and yellow, except the three outside rows, *b, c, d,* which stood next to the land (or ridge) E, which land, being ploughed and harrowed at the time the land A ought to have been hoed, gave a dark flourishing colour to these three rows; and the turnips in the row *d,* which stood farthest off from the new ploughed land E, received so much benefit from it, as to grow twice as big as any of the more distant rows. The row *c* being a foot nearer to the new ploughed land, became twice as large as those in *d;* but the row *b,* which was next to the land E, grew much larger yet. F, is a piece of hard whole ground, of about two perches in length, and about two or three feet broad, lying betwixt those two lands, which had not been ploughed that year. It was remarkable, that during the length of this interjacent hard ground, the rows *d, c, b,* were as small and yellow as any in the land. The turnips in the row *d,* about three feet from the land E, receiving a double increase, proves that they had as much nourishment from the land E as from the land A, wherein they stood, which nourishment was brought by less than half the number of *roots* of these turnips. In their own land they must have extended a yard all round, else they could not have reached the land E, wherein it is probable that these few roots went more than another yard, to give each turnip as much increase as all the roots had done in their own land. Except that it will hereafter appear, that the new nourishment taken at the extremities of the roots in the land E, might enable the plants to send out more roots in their own land, and receive something more from thence. The row *c* being twice as big as the row *d,* must be supposed to extract twice as far; and the row *b,* four times as far, in proportion as it was of a bulk quadruple to the row *d.*"

"When roots are in a tilled state," says Tull, "a great pressure is made against them by the earth, which constantly subsides, and presses their food closer and closer, even into their mouths, until itself becomes so hard and close that the weak sorts of roots can penetrate no farther into it, unless reopened by new tillage."

Tull's work was published a hundred years ago.—It has been quoted and commented upon by most of the subsequent writers upon agriculture; and the facts above stated have neither been controverted nor disputed, either by these writers, nor, so far as we have learnt, by practical farmers. They are therefore undisputed. Why is it, that cultivated crops, upon the margins of fields, and about stumps and fast stones, give more dwarfish plants, and less product, than the well-tilled portions of the field? It is not owing to the poverty of the soil; for these portions abound most in the elements of fertility, by reason of the plough, on being raised from the furrow, depositing there the finest and richest mould. Why do meadows deteriorate? Is it not because the roots of plants have not a sufficient range, in mellow earth, to supply the requisite food—and because the unbroken soil "becomes so hard and close, that the weak sort of roots can penetrate no farther upon it"?

There are some practical improvements which we would draw from the preceding facts. And—

First—in regard to the use of the plough in Indian corn, and other hoed crops. The roots of Indian corn are known, from repeated observation, to extend in the soil at least six, eight and ten feet, and if planted in squares four feet apart, each hill has virtually a pasture of four feet square to feed upon. Now if the plough is run both ways through the crop, this pasture is reduced to at least two square feet, for the roots which furnish sustenance are within reach of the plough, and must be cut by it. Hence the plough reduces the pasture of each hill, while it continues to be employed, from sixteen to four square feet, or three-fourths.

Secondly—in regard to the application of manure, whether it should be applied in hills and drills, or spread broadcast. The roots extend simultaneously with the stems, and draw sustenance for the plant through their extreme points. Hence, by the time the crop is first dressed, the roots have extended beyond the manure deposited in the hill, and consequently the plant derives but a partial benefit from this central deposite of food. If, on the other hand, the manure is spread broadcast, the roots, as they extend, are constantly reaching new supplies, and the plant is sustained in undiminished vigor.

Thirdly—in regard to fallow crops, instead of naked fallows. Where sward ground receives but one ploughing—but that should be a thorough one—the vegetable matter of the surface is turned completely under, safe from the wasting influences of the weather. This vegetable matter readily decomposes, furnishes a permeable stratum for the roots, the food which these roots seek for, and moisture to convey it to the plants which require it. As the roots of the sod decay, the upper stratum becomes permeable to heat and air, and crumbles into a fine tilth. In the case of naked fallows, a good portion of the vegetable matter is lost, by being turned to the surface at the second ploughing, and the ground consequently becomes more compact, and is not so readily penetrated by the roots of the crop, nor by heat, air and moisture, the essential agents of vegetable growth. And

Fourthly. The facts which we have detailed, afford a strong argument in favor of the alternating system of husbandry, wherever it can be introduced—of periodically breaking and pulverizing the soil, with the plough, harrow, roller and root crops, thereby rendering it more congenial to the growth of grasses and small grain.

Varieties of Grain.

Le Couteur, in his excellent publication on wheat, which we propose to notice hereafter more fully, states that his collection consisted of 150 varieties, or kinds. The varieties of wheat, like those of the apple, may be multiplied without number, by sowing different kinds contiguous to each other—the pollen of one kind impregnating the pistil of another, and the two, thus conjoined, produce, like two animals of different breeds, a new variety, partaking, more or less, of the qualities of the two parents. This change is not so perceptible in the seed of wheat as it is in the seed of Indian corn; but it is, nevertheless, as certain, in the habits of the new plant. We have particularly noticed this tendency to amalgamate in the maize crop, where it becomes palpable to the eye in the new corn. We planted, last spring, seven kinds of maize, a couple of rows of each, in the same field, at intervals of some 20 to 30 feet, with a view of determining both their comparative earliness and productiveness.—Every variety has become impregnated with two or more other kinds, as is indicated by the colour of the grain—and though, from the colour, &c. of these strange grains, they appear to be identical with the male parent, they will, if preserved and planted, produce entire distinct varieties. Upon the mode of producing new kinds of maize artifically, see the interesting articles from A. Robinson and G. B. Smith, in our April and May numbers.

We make these remarks preliminary to the notice of a fact, stated by M. Le Couteur, of much interest to the farmer, viz. that all our old varieties of wheat have become very much mixed, if not adulterated, by the natural process of crossing. M. L. says, that in 1832, he thought his crops were tolerably pure, yet on Prof. La Gasca, curator of the royal garden at Madrid, walking through them, he selected 23 sorts, of which some have since been discovered to be three weeks later in ripening than others. "Hence," says M. L. "I repeat, it must be obvious, that corn harvested in an unequal state of ripeness, cannot be the best for making bread,—when the greater part of the grain has been reaped in the state the farmer considered was fitted for the miller, whilst the lesser part has been in a milky state, or much over ripe, or some in states between both." To this cause he ascribes the appearance of many shrivelled, lean and ill grown grains, in many samples of wheat. We paused, while penning this article, Aug. 28, to examine several kinds of wheat, which we have growing in an experimental plat; and we found M. L's remark verified, more or less, in all, but least in the Trimestrian. In the Italian, Siberian, Tea, Egyptian, Galena and Chilian, some heads were over-ripe, some were in condition for harvesting, and others were quite green. These wheats were all sown May 19, and may be put down as to their forwardness, in the following order: earliest, Italian, Tea, Siberian, Galena, Egyptian, Chillian, Trimestrian. There are some ripe heads upon all, and some green heads upon all. Of their relative productiveness, we shall speak hereafter. It should, however, be remarked, that the seeds of these wheats come from various climates and latitudes, which undoubtedly has influence upon their maturity.

The above facts suggest the propriety of using great care in the selection of seed—that the kernels appear of equal maturity—that the seed has not been grown contiguous to other varieties—and of beginning, *de novo*, as the Scotch farmers have done in various instances with wheat, oats, barley, &c. by selecting a plant, or stool, or an ear of choice grain, and of propagating it carefully, till the product will suffice for an entire crop. The intrinsic value of the product would, in a very few years, amply compensate for the trouble. It was in this way that the Houpton oat, chevalier barley, and various other highly esteemed varieties of grain, now eagerly sought for, first obtained notice.

There is one other observation of M. Le Couteur, that we found amply verified in our early practice in farming—the impropriety of applying fresh stable dung to land intended for wheat, and, indeed, in our opinion, to land intended for any small grain, "inasmuch as it tends to produce much grass or straw, and less grain, which grain is also of a dark coarse nature. *Stable dung should be applied plentifully to the preparatory crop*," and lime or ashes to the wheat when they are procurable.

M. Le Couteur quotes Columella's account of the varieties of wheat cultivated in his time, which was about the commencement of the Christian era.—Among the varieties described by Columella, we observe one whose name and character materially correspond with a sample sent us by Mr. Ashburner, of Stockbridge, last spring, and which we have grown. We subjoin the quotation.

> "The Trimestrian," says Columella, "shall be the third, which husbandmen are mighty glad to make use of; for when, by reason of great rains, or any other cause, the early sowing has been omitted, they have recourse to this for their relief. It is a kind of white wheat. Pliny says, that this is the most delicious and daintiest of any sort of wheat, exceeding white, but without much substance or strength, only proper for moist tracts of land, such as those of Italy and some parts of Gaul; that it ripens equally, and that there is no sort of corn that suffers delay less, because it is so tender that such ears of it as are ripe presently shed their grains; but in the stalk, it is in less danger than any other corn, for it holds its ear always upright, and does not contain the dews, which occasion blasting and mildew."

The Diseases of the Plum and Pear,

That is, the canker on the one, and the blight on the other, continue to arrest the attention and employ the pens of our horticulturists and pomologists. The causes that are conjectured, and the cures that are recommended, are almost as multiplied as the writers. There is no doubt in our minds, that many of the failures in these fruit trees, are owing to a bad soil, or bad subsoil—to the absence of some matter essential, or to the presence of something prejudicial, in the soil, to their health and vigor. But the diseases in question, which, so far as our memory serves, are comparatively recent, are undoubtedly caused by insects. "Like causes produce like effects," is a maxim of unquestionable truth. The elements remain as they always were. If these diseases were owing to the soil, the sun or the atmosphere, why were they not known to our grandfathers? But that new insects are continually coming among us, is wofully evidenced by the depredations of the Hessian fly, the bee moth, and the grain worm, which depredate upon our wheat and our honey. And why not the like new and unwelcome visitors upon our fruit trees? Another reason for imputing these diseases to insects is, that they seem to come periodically—to intermit for years—and to continue for years. We saw the pear blight in 1801, and in 1825; and the canker in the plum at different periods. For the last few years we have been comparatively exempt from both. Insects do appear at intervals of years. The locust is said to be fourteen or seventeen years in its various transmutations. We yet know hardly half of the insect creation. All matter seems animated with life, which, in its minutest form, is capable of inflicting incalculable injury upon man. See, for instance, the aphides, which prey upon almost every plant; the fly and grain worm which destroys our wheat—the various tribes which live upon our farm-stock, and others that are parasites upon man. And are fruit trees alone, of all animated nature, to be exempt from these minute enemies, which cause disease and death?

Diseases of trees, we have said, are often to be ascribed to the absence, in the soil, of something essential to the plant, or of something prejudicial to its growth. Where this is the case, the evil, we think, may in most cases be remedied, by trenching the ground, preparatory to planting, and by the admixture of clay, or lime, or such other elementary matter as the soil may appear to be deficient in. Last autumn, we followed Mr. Reed's suggestion, and placed around many of our pear trees furnace cinders; and around others tan from the morocco factory.—The earth was taken away from around the base of the trees, two or three shovels full of the material thrown in, and the earth thrown back upon it. No blight has appeared upon them, and most of the trees have started with new vigor. Whether the cinders and the tan benefit, by neutralizing something obnoxious in the soil, or by affording a requisite food, we are unable to say; but it seems certain that they promote health and growth.

Varieties of Early Indian Corn.

The *Maine Farmer*, of Aug. 21, says, "the Dutton corn grows luxuriantly, but is much later than many of the old varieties."

The *Farmer and Gardner*, of the same date, printed at Baltimore, states two cases of the Dutton corn being gathered, in a ripe state, in less than 90 days from the time of its being planted, viz. Mr. Giles planted on the 17th May, and gathered perfectly ripe samples on the 15th August; and Mr. Harrison planted, on the 16th May, and gathered on the 14th August.

The *Franklin Farmer*, printed at Frankfort, Ky. of Aug. 18, says, "Our Dutton corn, planted April 30, has been gathered more than a week. It is perfectly ripe, hard and well cured. Though a dwarf species, it is a generous bearer, and we are satisfied, from the experiment of this season, that an acre of it will produce as good an average crop as our larger eared corn."

Some of our Dutton corn, planted on the 19th May, had perfectly ripe ears on the 15th Aug. and this part of our crop was harvested, that is, cut up, on the 28th Aug. though it might safely have been done on the 21st; and most of the Dutton corn in our neighborhood, was harvested either in August or the first week in September.

We have recorded these facts, to explain their seeming contradictions, and to make some suggestions, which we think of importance to the farmer, in regard to seed.

We have before observed, that there is a spurious, as well as a genuine, Dutton corn, the former of stouter growth, and later in ripening, than the latter. We would remark, that this difference may result from the seed planted—seed of the same variety, grown at the south, giving a larger growth of stalk, and maturing later than seed grown at the north.—This is evidenced by the fact, that southern seed always gives a comparatively large and late growth at the north; while northern seed gives a dwarfish growth and early maturity at the south—and that they both become acclimated in a few years, and take the habits of their new location. These considerations suggest, that so far as early maturity is sought for, it is advisable, when a change of seed is desired, to obtain it from a more northern latitude, or elevated district.

But we adopt the opinion of Joseph Cooper, so far at least as relates to maize—which was, that a change of seed is *not necessary*, when due regard is paid to *selecting* the seed. We have cultivated the Dutton variety of corn eighteen years—we have always selected the earliest and fairest ears, assisting in person, for seed, which we immediately braided, and hung in an airy loft. It has ripened as early this, as it did the first year we received the seed from the far north; while we are satisfied it has increased in productiveness—that it has larger ears, and more of them, and taller stalks, than it had when we first began its culture. The seed is left to mature on the stalk, till the crop is gathered from the field—the earliest ripened, being then easily determined by the appearance of the shuck, or husk, and the rich colour of the corn. Hence the importance of every farmer taking care to secure, in person, his best seed.

There is one other fact that should not be lost sight of—the influence of soil and location upon vegetable growth. A moist, rich soil, will give the largest growth, both of foliage and fruit, and a light and dry one the earliest maturity, and the richest or most concentrated product. Prof. Ives states, that plants from the seed of the morus multicaulis, have the foliage of the parent in a rich humid soil, while they resemble those of the M. alba, on a thin light soil; and it is believed that a pound of the leaves of the latter are intrinsically more valuable to the silk-worm than a pound of the former. It is not the size that indicates superiority in the animal or vegetable. A very large apple is seldom a very good one. The cider from a hilly, dry, calcareous soil, is always superior to that from a low and rich one. A very large beet contains much less sugar than the same weight of small beets. Indian corn, grown upon a light dry soil, comes to earlier maturity, but is inferior in its growth, and in the size of its ears, than when it is grown upon a highly manured loam. Indeed the difference is so great, on our own grounds, this season, that the growth and product in two locations, would hardly be taken for the same variety.

We have another suggestion to make, in regard to the influence of steeps. It will be remembered, that in our last volume, we referred to a communication of Senator Johnson, inserted in the first volume of the transactions of the old agricultural society, showing that the crop from seed wheat, steeped in a solution of salt-petre, ripened two weeks earlier, and gave 25 per cent more product, than the crop from seed which was not thus steeped. We began to plant our main crop of corn on the 12th May, and finished on the 16th. All the seed was steeped 12 hours in a solution of nitre, in quantities sufficient for one day's planting. A few quarts of seed, which remained, was set in the cellar, where it remained, partially covered with pickle, till the 19th, when it was planted in a vacant patch of thin soil, in which we also planted, the same day, six other varieties, all reputed to be remarkably early, and the seed of all which had been soaked in salt-petre water. The last planted Dutton corn, was decidedly the earliest of the seven sorts in coming to maturity, and was at least two weeks earlier than the main crop, planted from three to six days earlier. Its maturity may have been in some measure accelerated by the porosity of the soil, compared with that of the main field, which was highly manured with unfermented dung, and to the consequent influence of the dry weather; yet we think it not improbable that it was principally owing to the seed having remained saturated, for 96 hours, in the nitrous solution.

Having referred to our specimen plat, we will add, that it consists of the following varieties of corn:

1. Dutton; 2 and 3. Lake Superior and Squaw from Lake Michigan; 4. Early white, not recollected where from; 5. Early Canada, from Poughkeepsie; 6. Red Blaze, from Elmira; 7. Early yellow, from Vermont. These varieties were all planted the same day, two rows of each, with intervals between the different kinds of 20 or 30 feet. On examining them to day, Aug. 28, we find No. 1 mostly ripe, the husks dry and separating from the grain; No. 2, Lake Superior, an 8 rowed yellow, growing 4½ feet high, but very prolific in succors and ears, next to the Dutton in maturity. The early white is an 8 rowed corn, 5½ feet high, and is third in ripeness. The Vermont is a yellow 8 rowed corn, grows 6 feet high, and is next in ripeness to the early white. The Squaw, No. 3, is an 8 rowed coloured grain, grows 6 feet high, and is fifth in its earliness. The Red Blaze comes

next, and the early Canada is the latest. Both are eight rowed, and, like the Dutton, they grow seven and eight feet high. As to *number* of ears on a stock, they are about alike, except the Lake Superior, which is far the most prolific in its succors and ears, though they are very small. As to the *size* of ears, the Dutton has a manifest superiority; as to length of ears, the early Canada and the Red Blaze, 8 rowed, are equal, if not a little superior to the Dutton. Several gentlemen, who have visited the plat, concur in the correctness of this statement. We intend to exhibit samples of each of these varieties, at the fair of the American Institute. We omit the notice of later ripening varieties.

The Crops.

In addition to the notices of the crops, which will be found under correspondence, we give the following brief abstract from the newspapers:

In Maine, the crops are generally good. The grain-worm has, however, done considerable damage to wheat.

In New-Hampshire and Vermont, the early harvest was abundant, and the Indian corn has been much better than ordinary.

In Massachusetts, the crops have been better than ordinary, though the potato and other late autumn crops, have suffered in the southern parts of the state, as they have through all the middle states, from the drought in July.

In Connecticut, the injury from the dry weather in July, has greatly diminished the autumn crops. though the early ones are believed to have been good.

In New-York, the summer harvest was generally abundant, and well got in. South of Albany the dry weather has seriously diminished the product of the latter harvest, particularly of the potato crop. North of Saratoga, no want of rain has been experienced, and the autumn crops are fine. The same remark, we believe, will apply to Oneida, Onondaga, and most of the counties lying in the more elevated portions of our state. In the western counties, the drought of July did considerable damage, and still more in the southern counties.

In New-Jersey, it will be seen by the letters of our correspondents, in this and our last numbers, the autumn crop has, in a measure, been a failure.

In Pennsylvania, Maryland and Virginia, the wheat crop was good, the rye inferior, oats a small yield, corn very deficient, and potatoes a virtual failure.—The Commercial List, of Philadelphia, states as follows, in regard to East Pennsylvania and New-Jersey: Wheat, decidedly good. Rye, half an average crop. Oats, two-thirds of an average. Corn, one-fifteenth of an ordinary crop. Buckwheat, little expected. Potatoes, early kinds very light; late, an entire failure. Hay, first crop good. Pasture, none in August.

In Delaware, the corn crop promises to be an average one.

In Maryland and Virginia, the wheat has been good; but the corn has been seriously injured, and in many cases utterly destroyed, by the dry weather.

In the states still more south and west, the wheat crop has been great, and the corn generally promised at least a medium crop.

We shall go more into detail in these matters in our annual report. In the mean time, from all the information in our possession, we venture it as our opinion, that wheat is much more abundant, and that flour will consequently be lower in market, this winter, than it was last; that Indian corn, and probably rye and oats, will sustain their present prices, and may advance; and that potatoes will command, south of our latitude, an unusually high price. The failure of the potato crop, and, we are sorry to add, the unusual depredations of the fly upon the ruta baga, will undoubtedly have an influence upon the price of the coarser grains and hay, which latter, however, may be considered abundant throughout the union.

Will the politician, the manufacturer, the merchant and the mechanic, pause a moment, and reflect upon the controlling influence which the abundance or scantiness of the harvest has upon the prosperity of our common country, and upon their several pursuits? If the harvest is abundant, the whole land is prosperous and happy. If the harvest fails, every class feels the electric shock, business becomes stagnant, embarrassments multiply—and the whole land mourns. How important is it then, that all should feel and exert a direct influence in encouraging and qualifying the husbandman to increase the products of the soil—by legislative patronage, and by a system of enlightened education, calculated at once to make better farmers and better citizens.

Pruning of Trees.

If there is any branch of rural economy, which a over and cultivator of good fruit should personally nderstand better than another, it is that of pruning nd taking care of his fruit trees. As but very few understand *how* and *when* the operation of pruning is best performed, it is extremely difficult to *hire* it done well unless the owner himself is competent to direct in the matter.

In all sorts of trees reared for standards, the first object is to obtain a straight bole or stem, at least to a given height, sufficiently stout and tapering to sustain the top. Having acquired the requisite height, the next object, in the management of fruit trees, is to obtain a proper and productive top. To effect the first point, the common practice is, to begin to prune at the *bottom*, and to divest the lower part of the plant of its limbs and leaves. The consequence is, that the plant becomes spindling—the growth being perfectly equal up to the first branches—top-heavy, and ultimately ill-shaped; or, being deprived of a great portion of its leaves—its lungs or elaborating organs,—its growth is materially checked. Those equally err who do not prune at all; as the branches soon interfere with each other, the top becomes too thick to produce or mature well its fruit, and the consequence is a *growing*, not a bearing tree.

In the first stages of growth, the object being to get height and strength, few or no branches should be cut close to the bole, and the long ones, and those that compete with the leading shoot, may be shortened one-half their length; but not a healthy leaf should be unnecessarily removed from any part of the plant. Thus the stem will grow tall and strong, with a gradual taper from the lower branch to the terminal point at top. As to the time of pruning, particularly the apple, we persist in recommending—the long days in June,—when the plant is full of elaborated sap, and yet the flow of sap so moderate, as to be taken up by the remaining branches, without generating succors.

Fumigation to Destroy the Grain-Worm, &c.

We are told that fumigation has been resorted to, to prevent the depredations of the grain-worm; and that although attended with some labor and expense, it has been found to be both successful and economical.

It is stated in an Amsterdam paper, that a farmer in Herkimer, has saved from the worm, an extensive wheat crop, by fumigating with brimstone for a few days, when the wheat-fly most abounded, while all around him was swept as with the besom of destruction. He employed 100 lbs. of brimstone to a field of 100 bushels sowing. The brimstone was melted, and strips of old woollen cloth dipped in it, which were fixed on sticks in different parts of the field, and particularly on the windward side, at evening. The smoke and gas of the sulphur, which is offensive or destructive to the insect, thus every where penetrated the standing grain, and preserved the crop.

The Yankee Farmer advises, that burning or smoking with pine knots, has been found efficacious. The mode of operating is, to brush the tops of the grain with a long pole, carried across the field in a horizontal position, which causes the fly to rise,—a strip of board, raised somewhat above the pole, is perforated with holes, into which are placed splinters of fat pine, which are lighted—and the flame scorches the wings of the flies as they rise.

Of these expedients, the first appears to claim the preference; and we think it would prove efficacious in protecting young fruit from the curculio, were brimstone employed in this way, occasionally for a few days, to fumigate the branches of the trees; the young fruits would become so impregnated with the fumes of the sulphur, as to render them obnoxious to the insect.

A writer in the Farmers' Magazine, says he practises fumigation to preserve his young turnips from the fly. He collects the weeds on the farm, lays them in heaps round the field, and on the appearance of the fly, the heaps to windward are set on fire, brimstone thrown upon them, and the offensive smoke is wafted over the crop. This is repeated till the turnips attain their second leaves, and is always successful.

English Agricultural Society.

The subscription to this society, now organizing in Britain, embraces the names of nearly 100 members of parliament, and a great many of the nobility and gentry, of all political parties. Ninety individuals have subscribed each £50, ($222,) to constitute them life members or life governors; and 115 others have subscribed £5 ($22.20,) annually to constitute them governors—ordinary members pay £1=to $4.44 per annum. This is but the commencement. Thus will a fund be secured in the outset, from other than ordinary members, of more than $22,500. We should like to see this spirited example imitated by the capitalists and statesmen of the United States. It would form a new and auspicious era in our history, and evince at once a high feeling of patriotism, and a discriminating judgment in the display of it.

Beware of Loco-Foco Matches.

A boy was bringing into our room some parcels of these matches, when a bunch, wrapped in a paper, slipped from his hand, and fell on the carpet; the friction occasioned by the fall instantly ignited the bundle. We doubt not but many recent fires have been caused by the accidental ignition of these phosphorated matches. Every house-keeper should see that these matches are securely kept in metal or earthen, and apart from all combustible materials. Another modern improvement—the portable furnace—we doubt not, has led to immense losses by fire.

On the Causes and Prevention of Rust or Mildew.

The Quarterly Journal of Agriculture, to which we are indebted for much valuable matter to fill our pages, has a lengthy article on smut, canker, and rust or mildew. Having published in our two last numbers, several articles on the causes and means of preventing smut, we shall now give so much of the article from the Quarterly, as is descriptive of the rust or mildew, the ascertained cause of the evil, with some suggestions for its prevention, omitting the speculative opinions which have prevailed on the subject, and their refutation by modern writers and experience.

DESCRIPTION OF RUST OR MILDEW.

"Rust first makes its appearance on the upper leaf, and then on the lower leaves and the stem, in the form of small white spots, scattered irregularly like spots made by rain on new cloth. These spots gradually increase in size and number, and assume a reddish tinge, and at length form a sort of dust-looking powder, of an ochre or orange yellow, little cohesive, and without smell or taste, and therefore very different from canker or smut. It stains the fingers yellow, as well as the clothes of those who walk among the affected corn.

"The dust-like substances of the rust originates beneath the outer bark or epidermis of the plant, which it raises up, renders thin, and at length cracks and bursts through. When examined by the microscope, it presents a congeries of egg-oblong bodies, some of which have projections almost like tadpoles or *powheads*, though they are not animated.

"Wheat is attacked with the red rust at different periods of vegetation, but more particularly when in the ear. When the rust seizes young plants. they are said to suffer less than when they are more advanced, often recovering vigor before blooming; whereas at a later period they sustain irreparable damage, and crops which promise well are often in a short time rendered comparatively worthless. In this case the texture of the leaves is disunited, and presents only longitudinal fibres of a brown colour, while the joints and the tubes of the straw between are blackened, as if they had been scorched by fire, the growth ceases, a portion of the ear bceomes yellow, another portion remains green, and the grain shrivels up in the husk without attaining maturity.

"The evil, however, is rarely carried so far as this, and the yellow spots of rust become chocolate-brown or black, without disorganizing the portions of the plants where they occur; and the Abbe Tessier says he has seen, after heavy rains, the clothes of the reapers stained with this black substance of the rust as if they had been dipt in ink. But though the plants are not disorganized, the flow of the sap is interrupted, the ripening of the grain is prematurely hastened, and it is hence light, containing a small proportion of farina, while the straw is bad. Sometimes the rust only leaves a yellow powder on the husks and upper end of the grains, taken by Fontana and others to be a different species.

"Sometimes rust prevails so extensively, that few fields escape; but for the most part it is observed in fields sheltered from the north winds by walls, hedges or woods, or where vegetation is very luxuriant, on account of fresh soil or abundant manuring. Sometimes one part of the field escaps while the other is attacked; sometimes the chief plants, and at other times the side shoots tillering from them are affected; and sometimes rusty and sound plants grow from the same root."

OF THE INFLUENCE OF THE BARBERRY BUSH.

Although it is conceded, that the farmers of England, and on the continent, generally ascribe the rust, in a measure, to the infection which spreads from the barberry bush, and that this notion is sometimes strengthened from the rust appearing in patches and strips among the grain, as if it had been carried thither by the wind from the barberry bushes—and although this opinion was sustained by Sir Joseph Banks,—the writer nevertheless considers the theory as fallacious, and quotes an anonymous authority in saying, that the rust which is found on different trees and plants is altogether of distinct and separate species.

"*Dutrochet's discovery of the mode of growth in funguses.*—In a damp cellar where wine was kept, M. Dutrochet, one of the most original observers of the day, remarked, about two or three years ago, a white looking net-work of fibres, which previous botanists had described as a species of crow-silk, (*Byssus.*) Being struck with its peculiar manner of growth, he watched it with careful attention, and got M. Tupin, probably the best botanical draughtsman in Europe, to take drawings from it in every stage of its growth. The general result was, that the supposed crow-silk was not, as had been supposed, of the genius *Byssus* at all, but the genuine stems, hitherto known as such, of a mushroom, (*agaricus crispus*, Tupin,) the mushroom itself being the fruit only, and not as hitherto believed, the whole plant. According to this view, then, it would be as correct to consider a bunch of grapes, with their fruit-stalk, a complete plant, as the fruits termed mushrooms, puff-balls, or puddock-stools, all these being but the fruits of plants generally growing under ground, in the form of small white or grey fibres of net-work, and termed improperly by gardeners, *spawn*, indicating that it is the seed of mushrooms, whereas it is the genuine plant.

"M. M. Dutrochet and Tupin, further discovered, that the seeds, or, as they are termed by botanists, *sporules*, consisting of minute globular bodies, are contained in the cells of fungus fruit in prodigious numbers, and they succeeded in observing these germinate and produce young plants like their parent. There therefore cannot remain a doubt, that funguses are produced from seeds in the same way as all other vegetables, though these seeds or sporules are exceedingly smaller than those of green plants—being as subtle, Mr. Fries remarks, sometimes as smoke.

"Contrary, then, to what takes place in regard to the eggs of insects, which are too heavy to be carried about by winds, and if they were lighter, are generally, when laid, glued to the substances destined for the food of the young, when hatched, the minute, light, subtle seeds of funguses and mosses are floated about in the air with the gentlest breeze, and in this way diffused over immense tracts of country, in numbers altogether countless. The discovery of M. Dutrochet is, therefore, of the greatest interest in making us acquainted with the economy of Providence in the propagation of fungi, hitherto altogether mysterious.

"What we term smut, canker and rust, are, according to this discovery of M. Dutrochet, only the fruit of particular funguses, the plants of which they are the fruits being hitherto undescribed and unknown, but which must be sought for in the form of delicate fibres, probably transparent, and probably difficult to see in the textures of the corn affected with those destructive parasites.

"It forms no objection to this view, that the fibres of these funguses have not been seen except partially by Bauer and Ad. Brongniart, in their microscopal researches, for M. Dutrochet further found, that when the fruit of the plant observed by him (*agaricus crispus*,) sent up its foot-stalks, (*stipes*) it became partially detached from the main plant, and independent of it for its future nourishment, the fibres of the main plant indeed becoming exhausted of substance, and disappearing as in what were previously supposed to be the roots at the base of the fruit-stalk in the edible mushroom, which supposed roots are the fibres of the main plant, partly exhausted of their substance by the nourishment of the fruit."

The editor of the Quarterly here details some ingenious experiments of M. Fee, to ascertain the manner in which plants become affected by fungi, or the mode in which the sporules are propagated. M. Fee infers from the result of these experiments, that the seeds or sporules of the fungi are sucked up with the moisture of the soil, by the tips or spongioles of the root fibres.

ASCERTAINED CAUSE OF RUST OR MILDEW.

"The rust, and various sorts of what are termed mildew, are all caused by small fungi, such as the tuft-brand, (*Peccunia graminis*, Persoon; or *uredo fumenti*, Sowerby,) and the linedebrand, (*uredo linearis*, Persoon; *u. largissema*, Sowerby,) which do not differ so much in the injuries which they produce as in their mode of growth and appearance, as has been already described.

"The history of the red rust need not detain us, as it has been long well known from the very good account given of it by Sir Joseph Banks, with most admirable drawings, by M. Bauer. The opinion, however, which Sir Joseph seems to adopt, is, not that the seeds of the rust fungus get into the corn plants by the tips of the roots, but by the pores on the leaves and stems, being carried there by the winds, and caused to adhere by the moisture of dew or rain. When once entered into the pores, he says—'they germinate, and push their minute roots, no doubt (though these have not yet been traced,) into the cellular texture beyond the bark, where they draw their nourishment by intercepting the sap that was intended by nature for the nutriment of the grain. The corn, of course, becomes shrivelled, in proportion as the fungi are more or less numerous on the plant; and as the kernel only is abstracted from the grain, while the cortical part remains undiminished, the proportion of bran in blighted corn is always reduced to the same degree as the corn is made light. Some of the last year will not yield a stone of flour for a sack of wheat.' "—*On blight in corn.*

PREVENTION OF RUST.

On this branch of the subject, we find little to copy, that, in our opinion, is worth the pains. The writer adopts the opinion, that the seeds or sporules of the fungi, smut, canker and mildew, are disseminated in myriads over our fields—that these seeds are carried into the soil by the rain, and that they enter the plant by the tips of the roots. The prevention recommended is paring and burning, or copiously liming; the first of which he thinks will destroy wholly, and the other partially, the vital power of the fungi.

We dissent from the opinion of Fee, adopted by the Quarterly, that the seeds of the fungi enter the plant by the root, and are disposed to believe with Sir Joseph Banks, that the seeds of the rust-fungus get into the plant by the pores of the leaves and stem. And we will offer some reasons for this belief. 1. The prevalence of rust depends much upon the temperature and humidity of the season when it prevails. If the season is moist and hot, and the atmosphere calm, this disease most abounds. On the contrary, if it is cool and dry, and northern winds prevail, we see very little of it. 2. The prevalence of rust depends much on exposure and luxuriance of growth. If the field is much sheltered from drying winds, the air in a measure stagnant, or the growth of straw luxuriant, as on the site of dung heaps, the rust-fungus is pretty certain to appear; but it seldom shows itself in open exposures, where the growth of the straw is moderate, or has not been stimulated by recent or too abundant manures, except the season is hot and humid. Upon M. Fee's theory, all seasons and all soils would produce it alike, provided the soils were once impregnated with the seeds. Its appearance only in certain seasons and in certain locations, can readily be explained on Sir Joseph Banks' theory. In the seasons and locations in which rust is most prevalent, the atmosphere is comparatively light and stagnant, and the epidermis of the grain soft, spongy and moist. Now assuming what M. Fee asserts, and we have no reason to doubt his correctness, that the seeds of the rust-fungus are as subtle as smoke, they might readily be wafted by this light atmosphere to the leaves and stems of the grain, which would be in an excellent condition, under such circumstances, to receive and nurture them. But when the atmosphere is dry, and the air in brisk circulation, its specific gravity is too heavy for these seeds to float in it, and the leaves and stems of the grain are less fitted for its reception. When the atmosphere is light, smoke lingers upon the earth's surface; when it is dry and heavy, smoke immediately rises to the upper regions.

If our views are correct, liming, or even paring and burning, would effect little towards the prevention of rust and mildew. The best preventives, in our opinion, are, to apply the manure intended for wheat, to a previous hoed crop, that the heat of fermentation, which causes a strong and protracted growth of straw, may have subsided; and to sow upon dry grounds, or if flat and retentive, to lay the land in ridges, that all surplus water may readily drain off. These precautions, added to clean and thorough tillage, we think, will be as efficacious as paring and burning. Liming wheat lands, we have no doubt, is beneficial in many respects; but that it will prevent rust, we have no facts before us that will justify us in asserting.

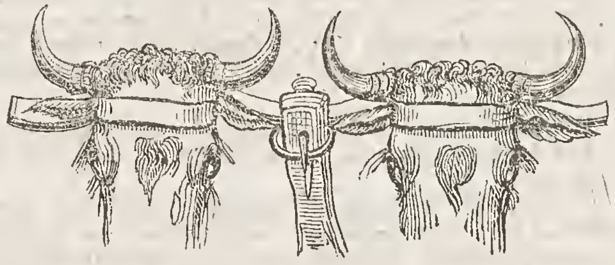
Ox Gearing.

The communications which we have heretofore published, from Mr. Allison and Mr. Woodruff, on the subject of ox gearing, have given an interest to the subject, which we trust may lead to some improvement in the matter. We feel assured, that the common mode of gearing oxen is a bad one, and that it may be modified with advantage to the animal and his master.

The Spanish mode of gearing seems to be the same as that practised in Portugal, and strongly recommended by Lord Somerville. The principle of draught depends, his lordship justly observes, on the joint power of the neck and base of the horns. The Portuguese, or Spanish mode, has been successfully tried in Ireland, by Lord Shannon, who found, that harnessed in this way, two oxen were able to draw, with great ease, *three tons* in weight.

We have deemed this matter of sufficient importance, to procure a cut to be made, representing the Spanish or Portuguese mode of gearing oxen, which we give below. We hope this may induce a fair trial by some of our spirited farmers; and if it should do so, we shall be very happy to be apprised of the result.

[Fig. No. 51.]



Successful Mode of Preserving Milk at Sea.

In November, 1836, a part of the conductor's family being about to sail for Europe, a dozen bottles of milk were prepared for their use, in the following way: The milk was drawn from the cows immediately into the bottles, the bottles well corked, and the corks secured with wire. The bottles were then laid into a kettle, upon some straw, the kettle filled with cold water, and the water heated to the boiling point. The milk was used on the passage, perfectly sweet, except one bottle, which lay in a chest unnoticed till it reached Ireland, and it was then found to be as sweet as when it was bottled at Albany.

A Convention of Farmers,

To wit: two from Connecticut, one from Georgia, one from the District of Columbia, two from New-Jersey, fourteen from the state of New-York, three from Massachusetts, two from Vermont, two from Ohio, one from Virginia, two from Pennsylvania, one from Upper Canada, one from Maryland, and one from Michigan, together with the conductor of the Cultivator, in all thirty-five individuals, met in Albany in May last, for mutual instruction in the business of husbandry,—to communicate and obtain useful information in their business. The meeting was one of great interest, and many facts were detailed, calculated to benefit each individual member, and to advance the public interest. It affords us pleasure to add, that like meetings have been, and will continue to be held monthly, and that some twenty thousand readers are receiving benefit from these monthly deliberations. Now, reader, all this is matter of fact, save that the individuals did not appear in *person*, but sent to the conductor their information and inquiries by letters, which were faithfully recorded in our June number. And is the information less valuable, by being written with care, and printed, so that it may be preserved and referred to, than it would have been if delivered by word of mouth, and liable to be forgotten and lost? We think not. We invite farmers then to profit by this concentrated knowledge of their brother laborers, by becoming patrons to the Cultivator, which promulgates it, almost without money and without price.

What is Book Farming?

The editor of the Quarterly Journal answers the question as follows:

"Book farming, we know, is not in favor with farmers, otherwise we should find admittance into *every* farmer's library, and every farmer [in Scotland] has a library. But although we know, and therefore admit, that no man can be made a farmer by book, we cannot admit that the best farmer cannot, may not, at a time, find useful hints in a book.—The best farmer cannot know every article of practice which is followed in every part of the country; and as most practices are discovered by what is called chance or accident, it is clear that the discovery cannot generally be made known until it is disseminated abroad. A farmer who travels, appreciates the information which he receives in conversation with farmers, and by observation of field labor. Such a farmer possesses advantages over him who always remains at home, that is, within the circle of his markets. Now the object of an agricultural book, and particularly of an agricultural periodical work, is, at stated times, to carry hints, suggestions or discoveries, important or unimportant, to the home of the farmer, that he who loves to stay at home may possess the advantages of him who at times travels abroad, and that he who travels abroad may compare what he has seen with what he reads, and decide which practice is best suited to his particular purpose; or perhaps when comparing the hints of others, he may himself discover a practice superior to them all. In this manner a good agricultural work is the means of disseminating through the country practices which would be confined to the district which gave them birth. Its principal aim should be to be a *good* work, that is, replete with suggestions of good sense, and with confirmations of experience. The collection and presentation of these desiderata, is attended with much trouble and expense, and unless the labor is appreciated and encouraged, it is impossible to use the means to collect the most valuable kind of information for presentation."

The Fair of the American Institute,

It will be remembered, commences at Niblo's garden, New-York, on the 15th inst. and will probably continue ten days or more. These fairs have done much to call forth and to publish, the inventive genius and skill of our countrymen, and to excite industry and emulation in the productive classes of the community. They deserve the countenance and support of every well wisher to the prosperity and independence of our country, and we trust they will command them.

Draining averts the effects of Drought.

That is, we mean to say, that grounds naturally wet, suffer more severely from drought *before*, than they do *after*, being thoroughly drained. The presence of standing water on a soil, even for a short time, tends to render it close and compact; and when the water evaporates or subsides, it becomes baked and very hard. On the other hand, if water merely passes through a soil, as it does where the subsoil is porous, or where there are sufficient under-drains to receive and convey it off, the earth remains light and pervious to the beneficent influences of heat, air and dew, from above, and to the capillary attraction of moisture from below,—a highly beneficial process to the crop, and the advantages of which depend much upon the porous condition of the surface stratum; and this in turn, as we have observed, is most porous where there is a ready outlet for all excess of water. In a field, last year, we lost nearly an acre of potatoes, on the slopes of a ravine, the soil being wet in the spring upon, and later under the surface. The water was partly from the surface, and had settled down upon an impervious stratum, and partly from spouts, which apparently rose from below the impervious stratum; it found egress on the slope of the ravine, or at its base, and saturated the whole soil to extreme wetness in spring. But when the season became dry, and the sources of supply in a measure exhausted, the surface soil became almost as hard as a brick-bat. In the fall, we constructed under-drains, with tile, so as to catch and convey off the water, before it came within two feet of the surface, and planted the ground with corn the present season. The crop upon these strips looks as well as in other parts of the field, has received no injury from drought, as the soil, instead of being hard baked, as it was last year, is comparatively loose and porous.

Under-draining becomes more and more requisite upon flat or impervious soils, as they are subjected to culture. New lands abound greatly in vegetable and ligneous matter, which impart a comparative lightness and porosity even to stiff clays. But as these lands are subjected to tillage, and the exhausting influence of crops, the vegetable matter diminishes, and the soil itself becomes more compact and adhesive, according to the good or bad husbandry which is adopted upon it. We know of a district in

Vermont, which, within our recollection, had a fine kind wheat soil, abounding in vegetable matter.—The vegetable matter has become exhausted by bad management, and the soil thin and compact; and as it rests upon hardpan, impervious to the surface water, it is no longer fit for tillage crops, and cannot be rendered fit for them, till it is relieved from its excess of water by under-drains, and kept under a more enlightened—a more scientific system of management. Such, we are pretty confident, will be the condition of many districts of light land in the yet fertile west, if timely resort is not had to under-draining, to manuring, and to alternating crops.

Effects of Alkali in preserving Wood.

The antisceptic properties of alkali, in preserving wood from rapid decay, must have been witnessed by most persons, in the boards and timbers about asheries, lime-kilns and the depositaries of lime. Its effect seems to be to neutralize the mucilagenous matter of the wood, whether in a dry or moist state, the tendency of which, heat and moisture being present, is to bring on fermentation, and consequent decomposition; while at the same time it seems to exclude, in a great measure, the free access of water into the pores of the wood. Our attention was first directed to this subject, by seeing, near Bordentown, N. J. a large vat filled with lime and water, or lime water, in which were immersed a great number of timbers, intended for the cross-timbers of a rail-road; and more recently by a communication in the Farmers' Cabinet, on the preservation of the roofs of buildings, by soaking the shingles in lime water. It is not, it seems, the insoluble parts of the lime, which is efficacious—for these rather obstruct the escape of prejudicial moisture from the wood—but it is the caustic alkaline solution of the lime—the liquid resulting from pouring water upon fresh burnt or recently slaked lime, that constitutes the antisceptic, and that powerfully arrests the decay of woody matter.

The writer of an article in the Cabinet, whose name we would creditably record, had he not been deterred, we fear by a false modesty, from giving it to the public, directs, that for saturating shingles, with alkali, an elevated box should be made, to mix the lime and water, so that the lime-water, when suitably prepared and clear, can be drawn off into a lower box, in which the shingles are placed upon their butt ends, so that that portion of them, which, when laid, is to be exposed to the weather, shall be completely saturated with the lime-water, which will require some hours. We would suggest that the entire shingles be immersed in the liquid, as the part not exposed to the weather, is also liable to decay.

White-washing with lime, the wash being impregnated with salt, has long been recommended by Mr. Coke and others, as a preservative to the wooden coverings of buildings, fences, &c. And it has this further to recommend it, that it promotes cleanliness and health, and is, withal, in the absence of paint, ornamental.

It is a matter of some importance, that the lime used in these processes, and it may be used to advantage for many other rural purposes, should be in a caustic state, that is, fresh burnt and well burnt; and that it be used as soon as practicable after the preparatory process is completed, as its effects, in destroying vermin, removing infection, or preserving wood from decay, depend upon its alkaline properties, which are rapidly diminished by exposure after it comes from the kiln.

Experiments in Manuring Turnips.

S. W. Smith has given to the public, in the Farmers' Cabinet, the result of an experiment with various manures upon his turnip crop, which are worth recording and remembering. He divided an acre of land into four equal parts, and gave to No. 1 a dressing of common stable dung; to No. 2, an extra quantity of compost manure; to No. 3, ten bushels of lime and two and a half of wood ashes; and to No. 4, two bushels of bone dust. They all escaped the fly, and were treated alike. They were sown the 15th and 16th June, and harvested the 10th November. The product was as follows:

No. 1	yielded	98	bushels	= to 390	per acre.
No. 2	"	124	"	= to 496	"
No. 3	"	185	"	= to 740	"
No. 4	"	213	"	= to 852	"

Pitts's Grain Separator and Cleaner.

This machine was patented in June, 1837, to J. A. & H. A. Pitts, of Winthrop, Maine, and of course its merits or demerits can yet be but partially known to the American farmers. We had heard it highly spoken of; but as hearing is not seeing, and as it is our practice not to recommend any new implement till we are satisfied of its utility, we have waited for ocular demonstration before we would venture to join in its praise. But now, having seen it in operation some days, on our premises, we are prepared to give it our unqualified approbation, as an excellent machine for the purposes intended.

It is a thrashing machine and fanning-mill combined. It thrashes, separates the straw from the grain, and cleans and delivers the latter, in the best order, for the sacks or bags—*in one operation*. It may be constructed for the power of one horse or more, though usually adapted for two horses, attached to an endless chain power, though it may be attached to other horse or propelling power; and the whole is so portable, that it may readily be transported, horse-power and all, by a two-horse team, and put in operation on a twelve foot barn floor. The cylinder and bed are of cast iron, the former rendered doubly secure by strong iron bands. The teeth are wrought iron, secured by nuts, are not liable to do injury if broken, and are readily repaired. This we saw verified: a sickle, which had been carelessly left in one of the sheaves, passed undiscovered into the thresher. The sickle was cut into five pieces, and the handle slivered. The machine was immediately stopped, and the cap taken off, when it was found that one tooth was spoiled, and two or three others somewhat bent, the whole of which were replaced or repaired in a few moments. The fanning-mill may be detached in two minutes, and used separately. The whole of the machinery is substantial, not liable to get out of order, and may be readily repaired.

As to the quantity of grain which this machine will thresh and clean, the patentee assures us, that 100 bushels of wheat or rye, or 200 bushels of oats, is a fair day's work with a machine of two horse power; and the numerous certificates which he has, from respectable farmers in Maine, Massachusetss and New-York, fully sustains him in this declaration.

There are two prominent advantages in this machine, over others that we have seen in operation, viz.

1. It thrashes, separates the straw, and perfectly cleans the grain, at one operation, demanding only the additional labor of a man to bag the grain as it comes from the machine. And,

2. It may be used any where—under cover during rain, or in the open field during fair weather, as there is no scattering or loss of grain even in the field. This we consider an important advantage in the great grain-growing districts of the south and west.

We are happy to add to our testimonial of approbation, the like testimonials of the Rev. H. Colman, and and of Messrs. H. Grove and C. N. Bement, who witnessed the operation of the machine at our place, and who fully concur in the above statement.

The price of the machine alone, at the manufactory, in Winthrop, is stated to be $110, and including the horse power $200. Address J. A. or H. A. Pitts, at the above place.

Notices of Correspondents.

Blight of the Plum.—Roswell M. Lawrence, of Catskill, assures us that he has found a cure or preventive of the canker or blight in the plum tree, in a strong decoction of tobacco, made by boiling the tobacco in water. He washes with this the excresences, on their first appearance in a green state, and applies to them some of the tobacco. He has tried the remedy in three instances, in all of which, he says, he has succeeded. The disease is undoubtedly caused by an insect, which the tobacco destroys; but we should doubt if the tobacco would heal and restore to health and vigor the diseased wood.

Improved Fence.—The following paragraph should have been inserted in Mr. Allison's communication in our last:

"In comparison with the post-and-rail fence, the *improved* has two important advantages—by avoiding, first, the ruinous necessity of spoiling the rails by splicing or fitting the ends into the holes of the post, side by side; which splices decay long before the rail has done its service. And, secondly, the difficulty of replacing a post or rail which gets broken by either accident or decay. Stakes having two supporters in the ground, which prop each other, also stand *firmer* than a post, where the ground is soft. I think these establish its superiority to the post-and rail."

Silk Culture.—E. D. Cotton, asks our advice and direction, in regard to the silk culture in Michigan. Mr. C. will find numerous publications on this subject in the book-stores. The Silk Culturist, published at Hartford, Ct. and the American Silk Grower, published at Burlington, N. J. are almost exclusively devoted to this subject. Our advice upon this matter may be seen in No. 1 of vol. iii. of the Cultivator. We think it a business in which some will succeed, and some fail; and that success will, in a great measure, depend, as in every other employment, upon the intelligence and economy with which it is managed.

Watermelons.—The twenty-four seeds received from Mr. Poullain, of Georgia, all grew, and produced the best crop we ever grew of this fine fruit—some weighing twenty-five pounds. The *Mountain Sprout* is of peculiar fine and delicate flavor. Seeds will be distributed at the meeting of the State Agricultural Society in February.

Agricultural Fairs.—The propriety of publishing in the Cultivator notices of the annual agricultural fairs and exhibitions, held in the northern and middle states, has been suggested by a highly respectable correspondent. We thank him for the suggestion, and highly approve of the plan. As it is now too late to notice them for the current season, we will endeavor to do it another year; and to enable us to do so, we respectfully solicit information, in time for our July or August number, 1839.

Agricultural implements, &c.—W. Dinn, No. 17 Common-street, New-Orleans, seedsman, desires to buy, or sell on commission, any useful agricultural implements that may be adapted to a southern latitude.

Saxony Sheep.—Our friend, H. D. Grove, advertises forty bucks and sixty ewes, of the pure Electoral Saxon race. We believe there is no purer flock of Saxons in our country than Mr. Grove's, and we can speak of the owner as a gentleman of strict probity and honor. Address Mr. Grove at Buskirk's Bridge, Washington county, N. Y.

Lincolnshire Sheep.—A letter from our friend D. Cliff, of Carmel, Putnam county, says—"I can now, with the utmost confidence, state, after a trial of three years, having now a third generation of lambs, in all about one hundred and fifty of the cross and full bloods, that they have exceeded my most sanguine expectations. In their habits, and choice of food, they are not as delicate as other sheep, thriving and fattening on the most scanty and inferior keep. There is a briskness in their countenance and action, which, to every beholder, bespeaks for them at once their superior constitution. They must be seen to be duly appreciated. Six wethers and one buck, two years old, of my own raising, and two full blooded imported Lincoln bucks, one four and the other three, weigh together 1798 lbs."—an average of about 200 lbs. each.

Early Variety of corn.—H. C. Tainter, of Hampton, Con. wishes to advertise the public, through the Cultivator, of an early variety of corn, called the Clark corn, which was ripe the 24th August, ten or fifteen days earlier, he says, than the Dutton corn he planted along side of it, and he thinks the Clark corn the most prolific. We doubt not the Clark corn is early and prolific; but we will add, in defence of our favorite, the Dutton, that our crop was all fit to harvest in August, and that for product, when well fed, we challenge a competition with any variety. We have cultivated it eighteen years, and never had it injured by frost. *Our* kind of Dutton corn was *harvested* by T. G. Mather, Esq. of Middletown, Con. and his neighbors, in August.

Melon Seeds—We have received seeds of *the* 55 lbs. muskmelon, from an unknown friend at Charleston, S. C.

Berkshire Pigs.—Mess. Brintnalls, of Canterbury, Orange, who have a stock of these pigs, from original importation, cite the following as the weights to which they have attained, at the ages noted: one under two years old, weighed 652 lbs.; one four years old, 702 lbs.; one three years old 780 lbs.; two eighteen months old, 432, and 432½ lbs. &c.

The Grain Worm and late sowing Spring Wheat.—We have received communications from M. M. Wake, and others, which concur in stating, that the spring wheat sown in April and the early part of May, has been seriously injured by the grain worm, in the infected districts; while that sown after the 15th and 20th May has escaped with partial or no injury. Mr. Hill, eighty miles north of Albany, sowed on the 25th April, and again on the 19th and 25th May. The first was a total loss, the second was but partially injured, while that sown on the 25th May wholly escaped the worm. It gives us pleasure to say, that in the northern part of Vermont, where this insect first appeared, ten or twelve years ago, the culture of wheat is being again resumed, with flattering prospects of escaping the ravages of the worm. By the way, the opinion has been advanced by naturalists, that the grain worm is not oviperous, laying its eggs, but viviparous, like the honey bee, bumblebee, &c. depositing its young. Mr. Henry Ellsworth, of Ketch Mills, Ct. has addressed us ten queries in relation to this insect, all of which have been anticipated, so far as we are at present able to answer them, in the Cultivators which we forwarded to him on the receipt of his letter.

A new Insect Enemy to the Wheat Crop, we are sorry to learn, has this year appeared in several districts, and done serious injury. It is represented to be a species of worm, about three-eighths of an inch long, and preys upon the matured grain, in the field and in the barn. As we have not seen the insect, we will be obliged for a description of it, and of its habits, from any gentlemen who has made it the subject of his observation.

Thrashing Machines and Horse-Powers.—We have half a dozen letters of inquiry before us relative to these We have said all we have felt justified in saying of those we have seen on trial. For these opinions we must refer to the Cultivator, and also for the address of those who vend them, the price, &c.

Bog Ashes, &c.—Charles H. Welling, of Lawrenceville, will find answers to his queries in regard to bog ashes, at pages 157, 174 and 190, of our fourth volume

CORRESPONDENCE.

The Lombardy Poplar.

Baltimore Co. Md. Aug. 15, 1838.

J. Buel—Dear Sir—This tree, it appears, has recently sunk very greatly into disrepute, at least in many places, as an ornament and shade in our yards, streets, &c. It is highly probable, however, that the intrinsic excellence of the tree has been but imperfectly ascertained, and known to a very limited extent amongst us. In view of directing more special attention to some of the advantageous uses which may be made of it, I beg leave to communicate the substance of Mr. Baughen's remarks made to me on that subject a few days since.

1st. The Lombardy poplar is a tree of quick and rapid growth,—few more so. 2d. Is adapted to either dry or wet soil. 3d. May be propagated with great ease from cuttings, from the size of a riding switch to that of a large wagon tongue. 4. Sends forth abundance of limbs, which may be amputated without injury to the tree. 5th. Splits kindly even through knots, and when well seasoned makes good fuel; and, in the opinion of some, it is nearly, if not quite equal, to chesnut for rails.

I imagine the tree might be turned to very great advantage by farmers, especially in districts of country where wood is scarce. In a few years whole forests would be produced from cuttings, which could be applied to the foregoing purposes. And let them be planted from 10 to 12 feet apart, where you want permanent fencing, and in a little time you will have substantial posts, into the side of which you may introduce your rail slightly, and one year's growth will bind them tight enough.

I am, dear sir, ELI HENKLE.

NOTE.—The above suggestions address themselves particularly to the prairie west. There is probably no tree which would be made to furnish a forest belt around a prairie farm so soon as the Lombardy poplar, and none, certainly, could be so easily propagated. As a shelter for crops, for farm stock, for a growth of other timber, for fencing and for fuel, it would soon become highly valuable. Cuttings almost enough for a forest, might be transported in a dearborn, or one-horse wagon.—*Con. Cult.*

Millers' Tolls—Crops.

Burlington Co. N. J. 8 mo. 27th, 1838.

FRIEND BUEL—I perceive in the last number of the Cultivator, that a correspondent over the signature of William A. Stone, accuses me, with a certain John Westley Luff, of justifying millers in taking extortionate toll, which, on my part, I deny being the fact; nor would I, upon any consideration, support them in taking more than one-tenth by *measurement;* neither can he thus make it appear, unless he can show where you have stated that they have taken more than the above proportion in like manner ascertained. And as I apprehend my premises have not been clearly comprehensible to his understanding, I will endeavor to state them as explicit as possible, viz. that the tenth, as above determined, with what millers in this district of country extract in the process of cleaning, (and that too without the waste of grain, as will be shown to your correspondent, or any other person at any time,) would, with the escape of fixed air, amount to more than the tenth-part of the original *weight* of the grain when taken to mill; and until he proves that there is no unavoidable diminution of weight in the grinding of grain, or that it can be attributed to some other cause more certain than the departure of fixed air, the which he has not even attempted to do, my statements remain sound and unrefuted.

And in reference to G. W. Luff, he says, "that if he gets more loose air, (I suppose he means atmospheric air, and presume the term to be his own, as it is not marked as a quotation, nor can I find it used in Blair's pneumatics,) in any species of grain than its circumference will contain, he will have to employ some artificial power to aid nature in her wonderful and mysterious works of its germination," thus substituting his own for the philosophy of Martin, who expressly says, "that this fixed air as it is roused, expands itself into about a million times more space than if filled before in the form of a dense body;" or in other words, in the position in which nature placed it "in her wonderful and mysterious works" of formation, and whose philosophy is as worthy of credence as the Rev. Dr. Blair's. And whereas, your correspondent appears better versed in the science of weighing air, according to the standard of Blair, than in correcting insinuated false principles, I will leave him to calculate what his wheat will lose by *fixed* air, for I do not comprehend by his communication, what atmospheric or loose air has to do with the just or unjust tolling of grain; and I will also just inform him, through your columns, that if he will favor me with the grinding of some of his wheat, I will toll it both *scientifically* and lawfully, as nearly as I am capable of regarding the weight after manufacturing.

Respectfully, DAVID WALTON.

P. S. We are extremely parched up by the drought; our corn in very many places nearly killed, and what little there is will soon require husking. There is no appearance of any buckwheat worth naming, neither can we prepare our ground for sowing wheat. Our pastures are assuming the appearance of winter, and what little there is of green herbage the grasshoppers destroy, and some fields of corn are considerably injured by them; they far exceed in number any thing of the kind we ever saw. Some farmers are, and have been for some time, feeding their cattle, and report says, cows may be obtained in the Philadelphia market for ten dollars per head. We had an abundant crop of grass, and an excellent time to gather it, or we should indeed be in a deplorable condition for our stock, as our ruta baga and beets are also very far short of an average crop. Hay, which in Philadelphia market but a short time since, would not bring more than fifty or sixty cents per cwt. will now command from eighty cents to one dollar. We have had no rain of any considerable consequence, for about two months. We have had one or two very trifling showers during the time, that seemed to revive vegetation for a day or two, and then it would again languish as before. D. W.

☞ The vexed question, as to the loss of a bushel of clean grain in grinding, might be easily settled by experiment.—Will some gentleman *see* a bushel ground, weighing it before and after grinding, and send us the result?—*Cond. Cult.*

Tolls Again.

Moorstown, Aug. 8, *mo.* 16, 1838.

FRIEND BUEL—The communication of William A. Stone, by way of refutation to an article under the head, "Miller's Tolls," in the May number of the Genesee Farmer, and June number of the Cultivator, I consider not quite correct, or at least not strictly adapted to that article. If he is dissatisfied with their deduction for toll, or standard of tolls, I conceive him perfectly right in communicating the censure. But, with all respect, I must tell him, in rejoiner to the individuals, (D. Walton and J. W. Luff,) he has fallen into an egregious blunder, by asserting that 60 lbs. of wheat contain no more than one bushel of loose (denominated fixed) air; and which, he says, cannot be proved by practical philosophy. And, says the writer, I further contend, that if these gentlemen get more loose air in any species of grain than its circumference will contain, he will be obliged to employ some artificial power to aid nature in her wonderful and mysterious works of its germination. Here I dissent with the writer, and cannot reconcile it with principles of the philosophy he has quoted. Blair, the author he cites, only says, 1,000 cubic inches of air weigh 324 grains, and it is 900 times lighter than water. The weight of the air being variable, a great number of experiments have been made by different individuals, with as many different results, but the above would probably represent nearly the mean.

Now it is a determinate truth in philosophy, that solid bodies contain a certain quantity of air in a solid or fixed state, which quantity differs in different species of matter; hence it becomes a consequent truth that this air constitutes a proportional part of their weight; and, according to Oliver Evans' observation is variable in different species of wheat, from 4 lbs. to 12 lbs. in 60 lbs. or one bushel of wheat. Again we have from the experiment of David Walton, a practical miller, the loss of weight in grinding rye, to be 3½ lbs. per 56 lbs. or 1-16 of the quantity ground. Can we, without a knowledge of the composition, analysis, and organic action of vegetable substances, conceive that this quantity of air exists in one bushel of wheat or rye, other than in a solid or condensed state, greatly exceeding its original density? Hence it appears evident, that the degree of heat generated by grinding with great pressure, disengages this fixed air, and causes it to leave the flour, thus greatly lessening its weight.—Now if the statements of these practical men give the true aggregate amount of loss in weight during the process of grinding, I think it cannot be accounted for any way better than supposing the loss produced by the escape of the fixed air. Yet I admit no treatise on philosophy is better established than that quoted by our friend from Rahway, but unfortunately, where he would wish to apply it, it has no application. Now, if he will brush up his ideas a little, he will discover that his philosophy and Oliver Evans' sustain little or no relation to each other.—The mere circumstance that the Rev. David Blair says, a bushel measure, or 2,150 2-5 cubic inches of air, will weigh a little more than 1 oz. 9 dwt. is no proof that one bushel of wheat does not contain fixed or condensed air.

These extortionate tolls (as he calls them,) may be a subject of controversy with the miller and the farmer, which I wish not to engage in, by bringing into requisition an unnecessary multitude of words; much less do I intend to dispute with our agricultural friend. He may tell us of our faults freely, but we will be careful not to see any of his if there should any exist. Most respectfully, thy friend,

SILAS WALTON.

Hard Times.

J. BUEL, Esq.—I have a number of periodical visitors, with whom I like to hold sweet converse; and no one whose return is anticipated with more pleasure than Mr. *Cultivator* from *Albany*. He is punctual, desirous of communicating all that is useful; and above all, frequently tells me what my neighbors say. When I last saw him he presented to my view the thoughts of "An Agriculturist" on "The Times," a title so full of meaning that my attention was more than once directed to the subject. I fully agree with the writer, that the *times* have not so much affected the *farmer* "as other causes." I would commend his views on extravagance, improvement of the mind, &c. to all with whom my visitor comes in contact.

It is fashionable, in some places, with agriculturists, to pursue just the same course that has been pursued the last half century; and if perchance any one deviates from the old trodden path, by way of experiment, the "cruel fashion" makes him a subject of ridicule, and damps the ardour of others, who might otherwise be inclined to think and act for themselves. Could not then "this trouble" be avoided by the "tillers of the soil," if they were not "under the dominion of this *hydra fashion*?" I hope to hear again from "an agriculturist" in reference to his crops, mode of ploughing, &c. and indeed anything that his experience may suggest on the important subject of agriculture.

I believe the *stigma* of being a "*book farmer*," has shut the doors of many in this vicinity, against the visits of the Cultivator, and other kindred works; but light is dawning, and as it increases, *hard times* with the agriculturist will decrease. W.

Westborough, Mass. Aug. 27, 1838.

Blight—Crops, &c.

Newark, Aug. 15, 1838.

DEAR SIR—I have long been making observations upon the fire blight in trees; and although the public has been much bored by ridiculous theories, and mine may be as much so as any one, I will venture to lay it before the public, through the medium of the Cultivator. To entitle a theory to the attentive consideration of the public, it should be based upon facts sufficiently numerous and varied, to make it plausible. To give all the facts upon which I have founded mine, would require more than the space of a single letter. But I may give sufficient to call the attention of pomologists and horticulturists to the subject.

I impute this singular effect to the aphis, and I think its ravages are by no means confined to fruit trees, and that other shrubs and trees infected with these vermin, are victims of its influence, in a greater or less degree. The monthly roses in my green house, small shrubs in my garden, my quinces, paradise apples, as well as pears and common apples, are subject to the blight; and I have not yet noticed an instance of blight upon any tree that was not very much infested with aphides in the months of May and June. So satisfied was I upon this subject, that in those months I visited several gardens and orchards, and pointed out to those in company with me, trees that would be blighted, distinguishing those that would be slightly from those that would be severely affected. The event has justified my predictions in every instance. A seckle pear, of a friend of mine, has suffered much from this cause, in the three past years. I found not an aphis upon it this year, and there is nothing like blight upon it up to this time. This tree may die from a disease which is preying upon its root, but its top is yet vigorous and full of fruit. Now the question arises, how can this insect produce this effect? In various ways. By its minute puncture it may destroy the vessels of the tree and leaves, its excrement may form a varnish impermeable to the air, and thus destroy the absorption and exhalation of the part; or it may be poisonious, when taken into the circulation of the juices. Referring this disease to such a cause, will account, in some degree, why it is not constant. We well know that the prevalence of insects is variable. Some years more and some less, or for a series of years more and again less.

One other fact I will mention. I have an apple tree that has in years past been severely injured by the blight, which stands within a few feet of the flue of my green-house. Last spring, when the buds were swelling, they were covered and black with the aphis. When the wind was in the right direction, I threw tobacco stems and leaves into the stove of my green-house, and the smoke passing through the tree soon caused them all to disappear Not a leaf or limb is touched with the blight this year.

The present has been a most remarkable year for vermin of every kind. Striped squirrels, birds, caterpillers of every known and many unknown kinds, worms and bugs, have infested plants and herbage of almost every description. The curculio has been very abundant. I have lost all my plumbs, notwithstanding I killed hundreds of them. Do you know of any preventive to their ravages? How would it do to sprinkle salt, ashes or lime around the roots of the trees, to destroy their larva?

The extreme heat of July will very much injure our late crops. The moisture was literally baked out of the earth. Corn crops must be light.

A friend the other day brought me the branch of an apple tree, on which there were two very large cocoons, and a green worm about five inches long, three-quarters of an inch diameter, just commencing his cocoon. Such mammoth silk-worms must be great feeders as well as great producers.

ISRAEL DILLE.

Remarks.—We either misunderstand what our highly respectable correspondent terms blight, or we are obliged to dissent from his opinions as to the causes which produce it. That the aphides, and all other parasites, animal or vegetable, which abound upon plants, are prejudicial to their health, and often destroy them, is a position not at all doubted—for these parasites subsist on the juices, or sap, which is destined to nourish the plant; and the injury is in proportion to the quantity of sap which is abstracted. But what is termed blight in the pear, and often in the apple, and other trees of the Pyrus family, cannot, we think, be caused by an aphis, for this insect seems ever to be with us, while the blight of the pear often intermits for years.

Substitute for Spaying.

Ivanhoe, Campbell Co. Aug. 18, 1838.

Dear Sir—I have been for some time an attentive reader of your valuable paper; from each page information is to be gained. In your last number, you instruct us how to perform the operation of caponing cocks, before which I knew not. And it is the above which prompts me to give you the following information:

The old method of gelding sows is not only very cruel, but quite disagreeable to the operator, as well as dangerous to fat animals. Now sir, the modus operandi in this neighborhood, as practised by myself lately, but much longer by others, is simply this: For convenience use a common goose quill as a tube, cutting off smoothly the small end, the other shaped as for a tooth-pick, to be used as a handle; then pass the small end down the vagina two inches or more, (according to the size of the animal,) through which drop six or seven shot, say No. 3, and your work is complete. Nothing can be more simple, innocent, or efficacious.

Should you think the above worth making known, you can publish it. Very respectfully, your ob't serv't. EDWARD B. WITHERS.

Modes and Profits of Strawberry Culture.

Narrows, L. I. Aug. 15, 1838.

Mr. Buel—Having noticed an article in your August number, on the cultivation of strawberries, to which my attention has been directed for a number of years, and wishing that the public should receive all the light upon the subject which can be diffused, induces me to communicate what little knowledge I possess of the matter. The kind generally cultivated on Long-Island (where I reside) for the supply of the New-York market, I believe to be the early scarlet, and of these I have at present about three acres under cultivation. We generally transplant, and form our new beds in the beginning of May. Formerly the universal practice was, to transplant in rows from two to two and a half feet apart, the plants single from one to one and a half feet from each other in the rows. My present practice, and that of many others, is to plant them in hills about three and a half or four feet asunder each way, placing four plants in a hill, two and two together, about three inches apart. By planting in hills there is a great saving of labor, for it takes less time in transplanting, they are more easily kept clean by running the cultivator through them both ways, and there is less labor in hoeing; whereas, by the old method, when planted close, the cultivator could not be used in them at all, or at most only one way. The cultivator is run through them as late as it can be done without serious injury to the runners, hoeing them each time, and it is seldom, when judiciously done, they require it over three times. I have always, in my practice, found them when properly managed, to cover the ground with a sufficient number of plants to produce a good crop of fruit the next season. A piece covering less than a half acre, of last year's planting, produced this season over 3,000 baskets, containing nearly a pint each, which were sold in the New-York markets for $200. This, however, is an uncommon yield, and is seldom equalled or excelled. New beds almost invariably yield better than old ones, and produce larger fruit, although apt to be sandy after showers. It took nearly two acres of my old beds to yield the same quantity the half acre of new did. The soil I prefer for strawberries, is light sandy land newly cleared, on which no animal or vegetable manure has been used. On land of this kind, which has been prepared by previous crops, and on which weeds have not been suffered to go to seed and take possession, they will last four or five years, while on old land they are seldom profitable over two, and often but one.

The greatest enemy to the beds is white clover, which, in old lands, after the first year's bearing, generally gets possession of the beds and eradicates the plants. Land lately cleared is not often troubled with this grass; the great danger is from sorrel, but this is less destructive. Our beds cover the whole ground; there are no alleys, no clipping of runners, no digging the paths, no burning with straw, as recommended by some gardeners, for it is doubtful whether these operations would answer our purpose, whether they would be profitable and pay cost. At all events, our experience leads us to adopt the plan I have described. The only attention which I have found necessary and advantageous after the first year, is to pull up and destroy the weeds and grass, and to run a light harrow over old beds, early in the spring, when matted too thick with plants. As for manure, it is not customary for us to put any on. I once read an account of plaster being highly beneficial, which I tried, but it failed in improving them. Lime might aid in destroying sorrel, but have not tried its virtue.

Much has been written about male and female plants, and of the necessity of mixing them in the beds to make them fruitful. Now all this may be necessary with some varieties, but with the one we cultivate I can assure you it is not; no cultivator in my neighborhood, from which the New-York markets are principally supplied, that I have ever heard of, does it. I once tried an experiment, which appears to me conclusive. I planted a small bed in my garden at the time when the fruit commenced ripening, taking only such plants as had good and fair fruit on them, and no others. This bed produced the next year abundantly; they were all female plants, and no males in their vicinity to impregnate them. The male and female blossoms of this variety must be on the same plant, although to the eye no difference is presented in their appearance.

If you deem these remarks worthy of notice, you may insert them in your valuable journal; and if you desire it, I may at some future period describe the manner in which cucumbers, melons, &c. are cultivated among us for the supply of the New-York markets. Yours, TUNIS G. BERGEN.

We shall be glad to receive the profferred communications. —*Cond.*

Early Varieties of Corn.

Hebron Centre, Aug. 27, 1838.

J. Buel, Esq.—I send you two ears of corn, picked this day from a neighboring field. Both varieties have been cultivated in this town for many years; the twelve rowed has been the most productive, until the two last seasons; the early frosts cut off the most of it before it had ripened. The corn, when ripe, is very hard, and weighs three or four pounds in the bushel more than the common flint corn; it is very compact on the cob, hard, and when ground produces the finest meal; it may be called the Rhode Island flint.

The eight rowed is a fine variety; planted in the same field, on the same day, and manured and managed in the same manner, ripened eight or ten days earlier than the Dutton corn, and now promises a production of twelve or fifteen per cent more. There are now standing several hills (planted for an experiment,) of this year's growth, without more than ordinary care, that are six inches high. Will you be pleased to give the three varieties a fair trial, and in due time report the result in your very useful periodical publication? My only object in making this communication, is to give the greatest reward to the laborer who cultivates the ground, and best obeys the command of God given to our first parents—go "*dress the garden.*" Could our citizens be induced to return to their primeval innocence and simplicity, the whole earth would become an Eden. With great respect,

J. S. PETERS.

☞ The samples noticed above, have been received.—They are, as represented, beautiful samples of yellow flint corn, the grain covering about nine inches of the cob. We regret that Gov. Peters did not note the day on which they were planted, as we can only judge of its comparative earliness by knowing this fact. Some of our Dutton variety was planted on the 19th May, and the crop harvested on the 22d Aug. being 93 days. In Maryland, and elsewhere, it has matured in less than 90 days.—*Cond. Cult.*

Culture of the Strawberry.

Loretto, Va. Aug. 18, 1838.

J. Buel, Esq.—Dear Sir—The perusal of your interesting article on strawberries, induces me to offer my testimony in confirmation of some of the facts and opinions therein stated. Not that I can suppose any of your readers would desire better authority than your own; but because the value of all statements whatever, as to practical matters, will always be increased in proportion to the number of credible experimenters who testify in support of them.

The burning of strawberry beds is a very old practice. I myself have known it for nearly, or quite half, a century; have often seen it tried; and with such invariable success, that it is surprising it should not be general. But it must be done immediately after the vines make their first appearance in the spring, and no more straw should be used than sufficient for spreading the flame equally over all the plants. This process not only benefits the soil in some degree, and kills the seed of weeds scattered on the surface, but it retards the bloom, and thereby often saves the fruit from destructive frosts. It also secures a succession of fruit, which is better than cultivating an inferior kind for the purpose.

I can likewise vouch, from long experience, at least in regard to the claret-coloured hautboy, that, if you would have any fruit, you must plant male among female vines. This is the only variety known to me, which leaves the male and female blossoms on different plants; although others may do so, but I have never noticed it. As to the best proportion of male to female plants, I cannot speak with certainty, having tried only that of one male to 12 or 14 females. By the way, can you inform us *what are* the distinctive characteristics of the hautboy, and what the derivation of the name?[*] I know of only the following peculiarities, viz. leaves of a yellower green, with a rougher and more corrugated upper surface, than any other variety; fruit of a spicy flavor, a very fragrant smell, and scarcely any perceptible acid in the taste. The claret coloured and white are the only hautboys I have ever seen that answer this description. All the other kinds known to me, amounting to six or seven, have leaves of a deeper green, and smooth on the upper side; while the fruit, however variant in taste, is much more acid than the hautboys, has quite a different odour, and is invariably of a red colour, although exhibiting various shades of scarlet and crimson. In some of our Virginia gardens, one of our wild varieties has been introduced, which has this peculiarity: in pulling the berries, when ripe, they separate entirely from the stem, which saves the subsequent picking, which must be performed on all the others. In flavor none are generally deemed better, except the old fashioned, round, scarlet kind, which was almost the only kind cultivated in "the ancient dominion," forty or fifty years ago, and which may claim a preference, by prescriptive right, over all others—even in opposition to the long established *dictim*—"De gustibus nil disputandum."

Among the varieties mentioned by yourself, you speak of "*the Methven;*" and you say—"you had many that measured over four, and one that measured five and one-quarter inches in diameter." Is not the word *diameter*, in the foregoing sentence, a typographical error?[†]

As to the culture of this delicious and wholesome fruit, I can only say, that *some* is indispensable to the production of the best and greatest quantity, be the variety what it may. The "let alone" system, so fatally pursued by congress and our state legislatures in general, towards agriculture, which may truly be called the life-blood of every trade, profession and calling in society, is equally fatal to—*strawberries*, (if small things may be compared to great;) they *must* have some culture, or they can never be brought to their highest state of perfection. But in regard to this, each pursues his own fancy, for the fact is, that we have scarcely any thing among us which has the slightest pretension to be called *system*, either in gardening or general agriculture; our sons having been usually brought up to entertain a most ineffable contempt for that great bug-bear, *book farming*, which, of course, comprehends gardening amongst the things not to be taught by books. The fatuity on this subject may be reduced to a sort of syllogism, thus:

Our fathers and great-great-gandfathers farmed and gardened pretty well without books.

But we, their sons, and great-grandsons, are ten times as wise and clever as they were;

Ergo, we are amply qualified to farm and garden it too, ten times better than they could,—unaided *by*, and independent *of*, any and every thing that bears even the semblance of a book.

But thanks be to you, sir, and to all your able brother editors of agricultural papers, for the zealous, constant and judicious efforts which you and they are now making, in every part of the country, to awaken the Rip Van Winkle's of our class, from their long and deadly sleep. The fatuity I have just stated, cannot last many years more, against such efforts to remove it; and that you may all live to see your most sanguine anticipations accomplished, in this respect, is the sincere wish of, dear sir, yours, very respectfully,

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[*] The distinctive botanical character of the hautboy is—"Calix of fruit reflexed, [no other species possessing this character but the wood strawberry,] pubescence of peduncles and petioles much spreading." The specific name *hautboy* (elatior in botany) is supposed to be derived from its *high* growing habit. The hautboy is often termed the *musky* strawberry, from its musky fragrance.—*Cond.*

[†] This was an accidental error in the manuscript. It should have read "circumference," instead of diameter.

JAMES M. GARNETT.

P. S. There is a means of distinguishing the male from the female plants of the hautboy, besides that by the blossom; but I have forgotten it. Can you inform us what it is?

The Vermont Bee-Hive.

Hon. Jesse Buel—Sir—In my communication, which appeared in the Cultivator, May last, relating to the construction of a *bee-house* and *bee management*, I recommended my mode of growing honey, in preference to the old mode of managing bees, where it was designed to facilitate their cultivation among those who would pay but little attention to them, dislike the task of hiving, and render them more safe from the destruction of the moth and other casualties, than the ordinary method by which bees are generally kept.

In all cases where it is convenient and desirable to the owners of bees to devote their attention, hive them where they swarm, and those who wish to realize a profit from this insect, by forwarding yearly a quantity of honey to market, I do freely, and consider it no more than justice due my neighbor, Mr. John M. Weeks, and the community at large, recommend the Vermont bee-hive, which is considered the best in use by a majority of the apiarians of this state, and is coming into general use in most of the states in the Union.

This *hive* was invented and patented by John M. Weeks, Esq. of Salisbury, Vermont, who has from youth devoted a portion of his time in studying their nature, and most assiduously for the last eight or ten years, in observing their habits and demonstrating facts; the result of which no doubt is opening a new era in bee management, from which the public must derive a great benefit.

He is considered the first apiarian in this state, and it is a matter of doubt whether there is one in these United States that has investigated the subject, and made so many discoveries respecting the nature and habits of this instructive little insect, as Mr. Weeks, who has been at several thousand dollars expense, in time, in experimenting, publishing books, illustrating facts, &c. &c.

When on a visit at his residence, a few weeks since, I could not but feel deeply interested in his illustration of facts, as exhibited to us by means of *full observing hives*, (glass, covered with wood,) neat and elegant as any parlor furniture; the chambers filled with the most pleasing and admirably constructed drawers of glass, and drawers filled and filling with beautiful honey, without bread, or any thing unpleasant in its appearance. These drawers are taken out and sent to market at any season of the year. He informed us that he usually obtained from his old stocks, from twenty to thirty pounds of honey in these drawers annually, and from his earliest young swarms, thirty pounds and over, without robbing them of their winter stores. The Vermont hive affords an easy and safe method of preserving the lives of the bees through the winter, without destroying any. He showed us a *feeder*, and the manner of using it. Through the means of this, the bees may be fed on low priced or sale honey. We noticed several healthy stocks, which he informed us were wintered entirely on Havana honey, and have yielded several boxes of clover honey this summer. We were also informed that the principal part of bee management depends on a knowledge of the natural habits of the queen and her influence; and no apiarian can at all times be sure to succeed in their cultivation, unless he has a thorough knowledge in managing them.

He also instructed us in his art of compelling the bees to make and keep on hand extra queens; how they may be divided into separate colonies when they have become too numerous, without swarming.

He showed us how the bees would transfer themselves when the age of their combs rendered it necessary, by a little aid of their owner, and urges, by many arguments, that bees should never be compelled to leave one tenement and take another.

We observed in one hive, that he had killed the queen and confined her therein. In this experiment, Mr. Weeks is about to demonstrate several important facts, viz: That there is no monarchical government in a hive of bees, nor domineering power in a queen; though the queen may be dead the bees will continue to work as well, provided her carcass be present; and that no young bees can be raised without a queen; the old bees never eat bread, &c. These experiments Mr. Weeks intends to publish, and their results; therefore I can only say, that it is an interesting system, which affords an agreeable amusement, a comfort and profit. He advances his opinion, that bees are susceptible of a high state of cultivation; that they will never flee to the woods and mountains, unless neglected by their owner, or through a deficiency in knowing how they must be managed; and that he had not lost a swarm by flight to the woods in seventeen years. One reason of the bees deserting for better quarters is, when the rays of the sun are direct it exhausts the air in the hive of its vitality. Mr. W. sells the common coarse wood drawers of honey, in Boston, at from thirty-four to forty-two cents per pound, by the quantity; and for his best glass and mahogany boxes, he receives a higher price.

Mr. Aaron Barns, of Rutland, states, that ten of his swarms in the Vermont hive, produced, last season, $75 worth of extra honey.

Mr. Week's last edition of books on the management of bees, have all been ordered, but another edition will probably be published the ensuing winter. He is ever ready to congratulate all those who may call on him—such as parties of pleasure, amusement, and profit, and none can leave without a taste of his bread and choice honey; in addition to a pleasing course of lectures on the natures and habits of the honey bee, and other insects, which are very entertaing, instructive and useful. Respectfully yours, SOLOMON W. JEWETT.

Weybridge, Vt. August, 1838.

Patronage to Agriculture.

Goshen, Aug. 27, 1338.

Jesse Buel, Esq.—Dear Sir—If you think the following will subserve the cause of agriculture, you can give it a place in your valuable journal. It has always seemed surprising to me, that this country, which is so productive in the fruits of the earth, should have received in its agricultural department so little aid from its rulers. While patronage is extended with a liberal hand to the various mechanical arts, and improvements in machinery anxiously sought after, the parent art, upon which all others depend for their support, is neglected. I know that the fault, in some measure, rests upon the people themselves; but something should be done to elevate the standard of agriculture. The ancients took much more interest in the cultivation of the soil, than is manifested at the present time. The arts and manufactures had not attained their present state of perfection, and it was only by the tilling of the soil that the greater portion of the inhabitants were enabled to procure a subsistence. But their kings and princes, orators and great men, united in carrying the science to such a pitch of perfection as has not been seen since. A great many excellent treatises were composed upon the subject of which we ought much to regret the loss. The kings of Egypt were famous for their skill in husbandry, and for the improvement they caused to be made in that country. They caused drains to be made to convey the water of the Nile to the dry and arid tracts not usually irrigated in the annual overflow of that river. Of such utility were these improvements, combined with the fertilizing properties of the water brought from the Nile, that the country of Egypt, consisting of only 6,000 square miles, comprised, as we are told by Pliny, a population of 20,000,000 souls. This amazing fertility, although caused principally by the Nile, could not have benefitted the Egyptians in a very great degree, without the kindly aid and instruction of their rulers. Cicero, also, one of the first orators of Rome, devoted much of his time to agricultural pursuits. He composed many valuable works. Virgil also has immortalized himself in his Bucolics. But perhaps of all the kings recorded in history, Hiero, king of Syracuse, in Sicily, stands first as a patron of husbandry. He came in possession of the throne at the age of thirty, and found the country convulsed with seditions and corrupted by luxury. He soon succeeded in placing agriculture in honor among his subjects, who, whether high or low, rich or poor, applied themselves diligently to cultivating the soil. The consequence was, that in a few years the inhabitants of Sicily, a small speck in the Mediteranean, who were in the habit of importing nearly all their grain from the continent, had now a large surplus for exportation. This brought the wealth of the surrounding country into their own, and then into the pockets of the farmers. By means of these wise regulations, he also kept an infinite number of hands busy, which might otherwise have been employed to the detriment of the state. This is a policy which should (and it cannot be too often repeated) be the peculiar care of a wise and prudent government, but it is often sadly neglected. Hiero's laws were so excellent in this respect, as well as others, that sometime afterwards, when the island became a Roman province, the inhabitants were allowed to be governed by their own laws, the Romans not being able to substitute any thing better in their room.

And why, permit me to ask, may not the example of Hiero be imitated in this country? It is from the legislatures of the several states that we must look for encouragement, in a government constituted as ours is. They have begun to awake, and have done something, as is the case in regard to Maine, Massachusetts, Kentucky and Pennsylvania. But much still remains to be done.

The condition of agriculture at present, is somewhat analagous to that of our common schools.—Something should be done to give the useful science of agriculture its proper respect in the minds of men. Education and agriculture should go hand in hand. All improvements in the one should be met by improvements in the other. The power and influence of the general assembly, are acknowledged by many to be necessary in advancing the character and promoting the usefulness of common schools—Why should not that power and influence be exerted in forwarding the usefulness of agriculture, upon which so much depends, and in which so many are concerned? That august assembly, the senate of Rome, did not think it beneath them to bring this art to perfection, and why should the legislature of this country neglect so important a source of revenue? In the hope, dear sir, that this may not be altogether out of place, I remain your obedient servant. CHARLES STRONG.

Bone Dust.

New-York, Aug. 20, 1838.

In your number for August, you gave an article from the Aberdeen Journal, on the operation of bone dust.

The writer states, that "bones are phosphate of lime—that is, they are composed chiefly of lime and phosphoric acid." So far the writer is correct, but he goes on to theorize on the effect produced when crushed bones are mixed up with soil as manure, and here his theory is at variance with practical facts. He says, "When crushed bones are deposited in the earth, by the action of heat and moisture, the bones are soon reduced to a state of decomposition, and the original elements of which they are composed are thereby set at liberty to form new combinations in the great circle of revolving nature." He then goes on to say, that "the lime is left in its caustic state, deprived of its neutralizing acid; and the phosphoric acid is set free in the form of gas."

It is exceedingly easy for any flippant writer to produce a plausible theory; but when chemical action forms the foundation of a theory, the writer should be sure that the agents he employs are equal to produce the effects he ascribes to them, or his theory decomposes itself.

There are few materials more difficult to decompose than bones, or phosphate of lime. To decompose bones, they are first calcined, then ground to a powder, and are then mixed with forty per cent of sulphuric acid, in which state they remain for two days, being frequently stirred. The solution is then poured on a filter, and the liquor passing through is added to a solution of nitrate of lead—the white powder which forms is mixed with char coal powder, and has then to be exposed to a strong red heat in a porcelain retort, when the phosphorus distils over.

The affinity of phosphoric acid for lime, and the affinity of lime for phosphoric acid, is so great that none of the alkalies will take the phosphoric acid from the lime, and none but the most powerful acid will take the lime from the phosphoric acid. After all it requires several hundred degrees of heat to liberate the phosphorus.

In the process I have described for obtaining the phosphorus, the sulphuric acid combines with the lime, forming a sulphate of lime, and the phosphoric acid is liberated. I would ask the writer of Aberdeen, what acid there is in any soil sufficiently powerful to decompose phosphate of lime, and if the lime could exist in a caustic state after coming in competition with an acid sufficiently powerful to decompose the bones?

The probability is, that bones act merely as phosphate of lime, and that the only change which takes place when used as manure, is the rendering the particles so fine as to be held in solution by moisture, and in that state are taken up by the absorbent vessels of the plant. WM. PARTRIDGE.

J. Buel, Esq.

Novel Premiums.

Lake C. H. Ia. Aug. 27, 1838.

J. Buel, Esq.—Dear Sir—Not being blest with an overplus of gold and silver, I propose to offer a "barter trade," to any one desirous of obtaining a premium, upon the following proposition: I am the owner of sixteen lots, in one of the numerous new towns of the west. It was laid out in 1836, about three miles from the head of Lake Michigan, on the great western thoroughfare which passes the head of the lake, between Chicago and Michigan city.—About $20,000 worth of lots were sold at the first sale, at prices higher than they now are worth.—Yet I find from the assessment roll of 1838, now on file in my office, that the average assessed value of my lots, is $55 each. The Buffalo and Mississippi rail-road, and a branch from the Lake Erie and Michigan canal to the Illinois canal, have been surveyed through the place, so that property is more likely to rise than fall. However, such as it is, I freely give, and if worthily won, I hope it may rise in value as fast as similar property has done all over the great west.

So, then, to the offer. I appreciate your remarks in the Cultivator, No. 6, on the great want of "Agricultural School Books." Now to induce some one to begin a series of such elementary works, that will have a tendency to learn American youth such things as are the most important of all things for them to learn, that is, how to support themselves and families by the labor of their own hands, I offer, as a premium, five of the above mentioned lots, to any person or persons who will publish a series of five numbers of an "Agricultural School Library," to be submitted to, and approved by you, or any other gentlemen that you may associate with you for that purpose.

And I will also give two of said lots, to any person that will publish another work, to be called, and to be what it is called, "The Farmers' Manual," to be also submitted to, and approved by you, and to contain such maxims and advice as will be useful to new beginners in agriculture, whether old or young; rules that will be useful to the wife as well as husband of such as are driven by necessity or choice from the employment in which they may have always been engaged, to take up the, to them, new employment of cultivation.

Thousands are deterred from attempting to earn their own living, because they *don't know how to begin.* Such would rejoice to have it in their power to procure such a book, as much as a navigator upon a strange coast would rejoice in procuring a new chart.

And in addition to the premium, I will subscribe for ten copies of each work, and take the agency of selling them without commission. Will some one, more able than I am, add to the premium.

And I will also give further premiums, to other objects that you will point out as worthy, which will tend towards the same object. That is, the promotion of agricultural education; for I am convinced that the great object in view must be accomplished upon the rising generation.

A thought strikes me of another work worthy of "a premium lot,"—an Agricultural Dictionary; to be used not only as a necessary accompaniament to the series of school-books, but as an invaluable work in the hands of every cultivator. I venture to say, that there are not one half of the readers of the Cultivator, (and no paper uses less unintelligable phrases,) who are not often puzzled to give the proper signification to necessarily common words.—And to youth, the common names of soils, earths, and parts of plants, &c. are all Greek. To prove it, select fifty words that are found in every agricultural work, such as argillaceous, silicious, phosphate, sulphate, hydrate, carbonaceous, stamens, stolens, et cetera, (including the "et cetera,") and ask fifty of the first persons that you meet, to give you an intelligible definition of them, and see whether the answers do not demonstrate a very great necessity for our agricultural dictionary. If the publication of one cannot be induced, let me ask whether a page of your paper might not be profitably devoted to that purpose. It is a great fault in all education, that we teach words without conveying any definite idea of their meaning.

One of the great benefits which I hope to live to see grow out of the formation of "the American Society for Agriculture," is an improved system of education throughout the whole country. I commend to your particular notice an article in No. 51, of the Franklin Farmer, upon "Agricultural Education."

What think you of a universal petition from all the friends of agricultural improvement and education in the U. S. to the next congress, for the establishment of a national agricultural school? Are we so much more of a warlike than an agricultural nation, that we endow a "military school," to the entire neglect of an agricultural one. Here, certainly is something wrong. "Something must be done,"—who will say, "something SHALL be done," and make the first step towards it by printing and sending a petition over the country for that purpose? The little that can be, will continue to be done, by your friend,

SOLON ROBINSON.

REMARKS OF THE CONDUCTOR.

The ardor and zeal displayed by our esteemed correspondent, in his several communications, published in the Cultivator—directed, as they are, to the substantial improvement of the mind and the soil, are worthy of all praise. And he has given above unquestionable evidence of his sincerity, in the liberal offer he makes to subserve these noble ends. The mind must be enlightened before the soil can be improved. To second this generous proposal, we promise to add $20 to each of the six awards proposed in the above communication. How much will you add, philanthropic reader?

Grape Culture.

Brooklyn, September 10, 1838.

Dear Sir—In one of the late numbers of the Cultivator, Col. Spooner, of Hempstead, L. I. has furnished your readers with a detailed statement of the culture of the Isabella grape; and its conversion to wine. He justly remarks, that much is to be learned concerning the culture of the vine; to which I add, that its culture has proved, and will continue to be a most efficient aid to the temperance cause. Such considerations, therefore, must commend it to the attention of every philanthropist, and induce his aid in extending its culture.

The great enemy of the grape is the rose-bug, which appears when the vine is in blossom. The Colonel remarks, "in a few days after their first appearance, thousands are seen carrying destruction through the vineyard." The best remedy he could devise, he adds, "is to go among the vines early in the morning, before the sun has warmed them into activity, and they are then easily destroyed. A few mornings spent in this way, will clear the vineyard, as they are a short lived enemy."—The Colonel is fortunate, if his destructive visitors leave him in a few mornings; with us, in Kings county, they protract their visit for *weeks*.

Rose-bugs, in my neighborhood, have, in some places, entirely destroyed the crop, both this and the last season; while my grapes, which were nearly surrounded with *rose bushes*, escaped their ravages. It has been the practice of many, to remove rose bushes to a distance from the grape vine, but without success. The cause is evident, they attract the bugs, but they serve also as a trap to secure them. The Colonel's plan is doubtless the best, *when practicable.* He would find it difficult to *catch bugs* on vines trained to a great height, as they generally are in villages, besides, as they can only be caught when the morning dew is upon them, their extermination would require many mornings' labor, and in the mean time the blossom would suffer from their voracity. Col. Spooner's communication will, however, prove extremely valuable in villages and cities, by furnishing the mode of trimming the vine to thousands, who never would consult a regular treatise upon the subject, but would suffer the impositions of gardeners, who, by making a great mystery of the manner of trimming, contrive to extort large sums for a very trifling labor. And, en passant, I may add, that article alone is worth double the yearly subscription price of the Cultivator. The Colonel requests of your correspondents, information in relation to the culture of the vine, and inquires whether manuring is desirable? What kinds? and to what extent? &c. &c. His valuable article entitles him to any information on the subject your correspondents can afford; and I trust it will receive the attention it merits.

My experience has been too limited to afford full answers to his queries. With regard to manuring, however, there can be no doubt that ground cannot be *too rich* for the vine. What kind of manure is best adapted to the vine, requires the test of experience. I experimented upon three vines, a short distance from each other in like situations, and upon same soil—a rich sandy loam. To one I applied *liberally*, unleached wood ashes, three or four times a season; to another, animal manure; and to the third vine, I applied liberally, long unfermented barn-yard manure.

The animal manure produced a luxuriant growth in the vine, and enlargement of the grapes, which exceeded any thing I ever witnessed in the Isabella vine, notwithstanding the severe drought this season. The vine "ashed," was also luxuriant, though not equal to the first vine, but more thrifty than the vine manured with barn-yard dung. I do not believe that ashes are congenial to the vine in *all* soils, but in a sandy soil it certainly is. Animal manure, however, will answer in any soil, and I believe for any crop. To other vines I caused soap suds, &c. to be applied, which I have found of great service.

Few cultivators consider, that the roots of the vine extend along the surface of the ground as far as the vine extends above the surface, and consequently the vine receives its nourishment from a considerable extent of ground. I was requested, a few days since, to examine a vine, which appeared sickly, and upon which the grapes were withering, although not half grown. I was told that the vine had been "well manured." On examining I found that within two or three feet of the vine the ground had been made rich, but beyond that distance, the top soil had been removed, in levelling the ground, and of course the steril subsoil alone left to nourish the vine. I need only add, that the owner understood the culture of flowers better than the vine.

My mite of information on this subject, is furnished with the hope that it may call forth the necessary information in relation to the culture of the vine.

BROOKLYN.

N. B. Since writing the above, I have examined the vine to which I applied animal manure, and find that it has several small bunches of grapes just formed, being a *second crop.* This, I presume, is owing to the extreme richness of the earth.

Culture of the Mulberry.

J. Buel—Sir—Considering your manifest anxiety for the progress and improvement of agriculture, and your known patriotism for American enterprise and independence, I am encouraged to venture a communication for your paper on the mulberry cultivation and the growing of silk, for the information and encouragement of those of your readers who have and are on the eve of commencing in the silk growing enterprise.

There is no necessity for saying, at this late hour, that the cultivation of the mulberry and the growing of silk, will soon become an important branch of useful industry, and a source of wealth to the United States, for it is already acknowledged by universal consent, that American climate and soil is as congenial to silk growing, and the sons of America as well calculated for agricultural and manufacturing operations, as any nation in the world.

You are no stranger to Yankee enterprise, and Connecticut perseverance, and you are therefore aware that they have done wonders in that state in silk growing operations for some years past, having realized a profit with no better food for the silk worm than the common white mulberry; but recently, however, the morus multicaulis was offered them, and they commenced testing its qualities and estimating its real worth, and their long experience in the use of the mulberry, had qualified them to decide correctly; and when they become thus satisfied with its superior quality and worth, and found, by experience, that the roots will endure our winters standing in the earth, and send forth an increased number of stalks every year they adopt its use, and push forward its cultivation with all their energy and skill, are now multiplying and vending it by thousands and tens of thousands, and, I am informed, many have commenced cutting down their white mulberry, and throwing them away, as no longer of use.

And, sir, I am prepared to say, without fear of contradiction, that the deliberate conclusion and doings of those so immediately and deeply interested, will speak volumes that nothing can prevent from being heard and felt in every part of this republic.

You are aware, I conclude sir, that a special committee of congress, in a late report, have informed us of more individuals and companies already engaged in this enterprise than is generally known, and in some states are companies extensively engaged in raising the mulberry, feeding the silk worm, and manufacturing silk goods of a superior quality, and with an encouraging prospect. And this same committee, in their report, speak decidedly in favor of this cultivation, and urge the propriety of increasing this business in every state, not only as a profit to those engaged in it, but as a source of wealth to the United States, which will add another link to the chain of our independence.

Very little is known in this region about the cultivation of the mulberry, or rearing the silk worm. Something has been attempted, a few years since, with the morus alba, (common mulberry,) but with little or no profit, the cultivators having no faith in the durability of the morus multicaulis, or Chinese mulberry.

There has been a prevailing opinion not only here but elsewhere, that the morus multicaulis is too tender a tree to endure our northern winters, yet there has been some honorable exceptions to the opinion; and as its history informs us it was introduced into the United States from two different places, we are therefore induced to believe that one kind is hardier than the other, from the fact that the kind we have, endured well the two last winters.

We commenced the cultivation of this mulberry in the spring of 1836, with 250 small trees, and 1,500 cuttings, all morus multicaulis. The first winter we left 20 trees standing in the open field, and unprotected from the weather, and cut down to the ground 34 trees, covered the stumps with a trifle of straw manure. They all lived and did well. Those we cut down to the ground sent out from their roots, the next spring, an increased number of shoots, some of which, in that season, growed about seven feet high, the fall after which was last fall, we cut all our trees down to the ground, and buried the tops in earth till spring, for cuttings and layers, in order to increase our trees more rapidly, and we have succeeded this season far beyond our expectations. Our trees will now number about 20,000, and an equal number of cuttings.

No tree or shrub that we have been acquainted with, is more tenacious of life or easier cultivated, or can be more rapidly multiplied than the morus multicaulis, and we consider the kind we have will endure our winters as well as our forest trees in general, under similar circumstances. It is to be desired that all our farmers commence the cultivation of the morus multicaulis, without loss of time, and we do think they would if they were more informed in reference to its worth, and ease with which it may be cultivated.

One of the letters accompanying the late report, say it is no more to cultivate an acre of land with the mulberry, than with corn. If each farmer would devote only one acre of land to the morus multicaulis, it would yield him from 100 lbs. to 300 lbs. raw silk a year, in proportion to the fidelity with which the cultivation and feeding is performed. But assuming the lesser quantity, (100 lbs. from an acre,) it would yield a greater profit than any other product from the soil.

If the farmer can be induced to believe that these estimates are correct, he would not fail to commence with the morus multicaulis, and we have estimations of this description so often repeated, and from sources that ought not to be doubted, we can hardly question but that the farmers will wish to embark in this enterprise, if they can know where the best kind of morus multicaulis can be found.—It is truly a scarce article, although many thousands have been imported, and hundreds of thousands grown in this country, yet the demand has not been supplied, and it is doubtful whether it will be for some years to come. The more that is known of its worth, the greater is the demand; although it multiplies rapidly it cannot keep pace with the call.

We can now spare a few thousand trees and cuttings, to those who first apply; and if any of your numerous subscribers wish a few hundred of each, the sooner they let us know it, the more sure they may be of accommodation. We have multiplied them so fast, that we will afford them considerable lower than we had to pay when we purchased in 1836.

A writer in the Farmer and Gardener, advises, as the result of experience, to purchase the mulberry in the fall of the year. He says, this mulberry is so tenacious of life, that if it is kept through the fall and winter buried in the ground to the depth of 9 or 12 inches below the surface, it will be just as fresh in the spring as when first taken up out of the ground; and then his trees or cuttings are on hand, and he can have the benefit of the entire season of growing, without that danger of delay others have suffered who put off their purchase until spring of the year; and the opportunity we have had has led us to the same conclusion.

We have fed a few silk worms every year since we commenced the cultivation of the mulberry.—We do not discover any necessity for the use of the hygrometer or thermometer. We find this worm to be an animal of life, and wants food for its support, and needs a rational proportion of attention, like other animals, and the better they are attended to the better will be the result.

Our second crop this year are now winding their cocoons in very good order. Yours, respectfully,

S. E. GIBBS & SON.

Troy, September 14, 1838.

Merchant Mills, Nelson Co. Va.
Sept. 10, 1838.

Sir—The drought in this region is distressing. Our clover fields would burn freely. Our corn crop will be considerably short of half an average crop. Our tobacco crop is nearly a failure; and added to all, on the morning of the 4th inst, we had a frost that killed vegetation entirely, in low frosty situations. "We are rather in a bad box here."

WM. MASSIE.

Turnip Culture.

Vergennes, Sept. 4, 1838.

Worthy Sir—I perceive much said in the Cultivator, on the subject of raising the English turnip. I here state my method, which for five years has not failed. About the 20th June I go into my sheep pasture, and plough a piece of sward land, run a fence round it, and yard my sheep, 250 in number, six or eight nights, from sundown until sunrise.—By the 4th of July I sow the seed, harrow it over, follow the harrow with a hoe, and turn all the green clods; then yard the sheep several nights, until the ground is trod hard; then sow with lime, plaster or ashes, or any or all of them mixed. When the plants come up, if the fly appears, dust it over with the above articles in the morning, when the dew is on them; continue until the rough leaf appears, when the work is done, except thinning the plants.

I prefer a light dry loam. Such land will produce three crops of corn, wheat, flax, or what you please, in succession, with plaster. I take up a piece, and stock down one each year; by this process you rarely discover a fly, and if the field is surrounded with grasshoppers, none will enter.

REUBEN WHEELER.

Ketch Mills, Sept. 10, 1838.

Dear Sir—I wish you to have the goodness to answer the following questions, relative to the mulberry:

1st. What is the present price of the Brussa mulberry, and in what proportion is the annual increase in good land?

Answer.—From 25 to 50 cents.

2d. How does its habits differ from the morus alba, and the multicaulis?

A. It is believed to be more hardy than either,—leaves intermediate size.

3d. Where can it be obtained?

A. At the Albany Nursery.

4th. Have you confidence in the prospect that the culture of silk will be a permanent business in this country?

A. Yes.

5th. What is the prospect for the price of the mulberry tree next season?

A. There will probably be very little variation in the price of the best varieties.

6th. What legislative enactments have been passed of late in Pennsylvania, for the encouragement of the culture of the mulberry?

A. A bounty has been offered on silk fabricated in the state.

Respectfully yours, &c.

HENRY ELLSWORTH.

To Jesse Buel, Albany, N. Y.

Crops.

Johnsonsburg, Sept. 14, 1838.

Dear Sir—Winter wheat came in first rate, although there was not as much sown as formerly, on account of the Hessian fly having destroyed much the year previous. There were no poor pieces, but a great many good. There is a worm, however, discovered to some considerable extent—as to country—not, however, having been very destructive this year. Winter rye-straw very fine—expectations before harvest, great—not realized however—much of the grain shrunken—not more, if half a crop. Oats light.—Spring wheat—some—very few pieces tolerable—the remainder *absolutely poor*—some say the fly injured it early, and the worm is found in much of it. The latest sown the best—the most of it much shrunk—rusted. Corn never looked finer or grew faster than it did here the forepart of the season, and the prospect was a super-abundant harvest. The drought, however, has hurt it some, but still our farmers say, there will be more corn in fifteen miles around, than there has been in any for five years past. Potatoes very poor—next to nothing. Buckwheat, on the low ground, cut by the frost, and seriously injured; on high ground, good—will be half crop, if not more. Pumpkins very few, and but few apples. Hay, reasonable quantity. The second crop of clover, for seed, very little—drought and grasshoppers ruined it.—There is a good deal of old corn in this county and Sussex—scarce any grain of any other kind, (old.) We shall be very far from starving.

We suppose the worm in the wheat is the grain worm, and many think it was brought here in the summer wheat. The most of the spring wheat was brought from near Utica, N. Y. last year—something like 250 bushels for seed—the most of it was sound, and the crops were good. A great deal more was sown this year, and the worm is in a great deal of it. Could the worm be brought in that way in the seed, or has it, in its peregrinations, reached us, and will it destroy all our wheat? I see nothing to save us yet, unless it be the quick lime, of which you appear to have some doubt. I fear that we shall be scourged heavily and severely, as this is a good wheat section. We wish all the information all the world can give us on this subject.

How long does this worm continue in any place? Is it a passing traveller, or does it delight to sojourn a long time in a place? It has just made its appearance here. Will it be likely to do much damage next year? Will you please to invite all the information that can possibly be obtained on this *all important* subject. Our farmers are preparing to sow largely this fall, as their wheat crops were so fine. I tremble for them. I fear the worm will be destructive.

There is a great deal of limestone in this section of country, and a great many low places, marshy, boggy, &c.; there are many large beds of carbonate of lime, said, by geologist Rogers, who surveyed our state a year or two since, to be a deposition from the water. It appears to be a bed of stiff morter. Much of it, Mr. R. says, contains 50 parts lime, 38 of carb. acid, the remainder sand, &c. Do you think this would require the action of heat to make it valuable as a stimulator. It has been used some, and always to a disadvantage, and I think always injudiciously, as too large quantities were applied in a place, so that vegetation was destroyed, by being thrown up to dry; and when dry it will become, by a little beating, very fine. There are millions of loads of it within ten miles of this place. But I must transgress no longer.

Yours, respectfully, R. BYINGTON.

P. S. Can Green's cutter be had in the city of New-York, or where? [Yes—at Thorburn's.]

[Mr. Byington's questions in regard to sheep, will be answered by letter.]

EXTRACTS.

Dry Rot.

THE PROPER SEASON FOR CUTTING TIMBER.

[*Abridged by the Baltimore American from Silliman's Journal.*]

"The marine establishment of our country has no more fatal enemy than what is termed the *dry rot* in timber, and we know of nothing which would be productive of greater practical benefit than the invention of a method by which it may be prevented. The writer of an article in Silliman's Journal, for April last, presents some valuable facts connected with the subject, the deductions to be drawn from which may be productive of highly beneficial results. After adverting to the superiority of the timber of ancient times over that of the present day in point of durability, as a matter ascertained, the writer proceeds to assign for it a reason which, he thinks, is to be found in the time of the year at which the wood is cut. An opinion has long prevailed that the winter is the proper season for cutting ship timber, but if the views of the correspondent of the Journal be correct, this long received notion is erroneous. To prove this, he adduces facts that have come under his own observation, which go to show that so far from its being proper to cut the wood intended for ship building, in the winter months, the more remote the time of cutting is from mid-winter or December, the better. He states, that in the year 1810 he had under his direction the preparation of the timber for a freighting ship, and that he caused it to be cut during the month of December of that year. At a subsequent period it was ascertained that additional pieces were required, some of those cut in the first instance not being fit for the purpose. At the time when the last cutting took place the leaves were full grown and the bark would peel. In July, 1811, the vessel was launched, and in the following autumn was sent to sea, and after the declaration of war was despatched to Middletown, Connecticut, where she remained until the peace in 1815. In the spring of the latter year, when she was to be fitted out for service, on examination it was found that the timbers which had been cut in December were so much affected by dry rot, as to render rebuilding to a great extent indispensable, whilst the pieces prepared when the trees were in foliage were perfectly sound. Such was the perfect condition of the timbers prepared in the summer, that the spikes which had been inserted appeared, on being drawn out, perfectly bright—those which had been driven into the winter cut portions being oxydized to a great extent. The ship sunk some years afterwards at sea, a miserable hulk, in consequence, as the writer thinks, of the rottenness of the portion of her bottom which had remained untouched at the time she was repaired.

"A case so striking induced our author to believe that the common opinions about winter cutting were erroneous, and caused him to make some experiments in order to test the cause of the dry rot, and being doubtful of the correctness of the botanical theory, according to which it is supposed that the sap recedes to the roots during winter, he took, in June, 1815, some pieces of oak cut in June, which he placed over a fire. He found as the heat increased, that on the ends of the sticks there appeared a wet circle describing the exact thickness of the *alburnum*, or portion of wood outside of the heart, and that steam rushed violently from the tubes of that part, whilst there was but a slight appearance of vapor over the heart wood. In December of the year he tried a similar experiment, and found the steam to issue from the heart wood, whilst the alburnum remained perfectly dry. From these experiments it appeared evident that in summer the sap is in the alburnum, and in the winter in the heart wood, whither it had been conveyed by some process of nature not understood, and not in the roots as had been supposed. Subsequent observations have proved to the writer, that when growing trees are trimmed in summer, the rot which ensues begins in the alburnum, whilst in those trimmed in winter, the decay takes place first in the heart wood. In further support of the new theory, reference is made to the fact, that chesnut rails, which are usually made in summer, last a great number of years, whilst posts made of the same material, which are generally prepared in winter, rot in seven or eight years. As a mode of ascertaining the season at which the ancients cut their trees, it is suggested, that on examination of ancient timber it will appear, that the powder post, as it is called, and the dry rot, will be found in the alburnum, and that the interior of the heart wood will be found perfectly unaffected. The following experiment is mentioned as illustrative of the effect produced on the outer or inner portion of the wood, according to the season of cutting. Take two saplings, one of which has been cut in June and one in December. By placing a piece of each in the garret, and a piece of each in the cellar, it will be found in about three years, that in the garret the powder post will have appeared in the alburnum of the one cut in June, and in the heart wood of that cut in December, whilst, in the cellar, the dry rot will exist in accordance with the same rule. The conclusion to which the writer comes is, that June is the best time for cutting ship timber, and that in proportion as we recede from that month will be its liability to decay. The subject is one of vast practical importance, and there is reason to believe that the perishable character of the wood of our country used for ships, is to be attributed, in a very great degree, to the fact of its being cut in winter."

On an Economical mode of Furrow-Draining.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

Every attempt at the introduction of economy in farming operations, if founded on practice, deserves commendation. On this ground, the following economical mode of making furrow-drains claims especial attention from those whose locality affords flat stones.

Suppose a piece of land containing two ridges, of 15 feet each, one whole ridge and two half ridges, divided by two furrows. The drain is made in this manner:—Gather up the ridges with a four-horse plough, to make these furrows wide and deep. If gathered from lea, a crop may be taken the year previous to the commencement of the drainage. This ploughing leaves the furrows 16 inches wide at the bottom, and if the furrow-slice *a a*, fig. 52, on each side, has been ploughed one foot deep, and laid over at an angle of 45 degrees, their tops will be 32 inches apart. A line stretched from the crown of one ridge to that of another, will give the depth of the ploughed furrows 22 inches below the crowns of the ridges. This ploughing is only a preparation for the ultimate making of the drain. The drain is then made in this manner, on strong clay soils, which alone can resist the abrading effects of running water. Leave a scarcement of one inch on each side of the bottom of the furrow left by the plough. Cut out the earth 14 inches wide, perpendicularly, with the common spade, 10 inches in depth, *b b*. Then throw out the bottom of the drain with a narrow-pointed spade, 5 inches more in depth, *e*, and 4 inches in width, leaving a scarcement of 5 inches on each side of the spade; and the cutting of the drain, whose bottom is now 37 inches below the crowns of the ridges, is then completed. The drain thus made is filled in this way:—Take thin stones, such as strong grey slates, or thin flags, and place them upon the 5-inch scarcements left by the narrow spade, as *d*; they need not be dressed at the joints, for one stone can be made to overlap the ends of two others. They form the top of the conduit through which the water in the drain flows under them. The drain then may be filled up in the usual manner, with the plough and spade. The expense of making this kind of drain is, for spade-work, 6*d*. per rood of 36 yards in length. A Scotch acre contains 32 roods of furrow, at 15 feet apart, which gives 16*s*. for spade-work; 12 tons of flags, of an inch thick, will cover the 32 roods, which, at 4*d*. per ton, is 4*s*. more,—in all 20*s*. per Scotch acre, including the laying of the flags, which is estimated in valuing the spade-work. Fig. 52, will give an idea of this drain, after the above description.

Fig. 52.

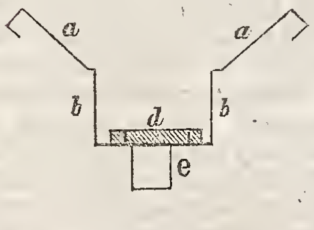
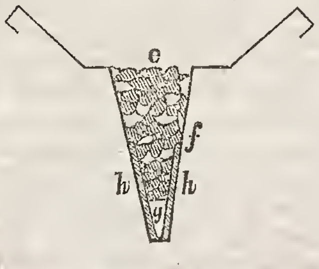


Fig. 53.



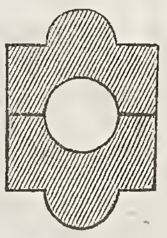
The drain represented in fig. 53, is thus made, and it is applicable to every species of soil. After ploughing the furrow, as already described, the spade takes out a trench from the bottom of the ploughed furrow, 8 inches wide at *c*, 16 inches deep *f*, and 3 inches wide at the bottom *g*. The depth will thus be 38 inches below the crowns of the ridges. This drain is filled with flags *h h*, set on edge, meeting at the bottom of the drain, reclining against the sides, and kept asunder by a stone of any shape, acting like a wedge between the flags, as represented in the figure. The remainder of the drain is filled with riddled stones, the riddlings being kept on the top, and covered with any matter, and then earthed over with plough and spade, like any other drain. The expense of the spade-work is about the same as of fig. 52; the stone-work will of course be more, but how much more has not been so accurately ascertained as to be confidently given to the public. Even at £2 per Scotch acre, this would be a substantial and cheap method of furrow-draining. T. S.

On Making Draining Tiles of Peat.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

An ingenious spade has lately been invented by Mr. Hugh Caldarwood, Blackbyres, Kenwick, Ayrshire, for cutting draining tiles of peat. The instrument is worked very easily, and forms the tile with one cut of the spade; the tiles being cut *one out of the other* expeditiously, and without waste of material. Their shape is something like clay tiles, but more massy. They are dried in the sun during summer, lying flat on the ground, and may be stacked like peats, ready for use when required. When properly dried and hardened, wetness will not soften or decompose them. Peats are frequently found in mosses which have been buried long ago by accident, still hard and fresh; and those that have been used for draining upwards of thirty years ago, have been taken out of the drains unimpaired and solid. It has even been asserted, that a well dried peat has been boiled for six months in a boiler at Catrine Cotton-works, which was taken out after that period solid and uninjured. There is no doubt, however, of the capability of dried peat to resist moisture. The large stacks of peat formed for the use of families in Ireland, where coal is unusual or scarce, are never thatched. The invention of this spade tends to render the draining of moorish lands more practicable than hitherto, as with it a farmer may cast two or three thousand tiles a day, within a very short distance of the ground he intends to drain, at one-fourth or one-fifth less expense than he could furnish himself with the same number of clay tiles; the frequent want of clay in such districts rendering the manufacture of clay tiles at hand impossible; and the cartage of them from the kiln to a great distance to the land is at all times an expensive operation. When laid in the trench, the peat tiles are placed with their grooved faces opposite each other, one of them serving as a sole, as in the figure. We understand that a considerable number of Calderwood's spades have been working this season in Ayrshire; and if experience prove their utility, they will no doubt get into general use in peaty districts. Specimens of the tiles and spade have been lodged in the museum of those enterprising friends of agriculture, Messrs. Drummond, Stirling, and we believe they may also be seen in the hands of Messrs. Samson and Company, seedsmen, Kilmarnock.

Fig. 54.



The article which follows goes to prove three facts, of primary importance to the farmer, which we have strenuously endeavored to inculcate, viz:

First, That the resources for manure, on almost every farm, are sufficiently abundant, when properly husbanded and applied, to keep up, or improve, its fertility;

Secondly, That blending unfermented dung with earth, or the soil, accelerates its decomposition; while,

Thirdly. A vast amount of fertilizing matter is saved by such admixture being made, *before fermentation has taken place*—the earth "absorbing and retaining that excess of putrescent fluids and effluvia which is otherwise lost by filtration and evaporation; that is, by soaking away and drying up."

[*From the Farmer's Cabinet.*]

Manure.

WHAT IS THE GREATEST QUANTITY OF MANURE TO BE OBTAINED FROM GIVEN MEANS?

Mr. Editor—There are in agriculture, as perhaps in every science, some leading propositions, calculated in a particular manner to arrest attention by their prominent importance. Such I hold that of a "Subscriber" in your May number—"*What will an acre of land produce?*" and also the question which heads this article.

Were it possible at once to afford a complete and palpable solution to these two propositions, what mind can calculate the vast increase of treasures that would instantly become accessible to humanity? As, then, we cannot inquire too strictly, or know too much regarding them, I propose, after recapitulating a few of the principal statements of a "Subscriber," concerning the latter question, to furnish my own experiments upon the former.

He informs us that a single acre of his land, *with abundant manuring and superior cultivation*, was made to produce the sum of $348.40 per annum, for five successive years, besides the vegetables used in a small family. He further states, in substance, as his present conviction, that the quantity of soil cultivated has nothing to do with the secret of gathering money out of it; that "this altogether depends on a judicious selection of soil, *on the facility of obtaining manure*, and on the proper application of it as food for plants," &c.;—that he found, by actual experiment, made upon a large scale, "that
the profit of capital laid out in land produced an inter
of only *five* per cent per annum, the capital laid out
manure upon the same land produced *twenty* per cen

Now, my own experience, as I shall presently sho
abundantly comfirms the probable accuracy of all the
statements. Let us distinctly understand, then, that
is not the great quantity of land, but *the abundance*
manure upon a little, that is alone required to give weal
and independence; that the man who owns five or s
acres, may (according to the above data,) with the a
of manure and good management, draw from $1,800
$2,000 from them each year, while he of a hundr
acres may scarcely obtain half of it upon the comm
plan.

But where is the requisite manure to be obtained th
shall so suddenly and surely enrich the farmer? In r
ply to this, I will simply give my own experience, a
by it endeavor to convince the reflecting farmer wh
amount can, and in fact *has* been made from means i
comparably more limited than is generally imagined po
sible.

Previous to 1829, I had followed in Philadelphia a s
dentary occupation, which, by excessive application
it, had so enfeebled my constitution, that I was oblig
to seek in the country for that measure of health whi
I might no longer hope for in the city. So I bough
with my scanty savings, a small place of ten and a ha
acres, and moved upon it the same fall of 1829.

Not being acquainted with farming, I hired a man
plough two and a half acres, and sow it in rye. Th
cost of seed and labor, in putting in, gathering an
thrashing the said crop, was $8.56. The crop yield
five and a half bushels of very poor black rye, fit on
for hay feed—say at forty cents per bushel, (as goo
rye was then selling at fifty and fifty-six cents p
bushel,) was worth $2.20, and the nett loss sustaine
upon farming the ground was $6.36. The season wa
moderately good for grain, and the two and a half acr
rather a favorable specimen of the rest of my land
I planted a potato patch the following spring, (1830,)
about the fourth of an acre, which I manured in th
hills with one load of marl only, and the crop yield
but three and a half bushels!

Being a total stranger to the nature and character o
soils, but having previously, from some cause, ente
tained the notion that land in general produced abo
twenty-five bushels of wheat, or forty bushels of cor
or four or five loads of hay to the acre, the conviction
had now received of the absolute worthlessness of m
land fell upon me like the shock of a thunder-clap. Di
couraged by the greatness of my disappointment, bu
not quite confounded, I determined that manure, in f
ture, should be every thing to me, and stand in th
stead of both land and crop. Being greatly improved i
health, by the change of situation and exercise, I plie
my avocation with increased diligence for the maint
nance of my family, and made it the amusement of m
leisure hours and leisure moments to collect from ever
corner, and pannel of fence, every thing that I imagine
could furnish a vegetable nutriment, and placed it i
the cow yard, so combined with the litter as to absor
and retain every thing of the putrescent character tha
might be deposited there. By such means I have gon
on, every year increasing the quantity of my manure, t
an extent that I believe astonished most of my neig
bors. The following is a sketch of the means I posses
ed, and the methods I took to obtain manure for the pr
sent year.

I commenced last summer by collecting into the oute
part of my hog pen every thing of the weed kind I coul
find about the place, till I had a layer about twelv
inches deep, which I covered with a layer of earth abou
five inches thick, continuing the process till the pen wa
filled to about two and a half feet deep. In the fall I
littered my loose corncobs and the principal part of th
buckwheat straw into the pen, interspersed with layer
of earth in the same manner. The two stalls of my sta
bles I served also the same, taking care to save therei
all the chaff and refuse straw after thrashing. In thes
stalls I poured weekly, through the fall and winter, (fo
I had no cattle in them except in bad storms,) the soap
suds and such putrescent fluids that might be obtained
keeping the corners and outsides, and under the man
gers carefully saturated.

As soon as my corn was gathered in the fall, I cut th
stubs close to the ground, and wheeled them immedi
ately, *while yet heavy*, into the barn-yard, where I pack
ed them in every part of it, and also under the shed, be
ing an area of ground about forty feet by twenty, and i
a few days covered them also with a layer of earth
from a fence-row, close by, to the depth of about eigh
or ten inches. Upon this earth I foddered my thre
cattle during the winter, occasionally depositing mor
earth upon the litter as it collected there.

Your readers will readily judge, that the object of a
this preparation was not so much for the sake of savin
the materials collected there as to obtain a menstruum
or rather *sponge*, if I may so call it, calculated to absor
and retain all the urine deposited in the yard during th
winter. The compost masses, however, or layers, thu
collected together, are not to be considered as manur
prepared for the soil, but only as *materials* that requir
to be thoroughly *mixed*, in order to reduce them to
state fitted for a rapid and complete incorporation wit
the soil. Accordingly, with this view, I commenced lat
in April the operation of turning it, which, from its hav
ing become closely packed to the depth of twenty inches
with the stalks at the bottom, could only be done wit
the aid of a grubbing hoe, turning it in strips about a
foot wide, reaching across the yard, and throwing th

sened manure back a sufficient space to allow a hch between, wide enough to work in. After remov- the whole cover from the stalks, along a strip, as ore mentioned, they were easily grubbed up, by first ting them through all along the solid edge of the strip h the hoe, it being made pretty sharp for the pur- e. In addition to this pile of yard manure, I have emptied the contents of my hog pen and stables, nding the pile several feet, and lying upon the und, when first loosened, more than two and a half deep. Of this manure I have used sixteen loads spring, for truck and garden, and, judging from the of the pile yet remaining, there cannot be less than y loads, which, being turned once more, I intend to for wheat next fall.

n this manner, from only three head of cattle, and the ening of four hogs, I have made from seventy to ty-two horse loads of manure, the highly fertilizing perties of which are abundantly attested by my own ner experience. I will not say that it is stronger than best barn-yard manure, but from its closer affinity he nature of the soil, and greater facility for being idly combined and incorporated, without loss by eva- ation, I have no doubt it will be frequently found, n trial, more effective and more durable.

the process of turning manure, thus prepared, I it of the highest importance to mix well the earthy vegetable parts together. Few persons are per- s aware how rapidly the earth facilitates vegetable omposition, and to what a surprising degree *it ab- s the excess of fertilizing effluvia,* which must other- be evaporated during the process of decomposi- . This circumstance, I believe, taken in connexion the careful economising of all animal excretions, stitutes chiefly the great secret (I might, perhaps, *alleged* necromancy,) that has added already so h verdure to my previously exhausted soil, and been rofitable to me, and so surprising to my neighbors. o farmer can imagine, that has not tried the experi- t, what a prodigious quantity of rich, vegetable, and ous earth may be collected from corners and by- es which lie out of the way of cultivation, and ch, from their retired position, have perhaps, never uch as attracted his notice. All such refuse trash, fibrous earths and weeds, by being conveyed to his -yard, at intervals, during the fall and winter, and ciously combined with its contents, will be converted a rich, fertilizing, and durable manure, merely by rbing and retaining *that excess of putrescent fluids effluvia* which is otherwise lost by filtration and oration; that is, by soaking away and drying up.

W. H.

ittstown, Salem Co. N. J. May 20th, 1838.

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the Means of Increasing the Fertility of Land.

he productiveness of any soil, we think, depends en- y on its natural or artificial capability of retaining transmitting its moisture, the vehicle at least by h nourishment is conveyed to plants. This pro- ive power may therefore not only be continued in reatest vigor, but greatly increased by proper ma- ement. When we by any means give to the soil a anently increased vegetative power, we also in- se the yearly produce which it yields.

ome soils produce large crops often repeated without ure, five crops of corn and a fallow are the condi- s entered in some leases in the neighborhood of Wis- in Lincolnshire, while other land will produce ing without great expense of culture and manure, will an excess of manure make such land perma- ly productive; but if we change its constituent parts e addition of those earthy materials of which it is ient, so as to bring it nearer to the nature of those which we know to be fertile, then we shall perma- ly increase its productive powers.

ater being the vehicle by which nourishment is con- d to plants, the soil, whose constituent parts is best ted for retaining a sufficient supply and transmit- a proper portion in very dry weather to the plants ing in it without holding it in injurious quantities e time of very wet weather, it is possessed of the iple of vegetation and will be found to be of the productive nature. Such a soil will give not only ess to support the plants, but will facilitate the th of their roots in search of moisture and nourish- to the greatest depth.

ere is not an individual who cultivates a garden who exercises his judgment in its culture, but knows he addition of clay gives cohesion to sandy or gra- soils, and that sand and gravel when mixed with a y soil diminishes its tenacious property; and that changes thus effected permanently increase the uctive powers of both.

our endeavor to improve barren soils, we should ine them in connexion with fertile soils in their borhood, on the same geological formation, and ifference of their constituent parts may lead us to eans of their improvement. If the cause of steri- e owing to some defects in their composition, these ts should be supplied. An excess of silicious sand proved by the application of clay, peat earth, or eous matter, cold well rotten manure, and rolling mpling with sheep or other stock, to consolidate xture.

en clay is in excess, it is remedied by the appli- of sand, chalk marl, or burned clay, light un- nted manures, and perfect pulverization, to make il friable. An excess of vegetable matter as in soils, in a dormant state, is corrected by burning, e applications of clay, sand, calcareous matter, gravel, rubble, or anything heavy, to give firmness to the soil. Lime not only destroys the injurious effects produced by sulphate of iron, which abounds in some soils, particularly in those of a peaty and silicious gravelly nature, but is said to convert the sulphate of iron into a manure. None of these applications, however, will have the desired effect, unless there be first a perfect subsoil drainage of all superfluous moisture conjoined with a perfect tillage. To alter the nature and properties of the constituents of any soils may be more expensive than to manure it; but the effect of the former will be lasting, while that of the latter is transitory; the one permanently improves the nature and quality of the soil, the other only imparts a temporary excitement to force a crop for a year or two.

The materials necessary for the permanent improvement of the soil are seldom far off, and the expense, though in some instances considerable, is soon repaid by the permanency of its increased fertility; the manure applied afterwards has a much greater effect, the expense of cultivation is greatly diminished, and the capital laid out is soon restored by its yearly increased produce. By these alterations we store the earth with hidden and inexhaustible treasures, which, invisible to the eye, put forth their strength and give us the evidence of their presence by the effects produced on vegetation.

In the process of vegetation, nature supplies soil, water, light and heat; but the matter composing the soil may not be in such a state as to receive, and transmit these in such quantities as will produce a healthy vegetation.

Man may regulate the supply by the cultivation, and by altering the texture of the soil.

When the materials of which the soil is composed are in proper proportion, the soil is most productive; when any one of the ingredients is in too great a proportion, the soil is unproductive.

Pure clay, silex, or lime, we have before stated, are barren, if they are found alone; but if they are mixed together, having a due portion of water, the influence of the sun, and a proper admission of air, (which are the prime movers in vegetable life,) a fermentation amongst the materials is created; and if vegetable and animal manure in a state of decomposition be combined with these, the soil which was sterile when separate will become productive when combined, and this mixture of materials and mechanical alteration will change the texture, and improve the quality of the soil.

Neither the clay, the silex, nor the lime are decomposed by this process, but the soil composed of these materials in proper proportions has the power of combining with, and decomposing the vegetable and animal matter, the water, and air which it contains, and produce results which afford the necessary food for the growth of plants.

When the particles of earth which compose the soil are separate from each other, or well pulverized, it holds the greatest quantity of free or available moisture, and readily transmits it to the plants which are growing in it; but when the particles of the earth are closely packed together, like new made bricks, it neither can receive moisture, nor will it give out that which it already possesses.

Good soils are naturally possessed of certain powers, with which, by the aid of husbandry, we can produce certain effects; on poor sterile soils, these powers may be conferred by artificially altering their texture.

When the fluid in the soil is so connected with the fluid in the plant, and gives out to it a constant and healthy supply, then we say the soil is in good condition.

Manure applied to the soil increases its vegetative powers, but the way in which it acts is not well understood. The process of the small rootlets are so very minute, that no crude substance can pass through them; it can therefore, only be taken up by them in the form of water or gas, and be absorbed by the leaves.

Well rotten manure gives an unctuous or cohesive property; but when in a loose or strawy state, it gives a porousness or looseness to the soil.

All mineral manures, as lime, chalk, marl, sand, gravel, ditch mould, road scrapings, and earthy matter, act on the soil merely as an alterative, by changing the constituents of the soil and improving its texture, and by giving it an increasing power of imbibing and decomposing water, air, and organic matter.

The most abundant ingredients in soil are sand and clay, and as a mixture of the one with the other tends to improve both, nature has so ordered it, that these are generally found in great abundance near to each other.

In the plastic clay formation, extensive tracks of sandy soil are found lying upon the brick clay; the soil of which is greatly improved by lifting up the clay, and spreading it over the sand at the rate 100 cubic yards to the acre.

There is also a considerable extent of this formation covered with flinty gravel, mixed with clay and sand, with a thin covering of black mould or peat earth for its surface, which produces heath and furze.

This lies near the clay, and the whole of this may be greatly improved by trenching, or otherwise mixing the sand and gravel with the clay below. The most of this is near the chalk, and would be greatly improved by an admixture of 80 or 100 cubic yards of it per acre. Chalk or lime destroys the pernicious effects of the sulphate of iron in the gravelly soil, and makes the soil which was worthless, so productive as to pay the whole of the expense in a year or two.

Soil that is chiefly composed of finely divided or impalpable matter, is greatly improved by the application of small stones, gravel, or coarse sand; as this prevents the soil from collapsing or consolidating during continual rain.

All alteratives should be put on the land in small quantities at a time, or if in large quantities it should be when the land in fallow; and these should be well mixed by repeated ploughings, or by Finlayson's harrow, which is an excellent implement for loosening and breaking the the fallow slice. The best way of putting on small quantities of materials for altering the texture of the soil is to make a mixture of them with the manure you intend to apply to the field; and these ought to be well mixed by laying them loose together, turning them several times, and fermenting them in the mass. When this is properly done, it should be carted and spread on the soil when in fallow, and be ploughed in and well mixed, so as to be completely incorporated with the soil.—*Morton on Soils.*

Construction of Ice Houses.

[*From the Farmers' Cabinet.*]

The July number of the Farmers' Cabinet, contains a request for some one to furnish an essay on Ice Houses; as I have some experience on that subject, 1 freely communicate my knowledge for the benefit of the public.

I have erected several houses, principally for the purpose of supplying the citizens of Wilmington with ice, and find the larger the house the better it will keep; and that those constructed under ground are much preferable to those built in the open air; and further, that a wet, humid atmosphere, is more destructive to ice than hot weather. In making an ice house, you first dig a cellar in the side of a hill the dimensions that you wish to make your house; the only rule to observe in this operation is, to make the cellar so that it will not hold water. If the situation is sandy, or if you come to a vein of sand about the time you arrive at a proper depth, no further care will be necessary; but if you find a stiff clay or earth of any kind impervious to water, you must make an outlet or abandon the place. This outlet may be constructed in several ways; if on the side of a hill, dig a drain and make it air tight by an inverted syphon; or the water may be drained into a well and pumped out, or you may sink a small shaft in the bottom of the house until you come to sand, and fill it up with stone. When the cellar is finished the walls may be made of stone, brick, or wood, to suit the convenience of the builder, always leaving a space of 8 or 10 inches between the sides of the building and the earth, to fill in with tan, charcoal, straw, cornstalks, or any other non-conductor you can get, but tan is by far the best article yet known.

Where expense is no object, the cellar may be made round, and the sides of brick, raised a few feet above the ground, and covered with zinc, sheet iron or tin, and some fancy ornament for the top.

A house 9 feet square in the clear, and 9 feet deep will hold 27 cart-loads, which will be sufficient for a large family. It may be erected in a few days by a handy laboring man, with the materials that can be found upon almost every farm. Dig a cellar, say 10 feet square, and 10 feet deep, then cut small timber from the woods the proper length, and build them up in the cellar after the plan of an American wooden house, keeping the space between the logs and the earth well filled with straw; raise the building two or three feet above the surrounding ground, so that the water will not get into the house, thatch the roof, and leave the gable ends open, for ice houses are often made too close at top, cover plentifully with straw, and you will have an abundance of ice through the season.

If the bottom of your ice house is clay or hard earth of any kind, it will be better to put in a few loads of coarse sand previous to filling the house. There is some difference of opinion among people acquainted with keeping ice, in regard to the construction of the upper part of the building, whether there should be a tight floor over the ice or not. My opinion is in favor of covering the ice well with straw and leaving the house ventilated at the gable ends, at least so open that the gas escaping from the ice will have an opportunity of passing away. SUBSCRIBER.

Theory.

[*From the Farmers' Cabinet*]

No man, however much he may repudiate theory, engages in any work without first having the theory of it established in his mind. Theory precedes practice as thought precedes action. One farmer spreads his manure a long time before he ploughs it in; another ploughs it under as it is spread, and another uses it as a top-dressing, while some are particular as to the time of the moon, when dung is put on the soil. Each has his theory and acts agreeably to it, and his success is not dependent on his having *no theory* at all, but on his theory being in accordance with sound reason; for there is always a reason why one way of doing a thing is better than another. Some allege that every thing that is printed about agriculture is mere theory, and therefore to be disregarded; those who entertain this opinion, certainly maintain a very unsound *theory*, and the sooner they sift all the knowledge they possess and have gained by their own individual and unaided exertions, from what they have obtained by reading and conversation with others, the sooner they will ascertain the sum total of their *ignorance*, which it is expected will so alarm them that they will see the necessity of rubbing some of the roughest of it off. O.

Practice vs. Theory, or the Hands vs. the Head.

[*From the Farmers' Cabinet.*]

"No divorce, I beseech you, my friends."

Having recently been present during a very interesting and amusing conversation between two farmers, about your "Farmers' Cabinet," I will undertake to give you some account of it, or at least a short abstract of the subject matter of it. They were both good, and pretty intelligent farmers, but their views of some things, and particularly of matters written or printed in regard to agriculture, were as different as the two sides of a bake-iron. The one was descanting on the benefits and advantages of the Farmers' Cabinet to farmers generally, and now and then he read a racy article from it to prove his position; the other contended that any thing printed on the subject of farming was mere *theory*, and of no use, but rather calculated to lead people of little experience astray from the good old way of doing things that had been practised from the earliest times. He said that these printed things only dissipated people's ideas and withdrew their attention from work, and he thought were ruining our young people by keeping them thinking all the time instead of working. On the other side it was contended, that teaching people to think enabled them to work to much greater advantage, and that all the improvements which had been made in the world, were the result of thinking, and that thinking was not at all incompatible with action, but on the contrary, was the very base and foundation of it, and that a discovery or improvement being made, the promulgation of it in print was doing the greatest good to mankind, as it tended to keep up the equilibrium of knowledge, and enabled one man to work with the tools of another without cost. At last the contest assumed the form of a regular combat between the Head and Hands; a little on the plan of that detailed by Esop, of the quarrel that took place between the Belly and the Limbs, when the latter fairly rebelled, and refused any longer to work for a fat and indolent Paunch, which they considered as entirely useless, and unable to provide for itself.—However, after a short trial, at keeping up separate establishments, finding it not to answer expectation, a truce ensued, and they agreed to go on amicably together, and found a mutual advantage in it. Now I suspect this contest between the Head and the Hands will terminate in the same way, by each returning quietly to the performance of its appropriate duty again, as members of the same indissoluble firm of "Head and Hands," each attending to its own department, while they are both working for the common good; for I should like to know what sort of a farmer a man would make either without a head or without hands. I was thoroughly convinced by the arguments of the parties, that every man in this free country has an undoubted right both to think and work, either jointly or separately, as much as he pleases, and that there is not much danger of our carrying either to excess; but above all I was confirmed in the conviction, that every intelligent farmer should write down the results of his experiments, and the cogitations of his mind, on agricultural and rural affairs, and forward them for insertion in the Farmers' Cabinet. X.

Science of Gardening.—*Continued.*

[*From the Alphabet of Gardening.*]

LIGHT.

It is common with gardeners to expose their tender frame plants gradually to the open air, by taking off the lights from day to day, for the purpose, it is said, of rendering them more hardy. Few of those, it is probable, who do so, are aware of the principal agent which renders the plant more hardy, and which, if I mistake not, is generally supposed to be cold or fresh air. This, there can be no doubt, assists in the process, and is indispensable to its perfection; but there can be as little doubt, that light is the main agent, as a few facts and a little reflection will prove.

The process of blanching salads depends chiefly on depriving the plant of light, by earthing up a portion of the stem, as practised with celery; by tying up the tops of the leaves, as is done with lettuce; or by covering them with inverted pots, as is done with sea kale. In all these cases, the plants are crisp, watery and tender, compared with others not thus treated but similar in all other circumstances, which are stringy and tough in their fibres, less juicy, and therefore hardy. No exposure to cold or fresh air would produce this toughness and hardiness, if the plants were kept in the dark; and no absence of cold and fresh air would produce blanching, if a strong light were admitted.

Complete blanching is only produced by complete exclusion of the light; but its partial exclusion causes plants to be pale and sickly, as in the shade of thick woods, or plants in a stove or green house accidentally placed so as to be shaded by others. In all such cases, plants are popularly said to be *drawn*, that is, they endeavor to push their branches as much as possible into the light, and being from deficiency thereof proportionably feeble, they increase in length without at the same time acquiring strength. A potato in a dark cellar will in this way send out shoots of some yards in length, but not much thicker than a writing quill. It is on this account, that the glass frames in hot-houses ought to be as thin as possible, and therefore iron is preferable to wood. More light also will pass through a sloping or level frame than through an upright one, and through a domed or curved roof than one that is plane; because the rays of light always go in straight lines from the sun.

This singular propensity of plants to turn to the light has been supposed to indicate something akin to animal instinct; but when the cause is closely examined, this will not appear to be better founded than that of a piece of writing paper bending into a semicircle when held to the fire; for both the motion of the plant and of the paper depend on the same cause—namely, the hardening and stiffening of one side, while the other remains soft and flexible. In the case of the paper, the side next the fire has its moisture carried off by evaporation more rapidly than the other side; and in the case of the plant, the side most exposed to the light is in the same way rendered more firm, contracted, and shorter than the one less exposed. The very long shoots of the potato in the dark cellar seem to be caused by the softness of the blanched substance offering no resistance by contraction to the lengthening out of the parts.

It will follow that all colour, flavor, smell, and nutritive qualities, depend for their production chiefly on the action of light. The red colour of forced rhubarb, which seems to be an exception, arises from the red matter previously produced by the agency of light being carried up from the root.

It hence appears, that the study of the laws and action of light is of the first importance to a correct knowledge of scientific gardening, as will further appear when we come to consider the use of leaves.

HEAT.

As it has been shown that the food of plants, in order to be available, must be fluid; and as heat is the cause of fluidity, its primary importance to vegetation must be obvious, for no plant could take up frozen liquids. The processes, moreover, of fermentation and putrefaction, by which are produced the supply of carbonic acid gas, humic acid, and nitrogen, indispensable to vegetation, cannot go on without warmth. It is well known, for instance, that beer cannot be brewed in frosty weather, because a due degree of fermentation cannot be effected on account of the cold.

The effect of heat on plants is very beautifully proved by the experiment of Du Hamel, on the rising of the sap in vines in spring. On a frosty day, when the sun shone on a cut vine, the sap flowed on the south side exposed to the sun, but not on the north side where it was in the shade. In Canada, also, where the frost recur, though on the south side the bleeding goes on, at least during sunshine. It is on this account in some northern climates, where the long sunny days succeed the thawing of the snows, as in Norway and Russia, that the gardeners are said to shade their wall trees from the midday sun in the spring, to prevent the sap being prematurely raised and again checked by the certain cold of the succeeding night, a contrivance which also retards the flowering till there is less danger from spring frosts. Such shelter will also be beneficial in protecting from the dry winds of spring.

Did these effects of heat, which must also in part be atributed to light, require any proof, it may be shown by two wine-glasses, the one filled with hot and another with cold water, in each of which is placed a similar hollow straw so as to discharge the water, when it will be seen that the hot water flows more rapidly than the cold.

The soil in this country, below where the frost usually penetrates, averages a temperature of 48°, or 15° above freezing, which is the reason why springs do not freeze, and not any quality in the spring water, which will freeze readily enough when taken from the well.

It is of the utmost importance to be acquainted with what is termed the *radiation*, that is, the spreading of heat, which arises from heat passing from a hot body to a colder one near it, as uniformly as water runs down a slope. This spreading of heat takes place between the surface of the ground and the air; and when the air is cold, though the soil be warm, it soon loses its heat, and dew or hoar frost is formed on the grass by the moisture diffused in the air, though previously invisible, becoming condensed or frozen. But when the sky is covered by clouds, this spreading and loss of heat is in a great measure prevented, and hence there is no dew or hoar frost formed on a calm cloudy night, as was first remarked by Aristotle.

It is on this principle, that garden plants are protected by matting, which stops the heat of the soil from spreading about and being lost in the air. Dr. Wells proved this principle by stretching a very thin cambric handkerchief two feet square, six inches above a grass plot; and he found on one night that it was five degrees warmer under the handkerchief than the rest of the grass plot; and on another night there were eight degrees of difference. Hence, great thickness does not seem to be so important in such cases, as the interposition of any screen whatever between the soil and the sky, provided always that the screen does not touch the soil or the plants to be protected. In this case it might carry off heat by conduction.

It is on the same principle that snow affords a protection from the severity of frost, the plants under snow having been found by Dr. Darwin to indicate forty degrees, that is eight degrees above freezing; hence some Alpine and Siberian plants, such as auriculas, do not bear exposure to frosts when unprotected by snow, so well as those which are natives of a warmer clime, and require artificial shelter.

It may be remarked, that hoar frost is never seen on a sloping hedge bank, on the side of an earthed-up row of celery, nor close to a garden wall, unless when the surface is already frozen, and that such places are always the first to thaw, beginning with the summit of a slope, evidently because the slope is unfavorable to the spreading of heat, while the garden wall stops it, in the same way as Dr. Wells's handkerchief did. Hence broad coping stones on walls are excellent for protecting wall trees.

Another reason for a slope or a hill being warme than a valley, is that cold air being heavier than warm air, the coldest air, always rolls down to the lowes situation; but if there be a brisk running stream in a valley it will prevent, in some measure, the stagnatio of cold air; injurious, because the greatest cold alway occurs in air having the least motion. Prof. Daniel says he has seen a difference of 30 degrees on th same night, between two thermometers, one place on an elevated situation and another in a sheltere valley. The shelter of walls may, therefore it woul appear, be so arranged as to prove injurious rathe than beneficial, by causing the air to stagnate and be come cold, as it does in sheltered valleys during th night.

The evaporation of water is so strongly productiv of cold, from the water requiring much heat to ex pand it, which it of course carries off into the air, tha in the hot climate of India, ice is, for the purposes o luxury actually procured in considerable quantity, b exposing unboiled pump water in broad shallow ear then pans placed on dry straw on calm cloudles nights, to the open sky.

It is from the rapid increase of cold by evaporatio that we account for the injury produced by waterin plants when a warm dry wind blows, or during brigh sunshine, which is popularly termed *scorching*, thoug it is not the heat that affects them, but the col caused by the water carrying off the heat as it arise in form of vapor into the air. Miller is undoubted ly wrong in supposing it to be occasioned by th sun's rays being brought to a focus, as in a burnin glass, by the small globules of water, for these glo bules, from their touching the plant, cannot brin the rays to a focus.

The injury caused by the melting of hoar-frost o frozen rain on plants arises from a similar cause, th carrying off a portion of heat from the plant in orde to render the frozen water fluid.

The amount of evaporation depends on the quan tity of moisture in the air, and the rapidity of its mo tion; or, in other words, on the velocity of the win Over the first the gardener has little or no contro but he can, by means of walls, palings, hedges, an other screens, obstruct or stop the current of th wind; or natural shelter may be found in uneve ground. Professor Daniell states that the same su face which, in a calm state of the air, would give o 100 parts of moisture, would yield 125 in a modera breeze, and 150 in a high wind. The dryness of th air in spring renders the effect most injurious to th tender shoots of this season, when it is desirable a shelter gardens from the easterly and norther winds in particular, by means of high walls plac not too far asunder.

I need scarcely allude to the extensive use whi is made of artificial heat in rearing the plants s warm climates, as well as in the various modes s forcing, for proof of its being of the first importan for every gardener to study the laws by which its d tribution is regulated, and the means by which th may be artificially economised in gardens both in the open ground and in plant houses.

INJURIOUS SUBSTANCES.

Plants are precisely similar to animals in respect to injuries caused by too much or too little food, as well as by what is of a deleterious or poisonous quality.

It is accordingly found that among the substances just mentioned as constituting the wholesome food of plants, they are injured by too much or too little water, and by too much or too little carbonic acid gas, and by too much or too little light or heat. Saussure found that when he confined plants in carbonic acid gas, they were as much injured as the consumptive patients whom Dr. Beddoes caused to breathe oxygen, which, in due quantity, is indispensable to health. Food, indeed, which is rich, concentrated, and without a due mixture of what is less rich, is injurious to both plants and animals; and, hence, plants will not thrive on distilled water largely mixed with carbonic acid gas without atmospheric air, or at least nitrogen to qualify it; any more than a man will thrive on nothing besides rich beef tea without bread or other qualifying substances: dogs have actually starved to death by feeding them on nothing but rich soup.

When, on the other hand, there is not sufficient water, every body knows that plants will wither, and when not enough is carbon, it is equally ascertained that they become pale or yellow; while a deficiency of nitrogen to cresses, cabbages, mustard, and turnips, will render them vapid and deficient in flavor.

Besides these causes of injury, there are certain substances which act even in smaller quantities as direct poisons. Arsenic, for example, will completely destroy the life of a plant, or of a seed, and M. Leuchs proved that the nine thousandth part of a grain was hurtful. Opium, likewise, will put the sensitive plant to sleep in half an hour, and laudanum will kill a kidney bean in one day. Cherry laurel water produces effects similar to arsenic. Iron, in the form of oxide, at least, when in any considerable quantity, is by no means favorable to vegetation, though iron finds its way in minute portions into most plants, and may be observed in some vegetable ashes in the form of the red oxide, or rust. It may be observed in the same form in soils of a reddish brown colour, many of which are far from barren; though they certainly do not owe their fertility to the iron, but are fertile in spite of it, owing to some other causes.

De Candolle seems to doubt iron being injurious, but the experiments of Dr. Home put this beyond question. One drachm of copperas, or sulphate of iron, in the rich mould of a garden, killed some plants of barley when an inch high; and he found most dark coloured infertile under soils, or *till*, owed their barrenness to iron. This result was confirmed by Sir H. Davy, who placed a primrose root in a solution of oxide of iron in vinegar, which soon acted as a poison and turned the leaves yellow; and he proved that the iron had entered the plant by testing the decoction with infusion of galls. Plants, as I have observed, which are grown by cottagers in old iron, or white iron pots, do not thrive, no doubt from the same cause, and it may be partly on the same account that granite soils are infertile.

Magnesia, it has also been found, is poisonous to plants; and hence, burnt lime from the limestone containing magnesia, as about Belfast, Durham, and some parts of Yorkshire, Derbyshire, Leicestershire, Shropshire and Somersetshire, when laid upon land, has been found to prove very injurious. It may be, that the small particles of the magnesia, which are insoluble in water, and do not readily attract carbonic acid gas, get into the minute suckers at the tips of the root-fibres and obstruct them, though no solid substance whatever can get into a plant; for it is found that when mixed with fat peat earth, magnesia does good rather than harm, because, in this case, it finds abundance of carbonic acid gas, by which it is converted into a carbonate of magnesia, that will partly dissolve in water by means of humic acid, and, consequently, supply plants with wholesome nutriment.

It must be evident, that besides having a due quantity of wholesome food provided for plants, this must be so placed as to be within reach of the suckers of their root fibres, since they cannot move about in search of it themselves; a subject, which, with some others may be treated of under the head of Paysics; a term now commonly used, and pretty generally understood, to comprehend explanation of facts from mechanical, as distinguished from chemical, principles.

The happiness of the human race, in this world, does not consist in our being devoid of passions, but in our learning to command them.—*Fr. Prov.*

Men of limited capacities generally condemn every thing that is above the level of their understandings. —*Rochefoucault.*

Perfect Subsoil Drainage and Deep Ploughing.

Every variety of good soil has a naturally dry, porous subsoil, being either a deep, friable, porous earth, sand, or gravel, or open rock; so that rain water will not rest on its surface, but readily pass through the stratum below.

The greatest injury which the land receives is from stagnant water on the surface, or between the soil and the subsoil.

Bad and worthless clay soil is generally that which is saturated by stagnant water.

If water be allowed to remain on good land, it will soon convert it into bad or worthless soil; a retentive subsoil has generally a soft or clayey surface, and is universally a bad and unproductive soil.

When the subsoil is retentive, the rain finds its way through the cultivated portions of the surface to the subsoil, and passes on slips between them to the furrows, keeping the cultivated portions of the soil wet and unfit for vegetation; but if the subsoil be porous, either naturally or artificially, it then goes directly through the subsoil or porous passage to the drains that are formed to draw off the redundant water.

It is the constant practice of the most scientific gardeners, when about to pot any plants, to put some broken tiles or gravel in the bottom of the pots to drain off the superfluous moisture from the plants to the hole in the bottom of the flower pots; and when they use a strongish or clay soil, instead of passing the soil through a sieve as formerly was the custom, they now chop it into small pieces, and thus give to strongish clay soils an artificial porousness which they naturally do not possess.

On examining the roots of plants growing in pots with soil thus prepared, we find the crevices between the broken pieces of earth full of roots, because they have not only a more easy passage where the soil is friable, in consequence of the lumps keeping the earth loose and porous between them, but here the drainage is most rapid and complete.

Land is not perfectly drained which, during the wettest weather, has any spots on it which the water rests upon, and gets stagnant for a short period; the rain should have a free course to sink down through the subsoil below the roots of plants, and then run off by the furrow-drains to the open ditches.

Complete subsoil drainage of the retentive soils can only be effected by having a drain in every furrow, or about one or at most two perches apart; and then by subsoil ploughing across the drains, and making an artificial porous stratum under the cultivated surface to within an inch or two of the stones in the drains, that the rain-water may fall through the surface and run in the subsoil to the drains. The effect produced on the crops of close retentive soils, after they have been perfectly drained and subsoil ploughed, is most astonishing.

The produce is so much increased that it will, in many instances, pay the expenses in a year or two; and wet soils, which seemed to be strong clay when wet, become friable and even light when completely subsoil-drained, are easily cultivated, and light enough for producing turnips to be fed off with sheep.

Perfect drainage and deep ploughing is the true principle of giving to the soil an increased fertility; by this means the plants are enabled readily to push their roots farther and deeper in search of food, which they obtain of a more healthy kind, than when the soil is imperfectly drained and ploughed shallow. All tenacious clay soils should be trenched or subsoil-ploughed once in every course of crops; or when they are in fallow; this practice not only gives to the roots of plants a greater scope to go in search of food in dry weather, but also furnishes a depth of porous substratum under the soil to draw off the superabundant moisture during continual wet weather, and transmits moisture to the roots of plants in continual drought.

The utility of trenching or subsoil-ploughing these soils, particularly such as have retentive subsoils, must be evident, for, if the toil on such a subsoil be well pulverized merely to the depth of the furrow slice, in continued wet weather it soon gets into a state unfit for vegetation; the water becomes stagnant, and all the soluble matter in the soil is either washed out, or locked up in the soil from being so thoroughly soaked as to exclude the air; and when it again becomes dry, it is as hard and solid a mass as bricks ready for the kiln.

In either of these states it is impossible for any plants to vegetate, the soil being at one time as soft and smooth as well tempered mortar, and at another almost as dry and hard as a stone.

But when the soil is artificially deepened by deep ploughing, and the subsoil is also made porous to much greater depth by the subsoil-plough, the rain gradually sinks down to the whole depth of the porous substratum, and from thence to the furrow drains; and in time of great drought, the deep moved ground will hold, by capillary attraction, a much greater supply of moisture for the nourishment of plants, thus draining off the abundant water during the heavy rains, and supplying the means for healthy vegetation at all times.

Complete or perfect drainage is the foundation of all improvements in husbandry; it should therefore be the first step which we take in attempting to improve or ameliorate the soil.

Land wet from springs should be drained by deep drains, so as to tap the porous stratum which contains the water at the lowest level if possible. But much the greatest part of what is called wet land, is so from its retentive subsoil, and the retentive adhesive nature of the soil, which so obstinately retains the rain that falls on it; so that the drying process is effected very slowly when compared with soil whose subsoil is either naturally or artificially porous. The working of such land is kept back, and is frequently not effected in proper time. Nature furnishes us with the principles which should direct all our operations in permanently improving soil or in cultivating it.

As we have seen that the richest and most productive soil has always a subsoil pervious to water, which carries it off as it falls by imbibing it or filtering it to a considerable depth below the active soil; so we ought artificially to make as complete a drainage of subsoils to produce the same effect by having drains from one to two perches apart to effect this, and by deep or subsoil ploughing across these drains to draw of the water to them which falls on the surface, so that the whole of the active soil may be always kept so dry as to be fit for the purposes of vegetation.

These drains must be sufficiently near each other to allow the redundant moisture to be speedily and effectually carried off by the artificial passage made at the bottom of the moved subsoil.

The distance of these drains must be regulated by the nature of the subsoil; if this be very close and impervious they should be only about one perch, but if it be to a certain degree pervious, they might be two perches apart.

Before we attempt perfectly to drain any land, we must first understand the principles of the system thoroughly, or we may only adopt certain general rules, without considering that the various kinds of subsoil will require particular modes to effect our object.

Mr. Smith of Deaneston first gave publicity to the mode of perfect drainage, and subsoil ploughing; he says, "The principle of the system is *the providing of frequent opportunities for the water rising from below, or falling on the surface, to pass freely and completely off*, and therefore the most appropriate appellation for it, seems to be, '*The frequent drain system.*'"—*Morton on Soils.*

Magnesian Lime Stone.—Almost every writer upon the use of lime in agriculture, has adopted the opinion of Tennant, that magnesian lime stone was hurtful to land; and although the practice in Pennsylvania had disproved the fact, the lime there used in agriculture abounding in magnesia, yet our own writers continue to persist in the error. "It is now asserted," says Parkes, "that lime and magnesia are both hurtful when employed in improper situations, or in excessive quantity, but that magnesia in itself is not essentially injurious."

Preserving meat without salt.—It is the practice in Thibet to prepare their meat by extreme cold.—The process is extremely simple. They kill, clean and strip the animal of his skin; he is then placed upon his legs in a commodious place, and left exposed to a free access of frosty air, until all the juices in his body are completely dried up, and the whole becomes one uniformed stiffened substance. It is then in a fit state for carriage to any part of Thibet, and for keeping to any season of the year. No salt is used in the preparation. I had supplies of this prepared meat during all the time I remained at Geshoo Soomboo, which had been cured in the preceding winter. It was perfectly sweet, and I was accustomed to eat heartily of it, *without further dressing*, and at length grew fond of it. It had not the appearance of being raw, but resembled in colour that which has been well boiled. It had been deprived of all ruddiness, by the intense cold.—*Turner's Embassy to Thibet.*

The salt mine of Wilitska, near Cracow, in Poland, is the largest in Europe, and has been constantly worked for more than 600 years. It is at the immense depth of 740 feet below the surface of the ground on which the town stands; and it is 1,100 feet wide, and 6,700 feet in length. The mine exhibits a spacious subterraneous plain, with lofty vaulted roofs, supported by columns of salt, which have been left standing for the purpose. Here a great number of lights are constantly burning, and the blaze of these reflected from every part of the mine, which appears bright and clear as crystal, or tinged with the most beautiful colours, presents a most enchanting prospect. In these mines 1,000 men are constantly employed. The passages contain altars and chapels, in which lights are continually kept burning before the images of the saints, and some of these galleries are capacious enough for a large church to be enclosed in one of them. That part of the mine which has been most excavated, and which appears like a vast plain, is interspersed with clusters of huts belonging to the miners and their families, many hundreds of whom are born and finish their lives in this subterraneous enclosure.

Near Cordova in Spain there is a mountain of rock salt 500 feet high, and three miles in circumference. —*Park's Chem. Essays.*

He who is ambitious to be rich, wishes his desire to be accomplished as soon as possible.—*Juvenal.* Avarice produces rapacity.

Young Men's Department.

Chemical Catechism—Chapter V.

OF EARTHS.

What are the principal characters of the earths?

The earths are incombustible bodies, and in general are unalterable in the fire. Till lately, they were thought to be unsusceptible of decomposition; they are insoluble in water, or nearly so, when combined with carbonic acid, and are of a specific gravity never exceeding five times that of water.

How many earths are there?

There are nine distinct earths known at present, viz. silica, alumina, zirconia, glucina, yttria, barytes, strontites, lime and magnesia.* The four I have enumerated last, are generally called alkaline earths.

Why are some of these earths called alkaline earths?

Barytes, strontites and lime, are called alkaline, because they agree with the alkalies in taste, causticity, solubility in water, and in their effect upon vegetable colors;† magnesia agrees with the alkalies in the latter property only.

What is the nature of silica, and what are its chief properties?

Silica, or pure flint, is a white, inodorous, and insipid earth; it is insoluble in water, and in every acid except the fluoric; it endures the strongest heat without alteration; but, when mixed with soda, or potash, becomes fusible in a strong fire into glass. Its specific gravity is 2.65.

In what state is silica found native?

Silica is found in almost all mineral substances, particularly in gravel, sand, quartz and flint, of which it forms nearly the whole substance.‡ It is also the chief ingredient of those rocks which constitute the most bulky materials of the solid parts of our globe.§

What are the chief uses of silica?

Silica is the the most durable article, in the state of gravel for the formation of roads; it is a necessary ingredient in earthen ware, porcelain and cements; is the basis of glass, and of all vitrious substances; and is an indispensable article in many of our chemical furnaces and utensils.

What is the use of silica in glass making?

Silica is the chief ingredient in glass. It is rendered fusible by a due mixture of alkali, which acts as a flux to the silica, and renders the whole transparent.

Are these the only articles necessary to form glass?

In Holland, and some other parts of Europe, glass is manufactured with sand and alkali only; but in England, [and in the United States,] flint glass is made by a mixture of red lead with those substances; which gives the glass great weight, and makes it more useful for all common purposes.||

What are the chief properties of alumina?

Alumina, or pure clay, is soft to the touch; adhesive to the tongue; emits a peculiar odor when moistened; forms a paste with water; has great affinity for coloring matter; will unite with most acids; and acquires great hardness, and contracts in the fire.* Like silica, it is soluble in caustic potash, or soda. Its specific gravity is 2.00.

In what state is alumina found native?

Alumina is distributed over the face of the earth in the form of clay, and from this circumstance, acquired the name of *argil;* it is found also in a state of crystalization in the sapphire, and other precious stones, and is united to the oxide of iron in the ochres. It obtained the name of alumina from being the base of salts called alum.

What are the chief uses to which alumina has been applied?

Alumina, on account of its aptitude for moulding into different forms, and its property of hardening in the fire, is employed in various ways, such as for making bricks, earthen ware, porcelain,† crucibles, &c. but the alumina which is made use of for these purposes, is always impure, as it is employed in the state of clay, and often as it is taken from the bowels of the earth, without any previous preparation whatsoever.

Is alumina employed in forming any direct chemical combinations?

Aluminous earth is employed for various purposes by the dyer and calico printer, especially in its combination with acetic acid, as a mordant for fixing madder reds, and some other colors, on calico; and upon the continent, it is artificially combined with sulphuric acid, in order to form alum; but we possess the compound, or alum slate, ready formed, in abundance.

Why do potters employ a mixture of alumina and silica for earthen ware?

In making earthen ware, a due proportion of both these earths are necessary; for, if alumina alone were used, the ware would not be sufficiently burnt without shrinking too much, and even cracking; and a great excess of silica would weaken the tenacity, and render the ware brittle.

What is the nature of that very hard species of pottery, called stone-ware?

Stone-ware, like other pottery, is chiefly composed of alumina and silica; but a certain quantity of old pottery, finely ground, is generally introduced into its composition. The difference, however, between this and common earthen ware, chiefly consists in the burning and glazing; stone-ware being always submitted to a much higher degree of heat, and in its being glazed with muriate of soda, (common salt,) instead of the oxide of lead. On account of the superior strength of stone-ware, its very compact texture, and the wholesome nature of its glaze, it is greatly to be wished that its use be considerably extended, and that every article for culinary purposes were to be manufactured from it.

What constitutes the difference between earthen ware and porcelain?

Porcelain is not esteemed good, unless it be very compact, quite white and semi-transparent;‡ indeed, it is chiefly the last quality that constitutes the principal difference, for *earthen* ware is always opaque.

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* To a cursory observer, the earth appears indefinitely diversified; so much so, that he would probably think the different kinds innumerable. However, notwithstanding the varied appearance of the earth under our feet, of that of the furrows of the field, and of the mountainous parts of the world, whose diversified strata present to our view substances of every texture and of every shade, the whole is composed of only nine primitive earths; and as three of these occur but seldom, the *variety* which is produced by the other *six*, becomes the more remarkable. This may fairly be adduced as one instance of the infinite skill of the Deity, as it "bespeaks an artist, master of his work, acquainted with his materials."

To give a still greater variety to the works of nature, these earths are endowed with an affinity for acids and metallic oxides, whence arise the spars and gems, and precious stones, of every color and every species.

"Th' unfruitful rock itself, impregnated by Thee,
In dark retirement forms the lucid stone."

† Barytes, strontites, lime and magnesia, are found in nature always combined with acids. None of the combinations are very hard, as either of them may be scratched with a knife. The acids which are found by nature united with these alkaline earths, are generally the carbonic, (as in lime,) sulphuric, (as in gypsum,) the fluoric, (as in Derbyshire spar,) the boracic and the phosphoric.

‡ In 1760, the Emperor of Germany caused, by permission of the Grand Turk, one of the timbers which supported Trajan's bridge over the Danube, below Belgrade, to be taken up and examined. The outer part of this bridge, to the depth of half an inch, was found to be converted to an *agate;* the inner parts were slightly petrified, and the central were still wood. The agate is a mineral, composed of silica and alumina, but chiefly silica. These timbers had been buried in the waters of the Danube nearly 2,000 years.

§ A granite mountain, about thirty miles from the Cape of Good Hope, called the Pearl Diamond, rises out of the ground, to the height of four hundred feet, being half a mile in circumference, and formed of a single block of granite. Silica also constitutes two-thirds of the asbestos, so valued by the ancients for wrapping up the dead before they were committed to the funeral pile. They discovered the method of drawing the fibres of the mineral into thread, and afterwards weaving it into cloth. In consequence of its incombustibility, it preserved the ashes of the body from mixing with those of the wood, upon which it was laid to be burnt. [Samples of paper, indestructable by fire, were presented to the Conductor, some thirty years ago, by Mr. Benjamin, who then owned and managed a paper mill at Catskill.]

|| The common bottle glass is made with a large portion of the ashes of vegetables, or soap-boiler's waste ashes, instead of pure alkali. The portion of iron, which is generally found in vegetable substances, gives it the green colour

* Common clay is a mixture of alumina and silica. Fuller's earth is alumina combined with very fine silica. It is owing to the affinity which alumina has for greasy substances, that this article is so useful in scouring cloth. Hence pipe-clay is frequently used for the same purpose.

† The beautiful colors which are seen upon porcelain and earthen ware, are given by metallic oxides. Purple is given by gold; red by the oxide of iron; yellow by the oxide of silver; green by copper; blue by cobalt; and violet by manganese.

‡ Porcelain is an artificial compound of great durability. There is an octagon tower at Nankin, in China, called the porcelain tower, which is entirely covered with the most beautiful china. It is a building of nine stories, nearly 300 feet high, and each story decreases in breadth as it rises in height. It retains its beauty, though exposed to the action of the sun and weather for more than 400 years.

He that would govern his actions by the laws of virtue, must regulate his thoughts by those of reason; he must keep guilt from the recesses of his heart, and remember that the pleasures of fancy, and the emotions of desire, are more dangerous as they are more hidden, since they escape the awe of observation, and operate equally in every situation, without the concurrence of external opportunities.—*S. Johnson.*

Nature is said to be a *mother* to some people, and a *step-dame* to others; but the real truth is, that providence is kind to all alike, and it is industry only that makes a difference between nations and individuals; for those who contemplate her gifts, and study how to make use of them, very rarely fail of finding their pains rewarded, even beyond their expections.—*Dr. Campbell.*

Choice Scraps.

To have become possessed of riches, is, to many, not the end of their miseries, but merely a change in them; the fault is not, however, in the riches, but in the mind.—*Seneca.*

There are many men who appear struggling against adversity, and yet are happy; but yet more, who, although abounding in wealth, are miserable.—*Tacitus.*

I consider that man to be undone who is insensible to shame.—*Plaut.*

Such is the affinity for water, in some earths and alkalies, that pure allumine (clay) will retain a tenth of its weight of that fluid, according to Saussure, even though it be submitted to a heat that will fuse iron. And potash, according to Darcet, submitted to a red heat, retains 13 per cent of water, and soda nearly 19 per cent.

For lineage, ancestry, and all other things which we have not ourselves acquired, can scarcely be called our own.—*Ovid.* Every man should feel more pride in acquisitions obtained by his *own* merit, than in honorary distinctions earned by his ancestors.

Nature has placed the means of happiness within every man's reach, if we did but make a proper use of her gifts.—*Claud.* It is from our abuse of those things which Providence has bestowed as blessings, that most of the calamities arise which affect mankind.

Avarice, (as also ambition and other evil passions,) when it has once passed the proper limits, knows no bounds.—*Seneca.* New gratifications only excite new desires.

Nothing flies so swiftly as calumny—nothing is so easily propagated—nothing is more readily received—nothing is more widely disseminated.—*Cicero.*

"On eagle's wings immortal scandals fly."

It is not that which is commonly considered as a woman's decory, that I estimate as such, but her chastity, modesty and controlable passions.—*Plaut.*

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ARTICLES.		New-York. Sept. 24.	Boston. Sept. 19.	Philadelphia. Sept. 22.	Baltimore. Sept. 18.
Beans, white,	per bush.	1 25.. 1 30	1 25.. 1 50	1 00.. 1 12	1 00.. 1 25
Beef,	cwt..	7 50.. 7 75	6 50.. 7 37	7 00.. 9 00	7 00.. 8 59
Bacon, western,	lb....	10..	16.. 17	8 00..10 00	15.. 16
Butter, fresh,	lb....	18.. 26	18.. 27	25.. 28	31.. 33
Cheese,	lb....	7.. 9	6.. 10	6.. 10	9.. 10
Cotton, best,	lb....	9.. 14	9.. 13	11.. 13	9.. 12
Flour, best,	bbl..	9 50.. 9 75	5 50.. 8 75	8 50.. 9 00	7 25.. 7 50
GRAIN—Wheat,	bush.	1 90.. 2 00	....	1 75.. 1 90	.. 2 00
Rye,	bush.	1 12..	75.. 80	1 05..	65.. 66
Oats,	bush.	37.. 47	42.. 45	35.. 40	.. 25
Corn,	bush.	1 05..	94.. 1 10	95.. 1 00	.. 1 00
Hams, pork,	lb....	12.. 14	16.. 17	10.. 12	14.. 15
Pork, in hog,	cwt..	....	10 00..11 50	....	.. 7 25
SEEDS—Red Clover,	bush.	12 00..13 00	12 50..13 00	10.. 11	11 00..
Timothy,	bush.	2 50.. 2 85	2 63.. 2 75	2 ..3 25	2 25.. 2 50
WOOL—Saxony, fleece,	lb....	45.. 50	50.. 53	48.. 50	50.. 55
Merino,	lb....	37 . 38	45.. 48	45.. 50	45.. 50
1-4 and com.	lb....	32.. 36	35.. 37	33.. 38	35.. 40
Sheep,	head,	....	1 50.. 2 88	....	....
Cows and Calves,		30 00..45 00	25 00..37 00	20 00..38 00	30 00..40 00

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

We invite the reader's attention to our article headed *Common School Libraries*, as affording an outline of *one* of the particular objects of the society, and as exhibiting the terms of membership; and we invite our brethren of the press, to commend this matter to the notice of their readers, as one fraught with incalculable benefits to our common country.

Morus Multicaulis Speculation.

If our produce in silk is likely to increase in any thing like the increased demand for this species of the mulberry, and its rapid multiplication, we shall be able, in a few years, to clothe our entire female population in silken fabrics, and to export largely in the bargain. But the demand seems to originate from a hope of making money by speculating in the *buds*, or *trees*, rather than in the *silk* which they are to produce. Individuals have for some time been traversing the several states, from Canada to Florida, buying up these trees, and the prices have kept advancing till they have reached an extravagance beyond reason, and almost beyond credibility. The Farmers' Register informs us, that Thomas Hicks, of Virginia, laid out $345, in 1836 and 1837, for trees of the multicaulis, and that he has recently sold from their product, 20,000 trees, at 25 cents each, retaining 10,000 for his own use—thus realizing a profit of nearly $7,500 upon the outlay. In ten days, the seller might have received $1000 more for those disposed of. This was in September. In October, the fever of speculation had reached, if not its climax, at least a dangerous height to buyers: for the U. S. Gazette informs us, that at a great auction sale of these trees, at Baltimore, on the 4th inst. 120,000 of them were sold, "at prices varying from 20 to 22 cents per foot, measuring to the utmost extremity, and counting the roots also. This amounts to $1.21 for each tree of five feet high." At a sale at Germantown the prices exceeded 20 cents per foot. At Burlington, N. J. a sale of 2430 was made by Mr. Greenmere, for $2500, and another of 1000 selected trees for $2000, being two dollars each. If this is not a "*Robin's alive*" business, in which some one will get sorely "*saddle-backed*," we are greatly mistaken.

There is no tree more rapidly multiplied, probably, than the morus multicaulis. Every uninjured bud will produce a plant in a summer. The practice is, among proficients in the art of propagating, to take off every branch and the top, or to take up the entire young plants, in the autumn—to bury them in the ground, or put them in a cellar during winter, and to plant them in the spring, either in cuttings of one or two eyes, or by covering the branch or young plant, laid horizontally in a furrow, with an inch or two of earth. Almost every bud will grow from two to four feet the first season, and ultimately become a tree. This will explain to the reader, why select trees, abounding in branches and buds, sold for two dollars at Burlington. They were cheap, *if* the prices can be kept up another year.

In regard to the culture of this mulberry in our latitude, we have only to repeat the opinion we have often expressed, that the *tree* will not stand our winters, except, perhaps, upon a poor dry soil, when the growth ceases, and the wood hardens, before the occurrence of severe frosts. Indeed this is now virtually conceded by the growers; for we believe it is the general practice to secure seedlings in the cellar, or to bury them in the ground, and to cut down the trees, cover the stumps, and secure the tops and branches for propagation. Cutting down at autumn is recommended as the best mode of increasing the foliage, and as facilitating the gathering of the leaves—as many sprouts spring from the stump in the spring, and the leaves of which may be gathered without climbing.

That the silk business will ultimately prosper among us, we have no doubt; but that the multicaulis is to supersede all other species of the mulberry, or that it possesses very remarkable properties not common to the family, we must be permitted to entertain doubts. Gen. Tallmadge, who visited the silk establishments of Italy, and was minute in his inquiries, tells us that the European black mulberry had a preference there. In France the white mulberry, it is alleged, produces the best silk. We have seen beautiful fabrics from our native red species. While those who have seen, at Constantinople, the silks produced from the Brussa, affirm that they exceed all others for lusture and value. Men are prone to recommend that which they wish to sell. In our mind, it matters little what species of mulberry we cultivate, provided it is hardy enough for the climate. If any kind is well managed *by household industry*, they will, in our opinion, become a certain source of profit to the owner.

Experiment in Harvesting Corn.

In our last November No. we gave the result of an experiment in harvesting corn, going to show, that it is better to cut it up than to top it. We now give the result of another experiment of the same kind.

In the first week of September, we went with two neighbors into our cornfield, where our men were cutting up corn, and caused 36 hills to be cut up, where we found them at work, which was of the fair average quality of the field, and stooked separately; adjoining which 36 hills were topped, in the usual way; and a third parcel of 36 hills, immediately adjoining the last, was left to ripen upon the entire stock. On the 23d September we proceeded to pick, husk and weigh the corn on the several parcels. The result was as follows:

No. 1, cut up,	had 126 ears,	which weighed	56½ lbs.
No. 2, topped,	“ 127	“	52 lbs. 2 oz.
No. 3, standing,	“ 125	“	52 lbs. 10 oz.

We found on trial, the same evening, that it required 78 lbs. of ears to give a bushel of shelled corn. The field was planted at exactly three feet between the rows, and at about two feet four inches in the rows; but assuming that the distance was three by two and a half feet, it would give to the acre 5,808 hills—and there probably was not 20 hills deficient in five acres. Upon these data the product on an acre, under the different modes of harvesting, would be as follows, omitting fractions:

No. 1	would give	9,274 lbs.	or	119 bushels.
No. 2	“	8,409½	“	108 “
No. 3	“	8,490	“	109 “

Although the parcels selected were supposed to be similar, it was perceived, after the corn was gathered, that an apple tree, giving a shade 6 to 7 feet broad, stood in No. 3—the whole field being a young orchard—which undoubtedly had an influence in lessening the product of that parcel—as it might reasonably have been expected to have exceeded that of No. 1.

In regard to the condition of the grain, of the different parcels, that of No. 1, which had been cut up and stooked, was unquestionably best: it was dry, sound and bright; while much of Nos. 2 and 3, which had been topped, or left standing entire, had fallen upon the ground, was wet or mouldy, and some of it had actually grown. The difference in the fodder was still more palpably in favor of No. 1—it evidently exceeding in value either of the other parcels more than one half.

Our neighbors, C. N. Bement and Sidney Chapin, were present, and assisted, in the cutting up, topping, picking, husking, weighing and examining, the several parcels, and have authorized us to say that they fully concur in the preceding statement.

In our experiment of last year, the loss in topping, over cutting up, was found to be about six bushels; in the above detailed experiment it appears to be eleven bushels on the acre. It will also be observed, on referring to our former experiment, that the number of ears, and the product, is less this than it was last year. This has been caused by the drought. None of the succors produced ears this year, though many produced them last year.

This experiment confirms us in the opinion we have long entertained, that there is a prodigious waste, both in corn and forage, and we insist in labor also, in the still common practice of topping corn. And we again beg, that those who remain incredulous in the matter, will make the experiment, as we have repeatedly done, and satisfy themselves. Say there are 300,000 acres of corn cultivated in this state, and that the loss by topping is only five bushels to the acre, the aggregate loss would amount to 1,500,000 bushels, equal at least in value to one million of dollars annually, to say nothing of the loss in labor and forage.

The *cause* of the topped corn having produced less than that which was cut up, although often stated, is here repeated: the topped corn was deprived of its elaborating organs—its lungs—the leaves above the grain, and of course received no farther accession of growth, or but very little; while the corn cut up retained these organs, which continued to send down nourishment to the grain for some days through its green succulent stocks. Any farmer may satisfy himself readily that leaves are indispensable to growth, by a simple and easy experiment:—let him pluck all the leaves from a fruit-bearing branch of the apple, plum, or other fruit tree, at any stage of growth of the fruit—and he will find that the fruit on such limb will neither grow nor mature its flavor where there are no leaves—though it may change its colour.

Rohan Potato.

A few tubers of this potato were introduced from France, in 1836. We have cultivated them two seasons, and feel justified in recommending them as a valuable acquisition in our husbandry—

First, because their quality, for the table, will justify it. If not superior, they are good. The flesh is yellow, solid, and of good flavor.

Secondly—because they admit of a great economy in seed—two eyes sufficing (and many of the tubers have thirty to forty eyes,) to plant a hill, and three or four bushels to plant an acre of ground.

Thirdly—because they require comparatively little labor in harvesting—a man being able to dig thrice as many of them in a day as of ordinary kinds. The tubers are very large, one hundred and ten, of the largest of our crop, completely filling a flour barrel. Twenty-seven bushels were dug in our presence in one hour, the tops being pulled, by one man, at moderate labor.

Fourthly—because they yield an abundant crop. From 85 rods of ground we gathered 175 bushels, while our common cultivated kinds did not give us half a crop. One case has been stated to us, of a single potato producing a bushel, and another of its having produced a barrel, at harvest.

This potato sends out laterals from the main stem, which grow to great length; and the roots which feed it, strike deep, are numerous and strong. Hence the ground in which they are to be planted, should be ploughed deep, and the hills should be placed widely apart, that the soil may acquire solar heat. We ought further to remark, that they should be planted early in our climate, as early as the ground is sufficiently warmed for their reception, as they seem to require the whole season to grow their large tubers and mature the crop.

The principal growers of this potato, we believe, are J. A. Thompson, Esq. of Catskill, who was one of the first to introduce them into our country, and C. N. Bement. It may supersede inquiry to state also, that the price at which the growers hold them, is $9 the barrel, or $3 the bushel. Our crop has been disposed of. They are sold by the Messrs. Thorburns, at Albany and New-York.

The product of this potato, with Mr. Harger, (see correspondence) was 144 lbs. for 13 ounces of seed planted; and we are informed by a gentleman from New-Haven, that some of his tubers were sold at the horticultural fair in that city at one dollar each!

Agricultural Societies.

A new agricultural society has been recently formed in the north part of Otsego, which held its first exhibition at Cherry Valley, on the 17th inst. An address was delivered on the occasion by Mr. Senator Beardsley. The exhibition of farm stock, we understand, was uncommonly fine, and embraced choice animals of the improved breeds of neat cattle, sheep and swine, which occupied seventy pens, besides many bulls, and other animals that were tied to posts, &c. Otsego is destined to be one of our best districts for cattle and sheep husbandry; and perhaps no county can even now boast of more fine animals, than have been imported, collected and raised by her enterprising breeders. A society already existed at Butternuts and its vicintity.

The *Fulton County Agricultural Society* was organized, at Johnstown, on the 18th October. This county is also well adapted to cattle and sheep husbandry, and some fine animals have been already introduced there. The dairy business is particularly engaging the attention of the western towns. Great quantities of butter and cheese are annually produced; the business is extending, and makes liberal returns to those engaged in it. The southern border of this county, particularly the district about Johnstown, has long been celebrated for its fertility. It is well calculated for alternate and mixed husbandry. The new society, if conducted upon liberal and wise principles, with a view to enlighten, stimulate and benefit all, will not fail to produce highly beneficial effects.—The products, in the glove and mitten business, are stated to amount in value to a quarter million dollars annually, in that county.

The *English Agricultural Society*—a national institution—was organized in London in June, under Earl Spencer as president, twelve trustees and eleven vice-presidents, all belonging to the nobility or to parliament. We mention this latter circumstance merely to show, that the first men in the British empire are the ardent active advocates of agricultural improvement; and are devoting their time and means to its advancement;—and in the hope, too, that their example may have a benign influence upon the great men of our country, in inducing them to become active and liberal promoters of improvement in this great branch of national industry, and primary source of national wealth. They may be assured that they can hardly render, in any other way, a more enduring service to their country, or to its civil institutions.

Among the avowed objects of this society, are the following, which we copy for the particular information of our statesmen, and for the benefit of our readers generally, as indicating some of the prominent means of improvement. These objects are,

"1. To embody such information contained in agricultural publications, and in other scientific works, as has been proved by practical experience to be useful to the cultivators of the soil.

"2. To correspond with agricultural, horticultural, and other scientific societies, at home and abroad, and to select from such correspondence, all information which, according to the opinion of the society, is likely to lead to practical benefit in the cultivation of the soil.

"3. To repay any occupier of land, or other person who shall undertake, at the request of the society, to try any experiment how far such information leads to useful results in practice, any loss that he may incur by so doing.

"4. To encourage men of science in the improvement of agricultural implements, the construction of farm buildings and cottages, the application of chemistry to the general purposes of agriculture, the destruction of insects injurious to vegetable life, and the eradication of weeds.

"5. To promote the discovery of new varieties of grain, and other vegetables useful to man, or for the food of domestic animals.

"6. To collect information with regard to the management of woods, plantations and fences, and on every other subject connected with rural improvement.

"7. *To take measures to improve the education of those who depend upon the cultivation of the soil for their support.**

"8. To take measures for improving the veterinary art, as applied to cattle, sheep and pigs.

"9. By the distribution of prizes, and by other means, to encourage the best mode of farm cultivation, and the breeds of live stock."

Among the rules of the society, it is declared to be a fundamental one, that no questions of a political tendency shall be discussed at its meetings.

Among the prizes for essays, is one of 50 sovereigns=to $220 "for the best account of the improvements which have taken place in the agriculture of Scotland since the formation of the Highland Society."

Premiums of ten and twenty sovereigns are also offered for the best essays, verified by practice, upon the following subjects:

"1. Best mode of keeping roots;
2. Subsoil or trench ploughing;
3. Transposition and admixture of soils;
4. Insects prejudicial to plants;
5. The black caterpillar which destroys turnips;
6. Application of mechanical power;
7. Two horse ploughs;
8. Spring food—corn—grasses—vetches;
9. Rotation of crops;
10. Best mode of analyzing soils;
11. Irrigation;
12. Plantations;
13. Underwood;
14. Varieties of grain:
15 Economical keep of farm horses;
16. Improved rural economy abroad;
17. Stall feeding on the continent;
18. On the diseases of plants."

This society embraces 186 governors, that is, subscribers who pay £5, equal to $22.20, annually.

All of these matters, it will be readily seen, have a strong bearing upon improvement in agriculture,—they aim at substantial and permanent improvement—and will afford useful suggestions, to our agricultural societies, in the bestowment of their awards.

Agricultural Chemistry.

The importance of this science to profitable farming, becomes particularly apparent, where mineral, bone and other manures are employed. At the organization of the English Agricultural Society, in June, this matter was particularly alluded to by J. Bennet, Esq. M. P. "It was well known," he said, "that on some lands lime was useful, whilst on others it was detrimental; bones were advantageously employed on one class of lands, and were hurtful on others; and other chemical manures which were applied on some soils were injurious to others. The adaptation of manures to soils [and to crops] was very important, and could not be better illustrated than by the plan proposed [indicating, by different colours, upon geological maps, the different compositions of soil.] He hoped the society would be in possession of a chemical apparatus, with an able chemist that might be able to analyze the soils which might be sent them, and point out these adaptations. Artificial manures were becoming of more importance, and he doubted not they would continue more to flourish and be adopted. There was a necessity that every science connected with agriculture should be more fully developed, and this development would be effectually accomplished through the medium of the society."

We have vast resources of fertility in our lime, gypsum, ashes, peat earth, poudrette, bones, salt, &c. but the great difficulty is, we do not know where to apply them, from not possessing a chemical knowledge of our soils; and the frequent failures which happen from misapplication, prevent their being applied in a thousand cases where they would produce the best effects. What wonders have been wrought, in the woollen and cotton business, in a few years, by the aids of chemical science! And is there not a strong probability that as great benefits may yet result to agriculture from this wonder-working science?

Let us not be misapprehended: we mean chemistry in the *field*—not in the *closet*—practically tested and illustrated on the *farm*, by its teachers—and not alone in the *laboratory*. The one is mere theory—the other theory confirmed and rendered certain by practice. In the manufacturing arts, it is the chemist himself who applies the science to the art—who teaches the *application*, as well as the *principles* of science—the *hands* as well as the *head* of the pupil. And it must be so, we apprehend, in agriculture, before we can expect to derive great benefits from its aid. It is to *schools* which combine the science and practice, where the principles can be demonstrated and taught in the field, and by men specially devoted to the improvement of our husbandry, that we must look for the important aids which chemistry is capable, and we believe destined, to give to the parent art.

The philosopher may build up theories, and establish principles, which he may deem beneficial to husbandry,—and others may implicitly adopt his opinions—and neither of them may ever test them upon the broad theatre where they are intended to operate—and yet, on trial they may prove illusory and unsound. The theory of Tennant, that magnesian lime is prejudicial in agriculture, is a notable instance of error being thus perpetuated. His opinion has been implicitly adopted by most of the subsequent writers upon this subject; and, if it has not done much mischief, it has certainly prevented much good. The limestones of Pennslyvania abound in magnesia, and yet they have been found highly beneficial to her agriculture. And we have before us, in the Farmers' Magazine, a palpable disproof of the correctness of Tennant's hypothesis. The writer of the article alluded to has been in the constant use of the very magnesian lime, in Leicestershire, which Tennant had pronounced hurtful to agriculture, and has applied it, in some cases, to the extent of 400 bushels to the acre, and with encouraging success. The prejudice excited against this lime by the chemist, had prevented the farmers, at whose doors it lay, from using it; and they had been in the habit of obtaining their lime from a distance at considerable expense, till Tennant's theory became exploded by the demonstrative practice of the writer. We repeat, that we fear agriculture will not profit, as it may and ought to do, from chemical science, until it is coupled, in schools of instruction, with the practical application of its principles to the soil.

Agricultural Improvement.

The best way to show what *can* be done, is to show what *has* been done—and the strongest incentives to improvement are the comforts and enjoyments which they confer. Individual illustrations, both of improvements in husbandry, and of the blessings they bring in their train, are to be found in almost every district, but the lesson becomes more useful and impressive when we can extend it to a district of country. A case of this kind is recorded in the Farmers' Magazine for August. It is a contrast of the rural condition of Ayrshire, a district of Scotland, in 1793 and in 1838. At the former period, its husbandry was in the most wretched state, as bad as our worst managed districts—now it is one of the best managed and most productive in Great Britain. All this change has been effected in less than fifty years. We copy it in the hope that its perusal will do good, by stimulating our readers in the work of improvement.

"Col. Fullarton drew, in 1793, a most deplorable picture of the wretchedness, ignorance and apathy in which the farmers were sunk, up to the middle of the last century. The land was neither cleaned nor drained. Four horses were now and then yoked to the clumsy old fashioned plough, and frequently three horses with drivers. When the plough was drawn with a pair of horses, it always required two men to manage it—one man to hold the plough, the other to drive the horses. But what a contrast does the present state of this country afford to the miserable condition of farming in Ayreshire, during the last century? Fields, in many places, completely tile drained, and subsoil ploughed,—in others, similar improvements going forward—large tile-kilns erected upon nearly every estate, to promote drainage and productiveness of agriculture—good fences, chiefly of quick-set thorns—ploughs of the best construction, drawn by active, well bred, and fed horses, and guided by skilful ploughmen—agricultural societies to collect together those engaged in farming pursuits—to reward merit—to diffuse useful knowledge, on all matters connected with rural economy: and, above all, an intelligent local press, to glean from all quarters, for circulation, what is worthy the attention of the farmer to know, how to improve the management of his farm—comfortable neat farm buildings, and other conveniences—the finest breed of dairy cows in their island. These particulars—these important alterations and improvement,—mark out Ayrshire in 1838, as mightily advanced in the high scale of agriculture, since Col. Fullarton described it in 1793."

The Robinson Fund.

The Editor of the Franklin Farmer, B. Stevens, offers one hundred dollars,—and the publisher of the same paper, Fred. Pettit, one hundred dollars, to the *Robinson Fund*, to be awarded as premiums to the writers of the best agricultural school books. See Mr. Robinson's propositions in our October number. So the fund now consists of eight lots of land, whose assessed value is $440—and $320 from the establishments of the Franklin Farmer and Cultivator—Total, $760. Who will direct us to add his name to the list of contributors, and for what amount?

Governmental Patronage to Agriculture.

The (London) Farmers' Magazine, for August, gives, as its leading article, and with commendatory remarks, the outlines of the bill reported by our friend Allen, in our last House of Assembly, "to encourage agriculture." There is only one mistake about the matter. That journal states that the bill had become a *law*—when the fact is, it not only did *not* become a law—but its provisions were not even discussed—except by one house, an hour or two, in evening sessions. We hope the next legislature will amend the record, and endorse *passed* upon what the London editor considers already so.

The Turnip Fly,

Has been uncommonly destructive this year to the ruta baga crop. It seems now to be confidently affirmed, in some of the European agricultural journals, that sulphur, or brimestone, may be effectually employed as a preventive. One mode of using it is, slightly to moisten the seed and roll it in sulphur, previous to sowing. The other, to keep the seed for some time in sulphur, and to sow the sulphur with the seed. It is affirmed, that the young plants in this way become so strongly inpregnated with the sulphur, that the fly will not touch them. Sulphur is so extremely subtile, that it is known to diffuse itself, in a very short time, through the vegetable, as well as the animal system; and it is known to be obnoxious or destructive to the whole race of insects. The turnip seed imbibes it, and imparts it, with the sap, to the young plumule, or stem. Although the prescription is now out of season, it should be laid by for trial at the sowing season.

A Great Sale of Imported Durham Short Horns,

Is advertised to take place at Powelton, near Philadelphia, on the 5th Nov. The cattle are of the stock of Mr. Whitaker, one of the most eninent breeders in Britain.

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*We would add, as applicable to our own condition—"*and upon whom the state must ever depend for the perpetuity of its civil and religious freedom.*"

The American Society for the Diffusion of Useful Knowledge,

Was organized in October, 1836, and now comprises, we believe, gentlemen in every state, distinguished for literature, science and public usefulness. Its objects, as its title purports, is the diffusion of useful knowledge among the great body of the American people, in the cheapest, purest and most efficient form. Such an object is worthy of the philanthropist and the patriot. It is in consonance with our highest duties as men, and as *free* men. It invokes the best feelings of our nature, and promises, in its results, the enlargement of individual enjoyment, (for *self*, some how or other, will always be the prompting motive to action,) BY PROMOTING THE PROSPERITY AND HAPPINESS OF ALL AROUND US.

This society seems modelled on the plan of a similar one in Great-Britain, of which Chancellor Brougham is the distinguished head, and which has been eminently useful, not only to the country where it exists, but to the civilized world, in the publications which it has issued from the press, relating to all the useful branches of knowledge, and which have had a circulation unprecedented in the annals of printing. It is by carefully selecting for the press, that public taste and public morals are improved, and general improvement promoted. It is by means of heavy editions, that works of merit are afforded at a third or a quarter of the ordinary cost, and that they consequently obtain a more general circulation, and a more benign influence upon national manners and character. We are indebted to the British society for a knowledge of many of the improvements of the day, in science and in the arts of labor. The farmer is indebted to them for the many valuable extracts, which appear in our agricultural journals, from their "Farmers' Series," on the various branches of husbandry; and all classes of readers are indebted to them for their Libraries of Useful and Entertaining Knowledge, Journal of Education, maps, treatises on Political Economy—for their Penny Magazine, Encyclopædia, &c. Their labors have produced a new era in intellectual improvement. The American Society, if properly supported by our citizens, cannot fail of doing infinite good to our country, and of conferring lasting benefits upon posterity.

Common School Libraries.

We insert to-day, a communication from "*A Westchester Farmer,*" in answer to our remarks in the August No. of the Cultivator, on the subject of common school libraries. Although it does not alter our opinion as to the books which ought to constitute the *basis* of a common school, or rural library, it serves to explain why works upon rural affairs have not formed a larger portion of the first class, which has been recommended to the districts.

From the documents accompanying the communication, we find that it is in contemplation, to publish a series of volumes upon agriculture—to consist of treatises "on the nature and properties of soils; the products of the vegetable kingdom, the culture and use of all trees, plants and vegetables, usually cultivated for use or profit; on the history, nature and management of the different domestic animals and their productions; in short, on all subjects connected with the pursuits of husbandry, designed to furnish the sons of the farmer, in a country destined to such high agricultural interests as ours, the best facilities for acquiring all necessary and desirable knowledge connected with their employments, their interests and their happiness." And the synopsis of the contemplated library embraces the following enumerated subjects which relate to husbandry: Soil, its varieties and culture; the vegetable kingdom; timber and wood; vegetables for the food of man; do. of animals; orcharding; horticulture; vegetable physiology; chemical functions of vegetables; management of live stock; the horse, cattle, sheep, poultry; the honey bee and silk-worm; animal mechanics; chemical functions of animals; agricultural economy; household economy and the dairy.

These works upon agriculture, together with others which are promised upon the arts, and upon physical, intellectual, moral and political science, will, when the whole is completed, form an invaluable library, which cannot fail of producing, in a few years, the most benign effects, upon the industrial, moral and social habits of every school district into which it shall be introduced.

Under the view of the subject which these facts present, we feel no hesitation in expressing a hope, that every school district will avail itself of the opportunity which now presents, of laying the foundation of a work of usefulness, which, after benefiting the present generation, cannot fail of imparting lasting advantages to posterity. The books now published consist of 50 vols. averaging 250 pages each, of uniform size and binding, boxed in sets, the box serving as a book case, with lock and key—and the whole may be purchased, including the book case, at *twenty dollars.*

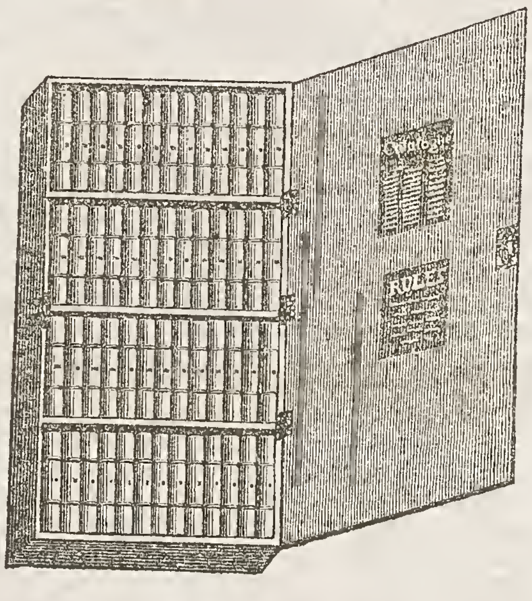
The 4th section of the act of last session, "to appropriate the income of the United States deposite fund to the purposes of education and the diffusion of knowledge," is as follows:

"The sum of fifty-five thousand dollars shall at the same time be annually distributed to the support of common schools, in like manner and upon like conditions as the school moneys are now or shall hereafter be distributed, *except that the trustees of the several districts* SHALL appropriate the sum received TO THE PURCHASE OF A DISTRICT LIBRARY, *for the term of three years;* and after that time for a library, or for the payment of teachers' wages, in the discretion of the inhabitants of the districts."

The law is therefore mandatory upon the school districts, for three years, provided the districts raise an equal sum for this purpose. After three years it is left discretionary with the districts whether the amount shall be applied to make additions to a library, or to the payment of teachers' wages. The proportion of this appropriation to each district will be about half the amount received last year from the common school fund.

FORM OF THE BOOK CASE.

[Fig. No. 55.]



It is a flat box, two feet long, one foot wide and six inches deep, divided by partitions which become shelves, when the box is placed upright, into seven compartments. The cover is attached by hinges, so as to become a door when the box is opened.

We cannot employ a page of the Cultivator more usefully, than by giving entire, the

"*Prospectus of the American Library for Schools and Families.*"

"The American Society for the Diffusion of Useful Knowledge proposed from the commencement, to devote very early attention to the publication of a series of works, on the more important branches of popular knowledge, to be prepared and issued in a style and manner, suited to the purposes of a School Library. The primary object was, to have them placed as extensively as possible, in the common schools of the country, that they may be loaned to the children, and circulated through them among all the families of the districts. Some of the considerations which have led the society to attach special importance to this plan, are the following:

"1. The social, circulating library is unquestionably the most economical and efficient mode of supplying the means of knowledge, to the large mass of young persons between the ages of ten and twenty, in the common school districts, throughout the country, now almost wholly unprovided with books of general information.

"2. This class of persons are at a period of life, in which the means of knowledge are of the highest interest and value. In youth, the powers of the mind are all in active exercise. Curiosity is awake; memory is faithful; the attention, not yet distracted by the engrossing eares of active life, gives itself wholly to its work. There is an ardor in the thirst for knowledge, which shows itself in the intense eagerness to *hear* and *know;* and many would seek constant gratification from books, if books could be obtained, of a character adapted to their taste and age. This period is the best time in life, for storing the mind with knowledge, and almost the only time to acquire a *taste* for its attainment in future years.

"3. Such a library will be the means of great advantage and improvement to the schools with which they are connected. It will, in fact, add a new department to the system of education, the influence of which will extend to the whole population. It will concentrate interest in the schools, enlarge the sphere of the teacher's instruction and influence, elevate his employment and office, connecting pleasant associations with it in the minds of the scholars and in the families to which they belong. It will raise the tone of literary interest and ambition among pupils, and relieve the dull routine of mere elementary instruction, by the pleasures of entertaining and useful knowledge. It will be a kind of connecting link, to unite the school with society around, and will naturally form the nucleus of an extended popular library, which by susequent yearly additions will contain the materials for a general acquaintance with all subjects of interest and benefit to the community.

"4. It seems necessary, in order to carry out and complete the work of school education, to provide some such supply of the means of reading. The elementary branches taught in the classes, are rather the instruments by which knowledge is to be acquired, than the acquisition itself. They constitute the preliminary training of the mind, and when this is in some good degree accomplished, how important that the pupil should have opportunity to employ his powers, in exploring the field of knowledge. The school teaches the boy to read; and gives him some elementary knowledge of various kinds which enables him to understand books. When this is acquired, we must give him the books, or our work is incomplete.

"5. Such a library of simple, interesting and instructive works, would exert a vast influence in preserving the morals of the community. An entertaining book is one of the strongest keepers a child can have. Its chain is invisible, and it neither chafes nor annoys the wearer. But it is more effectual than almost any other restraint. How many hours would such libraries rescue from idleness; from wicked conversation; from open dissipation and vice? how many from noisy brawls and savage fights? And this, too, just in the most important crisis; for, if a young man's character is saved till ho is twenty-one, it is in general saved for life. This plan also, by providing a source of enjoyment and improvement for all the members of a family *at home,* will strengthen the domestic relations and tend to revive and restore the love of domestic pursuits and pleasures. The experience of ages shows that mankind can exist safely and in happiness, only in the form of a vast congeries of *families;* and the more we can strengthen the *love of home,* and bring means of improvement and happiness to every man's fireside, and keep the inmates of the household at home, the better for the virtue and solid happiness of the community.

"6. It will be a very effectual mode of supplying the population generally with the means of knowledge. Through the scholars, the books will find their way, in constant rotation, to all the families around; and many circumstances will conspire to cause them to be extensively read, by the adult population. Parents are always specially interested in their childrens' pursuits, and often like to read themselves what their children are reading. And the interesting nature of the subjects, the simplicity and directness of the style, and the practical utility which will every where be aimed at, will fit these works peculiarly to the wants of a large class of our population too much engrossed with cares, or wearied with the toils of life, or of too little mental cultivation to engage in more extended studies.

"7. The plan is a very economical one. The amount of useful result is very large, when compared wtih the expenditure. A book sold to an individual is commonly read but by few, and is then laid aside idle and useless. These books, on the contrary, will circulate continually, and be used by new readers in succession, till worn out. An edition of 1000 copies, in the ordinary way, will reach perhaps 5,000 or 10,000 minds. But on this plan, circulating among the families of a thousand districts, they will have opportunity to reach *several hundred thousand minds.* Indeed, if it were desired to make known a narrative of facts, as extensively as possible to the mass of a community, what cheaper or better mode could be devised, than to place a copy in every school to be loaned to the scholars in rotation? A sum not exceeding the ordinary endowment of a professorship in one of our colleges, will found such a national library; and enable the society to perpetuate its blessings indefinitely among the *rising generation* in our country. Tens of thousands, in our day, hundreds of thousands, millions, yet unborn,—would have their minds expanded, and their characters formed, under its benignant influence. Such a library placed in every school in our country, would seem to be one of the most effectual and desirable measures for the general diffusion of knowledge and the improvement of society, that could possibly be devised. Its benefits would be incalculable. It seems to the committee, that if the founders of such libraries as the Bodleian, the Harleian, and the Cottonian in England, had devoted one-half their munificent endowments in establishing a suitable library for the common people, with the means of giving it universal circulation among the towns and villages of our mother country, they would have accomplished incomparably more for the improvement and happiness of their countrymen and of the human race, than they have now done, by their princely gifts in the republic of letters.

"And they cannot but express the hope that the immense importance of such a benefaction may attract the attention of the opulent in our country, and that patriotic individuals may be found willing to give their influence and a portion of their property to the great work of diffusing among all classes of their countrymen, and through many future generations, the elements of a sound and wholesome literature."

"EXECUTION OF THE PLAN.

"All the arrangements for carrying the design into execution, are in a state of forwardness, so far as they can be, before the necessary funds are secured. It is estimated that $15,000 are required to manufacture the stereotype plates for 50 vols. If this sum were furnished, the library would be at once completely and permanently endowed, as arrangements can be made with publishers, if the plates are furnished, to supply the market fully and constantly, and defray all the expenses of manufacture and copyright out of the proceeds of the sales. Should, therefore, any benevolent individual, or the community, place in the hands of the society the means to procure these plates, the perpetual supply of the books, at the cost of $20 for the fifty volumes with their case, would be at once secured.

"The society take the liberty, therefore, to lay these suggestions before the community, and they solicit from any individuals who may be interested in the subject, a reply to this communication, offering either suggestions in respect to the general interests of the plan, or proposals for furnishing particular books, or aid in raising the necessary funds.

"By the constitution of the society, the annual payment of $5, or more, constitutes an individual a member; of $100, within any one year, a life member; of $500, a life director; and of $1000, within the same period, a life director, and an honorary member of the executive committee. Members of the society are also to be entitled to the privilege of purchasing publications at a reduced price; life members and life directors will be entitled to receive five per cent annually, on the amount of their payments in publications, if applied for within the year.

"Any individuals disposed, in either of the above ways, to aid the objects of the institution, are earnestly and respectfully solicited to do so, as soon as may be, through the treasurer, A. P. Halsey, Esq. cashier of the New-York Bank, to whom all communications relative to financial concerns, may be addressed.

"Any school or family, any lyceum or other institution disposed to subscribe for the library, or any individuals willing to undertake to supply the schools in a town or county, are requested to signify the same to the committee, and the number of copies desired.

"Editors of newspapers and other periodicals, friendly to the interests of education and the universal diffusion of knowledge, are respectfully requested to give this prospectus an insertion, and to co-operate with the committee in bringing this important object before the community, and securing its accomplishment.

"In behalf of the executive committee,
"LEONARD BACON,
"THOMAS COCK,
"TIMOTHY R. GREEN, } Sub Committee.
"GORHAM D. ABBOTT, Secretary.
"*New-York, Oct. 12th*, 1837."

Why is it best to bury Manure?

Animal matters decompose with facility when acted upon by moisture and air, the greater proportion of their elementary parts making their escape in various forms of combination, and leaving the earths, alkalies and carbonaceous matters remaining.

When this decomposition takes place beneath the surface of the ground, these gaseous compounds, as well as the carbon (which there is reason to believe assumes also the gaseous state by combining with oxygen,) may be supposed to be partially or wholly retained in the earth, to afford the matter of nutrition to the plants.

Purely animal substances, therefore, which thus readily decompose, do not absolutely require fermentation before they are mixed with the soil.

Vegetable fibre is, under certain circumstances, a slowly decomposing substance. When vegetables are green and full of juices [as all green crops and grass leys] they readily ferment; [hence the impropriety of wasting these fertilizing properties by cross-ploughing] but when the stems are dried, as in the case of straw and litter, they decompose with slowness, and the mixing them with animal matter hastens the putrefactive fermentation.

The principal animal matters which are mixed with the ligneous fibre of the litter, and which cause it to undergo decomposition, are the dung and the urine of the animals.—*Prof. Low.*

The practical lessons to be drawn from the above theory, are, 1. To make your cattle yards concave, or hollow in the middle, to retain the urine of animals, nearly the moiety of the manure. 2. To strew or feed your straw, stalks and other litter in the yard, to absorb the urine and other liquids there accumulating. 3. To apply this manure before it has undergone much fermentation, that the soil may inhale its gaseous portions. And we would add, 4. To apply it to a hoed crop, that the weeds and grasses, the seeds of which are blended with the dung, may be extirpated in the process of after culture.

Composts,

Are useful in two cases—1. To save fertilizing matters, which might otherwise be wasted or lost; as the urine of cattle, or the gaseous matters which are evolved from a dung heap undergoing fermentation. And secondly, to render soluble, and available as the food of plants, that which is not already so, as swamp earth, woody fibre, &c. But there is nothing *added* to the elements of fertility by mixing vegetable, animal and mineral matters in a compost heap. On the contrary, lime is known to be decidedly prejudicial when mixed with yard dung, and by some is thought to be so when mixed with peat earth, by forming with them new combinations that are insoluble.

Agricultural Exhibitions.

The agricultural journals which reach us abound in accounts of the cattle shows and agricultural fairs, which were generally held in October, from Maine to Kentucky. At the Kennebeck show, 3,000 persons are said to have been present, and 150 yoke of oxen, besides a corresponding number of other animals, were exhibited. Premiums were awarded upon a drill barrow and a root cutter, of recent invention, and upon apples, pears and other fruits. In Scott county, 26 silver cups were awarded;—in Lincoln 28, and in Woodford 35, all in Kentucky—as agricultural premiums.

The Weights of Grain,

Are materially influenced by climate, and are generally heavier in a northern latitude, or in an elevated district, than they are in a southern latitude, or in a low district. The cause of the difference we believe to be this—that in the former the heat is more moderate, and the grain is consequently longer in maturing, and acquires greater bulk and solidity. The like difference is also often found to exist, in some species, between that grown on cold heavy land, and on land which is light and warm. Disappointments often occur, in sowing heavy seed, from a northern or elevated district, in not realizing a corresponding weight in the product. These facts are in a measure corroborated by the following exhibit of the weight of grains for which premiums were awarded, on the 2d Oct. by the agricultural society of Bathurst district, Upper Canada, a memorandum of which has been sent us by H. C. Baker.

Fall wheat,	64 lbs.	2 oz.	per Westminster bushel.
Spring do	63 "	8 "	"
Common oats,	44 "	8 "	"
Potato oats,	46 "	6 "	"
Peas,	66 "	6 "	"
Barley,	54 "	14 "	"
Indian corn,	64 "	2 "	"

Highland Society.

The Highland Society of Scotland is about to institute a museum on a large scale. For several years the directors have been gathering together materials for a museum, and it appears the collection they have formed is now sufficiently extensive to justify the erection of a handsome building especially designed to contain it. It will contain models of all known agricultural implements, seeds, &c. with models of different varieties of stock of the most approved breeds. The society's first premium to have been awarded in Oct. was 500 guineas, for the application of steam to the cultivation of the soil; and gold and silver medals for reports of improved rural economy abroad, particularly in France, Germany and the Low Countries; and the society propose to take the earliest opportunity of communicating their details to the public.—*Herald.*

Profit of Agricultural Improvement.

In a late statistical account of Scotland, we have a striking illustration of the benefits of outlay in improvement, in the example of a Mr. Maxwell. In 1828, he commenced operations on a farm of 550 Scotch acres, on a great part of which it was difficult for the plough to enter sufficiently deep into the soil, because obstructed by stones imbedded, especially on the top of the subsoil. These lands were not then worth, in grass, more than 16s. an acre. At the date of the publication he had perfectly reclaimed 235 acres, by removing all the stones, to the depth of from 12 to 15 inches, and by making from 8,000 to 10,000 rods of drains. The whole expenditure amounted to nearly £5,000, or $22,200—less than $20 an acre. The five first crops taken from the reclaimed lands were worth $146 per acre, being an average annual product of about $30 upon each acre reclaimed, and far more than remunerating for the heavy outlay.

The Study of Agriculture,

Is recommended by a writer in the North American Review, in the following extract:

"Now, although the paramount importance of agricultural pursuits, over all others, is unquestioned, we suspect there is scarcely a school or college, in the country, where a single hour is devoted to the elucidation of their leading principles; and we doubt not, that many have finished their academical courses able, perhaps, to repeat whole volumes of metaphysics in the words of the author, while they have not merely acquired no knowledge, but have formed no conceptions of those familiar operations of the farmer and gardener, to which they are indebted for their daily food. Surely some few days of the ten years pupilage, through which so many of our youth pass, might be profitably given to subjects so interesting, as well as so important, as these."

Couch, or Quack Grass,

Is collected, washed and sold as cattle fodder in Italy. Children follow the plough, gather, wash, tie in small bundles, and market it, when not wanted on the farm. It is also found to possess medical properties, and is prescribed in decoctions, like sarsaparilla, for scorbutic patients. It is stated in the Farmers' Magazine, that upwards of 170,000 dollars worth of gramminia is annually sold by the peasants to the inhabitants of the city of Naples alone.

Prices of Wool in England.

We have often heard it remarked, and we have concurred in the opinion, that our woollen manufacturers can afford to make a greater difference than they do make, in the prices they give for prime Saxon, and grade wool. The expense of manufacturing the two kinds differs but little, while the price of the fabric made from prime Saxon is generally double that made from grade wool. In the London price current for August, we notice the prices of wool were as follows: Electoral Saxony from 4s. 2d. to 5s.; first German wools 3s. 2d. to 4s.; Spanish Merino from 1s. to 3s. 2d.; native sheep's do. 1s. 6d. to 2s. 6d. There the prices of wool seem to correspond with the prices of the cloths into which they are converted—the Saxon being nearly double to the Spanish—here they do not correspond with the price of the cloths which they produce.

Improved Cross of Sheep.

Charles Vaughan, a distinguished breeder and farmer in Maine, has published in the Maine Farmer, letters highly extolling his improved breed of sheep, which are a cross of the South-Down with the Dishly, or new Leicester. The particular points of excellence are large size, hardiness, early maturity, and, we venture to add, from the known character of the South-Downers—excellence of mutton. Lambs of fifteen days old have weighed 20 lbs. and at five months have reached 65 lbs. upon ordinary keep. There is nothing unreasonable in the supposition, that the breeds of domestic animals can be improved here as well as they can be in Britain, provided we bestow upon this subject the same judgment and care that they do there. From what we have seen of Mr. Vaughan's writings, and heard of his practice, we are disposed to believe that he possesses high qualifications as a breeder.

Agricultural Schools.

The Derry (Irish) Journal informs us, that three additional agricultural schools have recently been established in Ireland, by the National Board.

On Improvement in Horticulture.

Read before the Horticultural Association of the Valley of the Hudson, by J. Buel, *on the 28th Sept.* 1838.—*Published at the request of the Association.*

Recently notified that the gentleman selected to address you on this occasion, would fail in the performance of that duty, I have hastily prepared some remarks on the objects and promised utility of this association, which I beg leave to read.

Our first parent was placed in a garden, and commanded "to dress and to keep it;" thereby indicating, from the highest authority, that the garden is pre-eminently fitted for the performance of our highest duties, and the gratification of our purest pleasures. This construction of the Divine precept, is in accordance with the opinions of every enlightened age and nation. The garden has, by general consent, ever been considered a source of utility and of healthful employment—the best theatre for concentrating and displaying the beautiful and wonderful diversified varieties of foliage, flowers and fruits of the vegetable world—and a school for civilizing and socializing man, and of inspiring him with love to his Creator, and good will towards his fellow-man. Nor does the injunction seem to refer to the mere gratification of animal appetite;—for we read, that "out of the ground made the Lord God to grow, every tree that is pleasant to the sight, and good for food."

Gardening and Horticulture are in a measure synonymous terms. Gardening is divided into branches. It "is practised for private use and enjoyment," says Loudon, "in cottage, villa and mansion gardens;—for public recreation, in umbrageous and verdant promenades, parks and other scenes, in and near large towns;—for public instruction, in botanic and experimental gardens;—and for the purposes of commerce, in market, orchard, seed, physic, florists and nursery gardens." In all of these departments of Horticulture, we have great room for improvement, and great need of it; in all of them it is the object of this association to promote improvement, and in all of them they will effect improvement, if their efforts are seconded, as I trust they will be, by the intelligence, the taste, and the public spirit of the opulent gentlemen of our valley. It is the object of the association to introduce into this—our Eden—"every tree that is pleasant to the sight, and good for food"—to introduce, and to disseminate widely, all that is useful and ornamental in garden culture—all the fruits, flowers and culinary vegetables, that are worthy of culture, whether of foreign or domestic origin, which our soil will grow, and our climate mature.

It is not enough that many of the choice productions of the garden should be found with a few of the opulent. Those that are excellent should be known and disseminated widely. We should do good to others, if we would know the pleasures that spring from a generous philanthropy. By bringing these productions together at our semi-annual exhibitions, showing and comparing them, we can determine their relative merits, their proper names and synonymes,—can publish the result of these comparisons, and recommend and disseminate those which possess the greatest intrinsic merit. "All men will eat good fruit that can get it," says Sir William Temple; "so that the choice is only, whether one will eat good or ill;—and of all things produced in a garden, whether of salads or fruits, a poor man that has one of his own, will eat better than a rich man that has none." We seek to extend the luxury of good fruits to all, in order that the poor man who has a garden, may eat better fruit than the rich man who has none.

As I have remarked, gardening is co-existent with man. Its early history is too obscure to be traced. Suffice it to say, that in the best days of polished Rome, it was cultivated with taste and assiduity, and ranked with the fine arts; and that with these it sunk to obscurity in the downfall of that empire. All of the art that survived the shock of Vandalism in Europe, was preserved and cloistered with the monks during the dark ages. With learning it revived first in Italy and Holland; to which countries many exotics, and a taste for cultivating them, were introduced during the crusades. It was not until the reign of Henry 8th in the beginning of the 16th century, that gardening attracted much attention in England. Previous to this time, cabbages, and even pot-herbs, imported from Holland, constituted luxuries, found only on the tables of the opulent. During this reign, apricots, melons, herbs and esculent roots, were first introduced into the royal gardens. Among the new plants of that day is mentioned "the lilacke trees, which bear no fruite, but only a pleasant flowere." Improvement in Horticulture was greatly extended under Elizabeth and Charles the first. During the reign of the latter, the first work upon English gardening was published by Parkinson, under the title of "A garden of all sorts of pleasante floweres, with a kitchen garden, of all manner of herbs and roots, and an orchard of all sorts of fruit-bearing trees," which is yet quoted with high commendation.

About the middle of the 17th century, several valuable publications upon Horticulture appeared in England and France; and in 1734 Philip Miller published his celebrated Gardners' Dictionary, an original work of merit, which attracted general notice, and gave a new impulse to improvement. British and other foreign works upon gardening, have been greatly multiplied; and improvement has kept pace, with the increase of wealth and refinement, until horticulture has attained to a high state of perfection, as a science as well as an art, in most of the civilized countries of Europe. No gentleman of opulence or taste there, deems himself fitted to enjoy the comforts and luxuries of life, without his garden. Horticultural societies have been every where established,—princes have been competitors in them, for honorary rewards; useful and ornamental plants have been sedulously collected from every quarter of the globe, and innumerable new varieties have been added to the catalogue by the skill and industry of man. Within a few years, the splendid Encylopædia of Gardening, has been added to our horticultural works by the indefatigable Loudon, professing to give all that is interesting in the history, and all that is useful in the science, or in the practice of gardening. The society of London established a garden in 1818, and sent agents into every quarter of the world, to collect whatever could be found useful or ornamental. One of these agents, after traversing the United States and the Canadas, spent four years on the Pacific coast of our continent, exploring the country from California to the mouth of the Columbia, and thence across the continent to the Hudson Bay Factories, in collecting rare plants and seeds. In a subsequent voyage to the western border of our continent, this indefatigable agent was destroyed by a wild bull, upon one of the Pacific Islands. Yet the name of Douglass will be perpetuated in the cognomen of several new plants which he first brought into notice. Some idea may be formed of the extent of this society's labors and usefulness from the facts, that in its catalogue of 1830, are enumerated as growing in its garden, 3,400 varieties of hardy edible fruits, and 58 varieties of nuts, exclusive of 89 varieties of the fig, 182 of the grape, 56 of the pine apple, and 131 of the melon; nearly all of the four last named being cultivated in houses, with the aid of glass and artificial heat,—making an aggregate of about 4,000 varieties of fruits, which administer to the sustenance of man, independent of ornamental plants, which exercise a benign influence upon his mental enjoyments. The fruits in this garden have been classified, as it regards size and quality,—their form, colour, use and time of maturity noted, and their catalogue thus affords a guide in the selection of fruits for the climate to which they may be transferred for cultivation.

Enterprise in the acquisition of new fruits, and new plants, has not been confined to the London Horticultural Society. European governments, Horticultural societies, opulent amateur florists, and professional nurserymen, have sent their agents into remote parts of the world;—and the towering mountains of Asia, the Isles of the Eastern Archipelago, the burning sands of Africa, the inhospitable regions of Siberia, and the wilds of America, have been alike explored, for valuable and rare plants, to subserve our wants, and administer to our pleasures. The fruits of all their laborious researches lie within our reach, and a prominent object of this association is to transfer to the valley of the Hudson such of them as may found to administer to the wants and comforts of its population.

We are particularly indebted to the Flemings, for a great number of excellent new varieties of the pear. To the labors of Dr. Van Mons, of the University of Louvain, an amateur pomologist, we are indebted for about 400 new and excellent varieties of this esteemed fruit, some of which are in eating through the circle of the year. The late Mr. Knight, till his death president of the London Horticultural Society, also produced many new and excellent varieties of fruits, by artificial fecundation.—Samples of several of the new fruits thus produced by Mr. Knight and Dr. Van Mons are now exhibited upon your table.

From the comparatively restricted means of a new country, gardening has with us been limited to the useful, seldom aspiring to taste and elegance. But even in the useful branch we have ample room for improvement. We have no great central point for collecting and comparing, the indigenous fruits of our country, and for disseminating the excellent through our land. Of the apple, plum and peach, it is believed we have as fine native varieties as are grown in the world, and yet they are but partially known and but partially enjoyed. Individual exertions are too limited and feeble to effect the desired object. It can only be done by the combined exertions of many, influenced by a common impulse, and directed to a common end. In this age, no great good can be effected in any branch of public improvement, without the concentrated exertions of associate bodies. The garden culture of fruits and esculent vegetables, has hardly yet commenced in many districts of our valley, while in other districts the culture is but imperfectly understood—the relative merits of different varieties are not appreciated, and their value, in promoting the health, economy and comforts of a family, unknown or disregarded. Few of the fine varieties of fruit, or of the other choice products of the garden, are seen in passing through our country. Yet twenty years has done much to improve our Horticulture; and we have abundant reason to anticipate far greater improvements in the twenty years to come.

How few of our garden products, which are now considered, at least in imagination, indispensable to our wants, are the natural products of our country. Hardly one in twenty is indigenous in our soil. Our fathers have been collecting them, and we have been collecting them, through the lapse of centuries; and yet, how comparatively small is our stock, compared with what Providence has provided for the wants and comforts of man. We are strangers to many, very many, that grow naturally in our own country. And as to varieties, nature and art are every year multiplying them, under the same laws that multiply the breeds of our domestic animals, and that are diversifying the human countenance. Did our gardens contain only the plants that are indigenous to our country, the supply would indeed be scanty. But Horticulture has laid almost every clime, and every country, under contribution, to administer to our wants, and to gratify our senses. Most of our grains, and a large portion of our fruits, and esculent roots, derive their origin from other countries. The greatest part of them came to us from Great Britain and Holland, which received them from Italy, Italy from Greece, and Greece from Asia. Rye and wheat are indigenous in Siberia and Little Tartary; rice is the natural product of Ethiopia; buckwheat of Asia; kidney beans of the East Indies; the beet and onion, of Spain and Portugal. Peas came from the south of Europe, artichokes from Brazil, peppers and cucumbers from India; the egg plant from Africa; the tomato from South America; the pumpkin from Astracan; the ruta-baga from Sweden; the cauliflower from Cyprus; and the asparagus from Asia. Our fruits originated in countries equally remote from each other. Without pretending to decide upon the disputed questions, whether all the cultivated apples have originated from the wild crab, or whether any of our good varieties existed here when our shores were first visited by Europeans, I can say this much, that we have esteemed varieties of this fruit now under culture, which originated on the banks of the Po and of the Danube, of the Rhine and the Oder, of the Seine and the Thames, and on the shores of the Baltic and Caspian. The peach came from Persia; the plum from Syria; the cherry from Pontus; the quince from Austria; the almond from Barbary and China, and the pear from Europe. Our pot-herbs and cultivated medicinal plants, are also most of them exotics: parsley is from Sardinia, pursley from South America, nasturtium from Peru, thyme from Spain, sage from the south of Europe, savory from France, marjorum from Sicily, rhubarb from Asia, and balm from Switzerland. So also of our flowering shrubs and plants; the pink, the daffodil, and narcissus, are from Italy, the dahlia from Mexico, the ranunculus and anemonie, from Cappadocia; the hyderange, balsam and camelia from China and Japan; the tulip and hyacinth from the Levant; the tuberose from Ceylon, and our finest peonies from the "Celestial Empire." And of trees, we are indebted to the north of Asia for the ornamental horse-chesnut, and to the Indian islands, for the towering ailanthus. These are but a small portion of the contributions which Horticulture has gathered from foreign lands, for our convenience and pleasure; and every year adds to the list new genera, species and varieties. Providence seems to have apportioned its bounties among the different nations, as if to admonish them of their mutual dependence upon each other, and to excite in them a spirit of christian philanthropy and benevolence.

Private gardens of great extent and beauty abound in most of the countries of Europe, and they are maintained at a princely expense. In these not only hardy fruits and vegetables are forced to early maturity, by artificial means, but most of the tropical fruits are brought to perfection, by the aid of hot-houses and walls.—Strawberries, in this way, are produced for the table in April, melons in May, grapes and peaches in June, and pine apples at almost every season. It is assumed, that in Britain, a gentlemen may derive from his garden, with the aid of glass and artificial heat, a more varied and richer dessert, throughout the year, than is to be met with on the most luxurious tables in any other country. And yet the summers of England are so cool, that the peach, grape, melon &c. require the protection of a wall or glass, to bring them to maturity; and even our fine Spitzenbergh apple does not ripen well there without a wall. Gardens of this description, though generally on a limited scale, may be found in the vicinage of our commercial towns, and will doubtless be multiplied as we advance in wealth and horticultural improvement. These cases of high improvement, or rather extravagant refinement, in horticulture, are not mentioned as models for general imitation. They indicate an expenditure which few here can prudently indulge in if they would. Yet where there is the ability, and a disposition to extravagant expenditure, it may be indulged in, in horticulture, with advantage, rather than prejudice, to public morals and public usefulness. The examples to which we refer, furnish models of improvement, which we are at liberty to adopt on any scale that shall comport with our desires and our means.

Public nurseries, which belong to Horticulture, are highly useful to all communities in which they are located. They serve to introduce and concentrate the vegetable productions of every country, which are likely to subserve our wants or administer to our rational gratification. The interchanges which take place between those of Europe and America, are now managed with such facility, that a new fruit, or a new flowering plant, which attracts notice, and acquires value, on one continent, in a year or two becomes common in the nurseries of the other. The numerous horticultural periodicals of the two continents, make us early acquainted with whatever is new or valuable in either, and a single season serves to propagate and to disseminate the desirable plant on both. In this way we have been enabled to obtain the fine new varieties of Flemish and French pears, in many instances before they had fruited in England. The dahlia, in its natural single flower, was first introduced into France in 1801, and subsequently into England. The skill of the horticulturist has since transformed it into a double flower, and imparted to it all the colors and tints which are gratifying to the human eye. This ornament of the garden, which is now found at all our nurseries, is termed by common consent, "The King," as the rose has been called "The Queen of Flowers." And as regards fruits—I was instrumental in bringing into notice, seven or eight years ago, a fine new apple, the *Jonathan*, grafts of which I forwarded to Europe. Five years ago I noticed it in the catalogue of the Lon. Hort. Society, with the names of many other of our local fruits which I sent, and also in catalogues from the Island of Jersey, and from Hamburgh. The stroat apple which I sent at the same time had produced fruit in 1830, in the Lon. Hort. garden, and was classed, as it deserved to be, among the first quality of apples. The ailanthus was first brought to our country eight or ten years ago, by one of our consuls, from farther India, and it is now growing, I believe, in almost every state of the Union.

As having particular relation to those who depend upon market gardens for horticultural productions, for daily use, I take occasion to remark, that the quality of market garden productions depends materially on the judgment and liberality of the buyer. The object of the gardener is profit; and so long as the purchaser regards the price rather than the quality, he will continue to raise those varieties which give him the greatest products, which are generally those of inferior quality. The difference in the varieties of the same vegetable are manifestly great. This exists not only in their flavor, but in their nutritious and healthful properties: some varieties, particularly fruits, being absolutely prejudicial, while other varieties of the same species, are highly conducive to health. In the potato, for instance, the difference in nutritive matter amounts to nearly a half in different varieties. Some of the coarser kinds yield but 14 and 16 per cent of nutritive matter; while some of the finer kinds have given 28 per cent. And it is worth regarding, that good quality is almost inseparably connected with grateful flavor.

Horticulture, as an employment, is highly conducive to the healthful vigor of the body, and to an agreeable exercise of the mind. The labor it demands, is neither severe in degree, nor monotonously tiresome in kind.—It affords continued change and variety. The interesting objects of which it has cognizance,—as the germination of the seed, the development of the leaf, the growth of the stock and branches, the expansion of the flower, the swelling, maturing and gathering of the fruit, and the diversity in foliage, flowers and fruit, of the various vegetable families under its care, present to the mind, capable of appreciating and admiring the beauties of the vegetable kingdom, a succession of the most agreeable sensations.

As a recreation, Horticulture offers all the pleasures I have enumerated, without the fatigues which accompany its manual operations. What more grateful, to the sedentary and the studious, or to him who is habitually involved in the mercenary cares of business, than the relaxation afforded by a well kept garden, which exhibits to the senses, the fragrance, the beauty, the order and harmony, which Providence has imparted to the vegetable kingdom. Here is nothing to awaken jealousy, to excite distrust, to beget envy—or to inflame any of the grosser passions; but every object is calculated to tranquillize the mind, to soften down the asperities of his nature, and to beget, towards his fellow beings, feelings of kindness, philanthropy and love.

As a science, Horticulture is rich in stores of intellectual wealth and usefulness. It embraces glossology, which teaches the names of parts of plants; phitography, or the nomenclature and description of plants; taxonomy, or their classification; vegetable organology, or the external structure of plants; vegetable anatomy, or their internal structure; vegetable chemistry, or primary principles of plants; vegetable pathology, or the diseases and casualties of vegetable life; vegetable geography and history, or the distribution of vegetables, relatively to earth and to man; and the origin of culture, derived from the study of vegetables.

It also embraces the study of the natural agents of vegetable growth and culture,—as earths, soils and manures; the agency of light, electricity, heat and water, in vegetable culture, and of the atmosphere in vegetable development.

Whether we regard Horticulture as an art, or a science; whether we consider it as administering to our wants, convenience and pleasures, or as promotive of health and useful knowledge,—it has high claims to our notice and regard.

I present upon your table, for examination, gentlemen, more than one hundred named varieties of the apple and pear, collected from my grounds, which twenty years ago were a barren waste; and I might have added many others of doubtful or inferior character. Those presented have all been recommended as superior fruits, at the season of maturity, either for the dessert, the kitchen, for preserves, or for cider. They are the natural products of the northern and middle states, of Canada—and of Russia, Germany, France, the Netherlands, and Great Britain. They include of course only late autumn and winter varieties. Yet these fruits form but a small portion of the kinds which are to be found in our valley—much less in our country. Though we have a great many *good* kinds, there must be but comparative few that can be denominated *excellent*, or *best*. The only way to determine which are the best, is to bring the different varieties together, and to judge of them comparatively, at the season of their maturity. How desirable it is, that when starting in our pomological career—when selecting the fruits that are to administer to our enjoyment and our profit, through life, we be able to select the best kinds? But who is now a competent judge in these matters? What individual knows the comparative merits of half, or a quarter, of the fruits which abound in our land? Not one among us, I venture to say. How shall we then acquire the requisite knowledge? We have at present no competent guide to direct us in the selection. Individual effort is incompetent to the labor of classifying and describing all our best fruits. It can only be effected here, as it has been done in England, by the joint efforts of an association—by bringing together the various kinds, testing their qualities, and establishing a standard of their relative merit, for the various uses for which they are adapted. This subject is so deeply connected with the comfort of all classes of our citizens—of the buyer as well as the cultivator of fruit—that I venture to recommend it to the early attention of the association.

The introduction of new and valuable varieties of fruits, seeds and ornamental plants, from different sections of our own country, as well as from the old world, should also engage our early attention. Many facilities present for effecting this. First, by a correspondence, and interchange of plants, seeds and fruits, with horticultural associations at home and abroad. Secondly, through the depot established at Washington, under the direction of an enthusiastic friend of rural improvement, H. L. Ellsworth, Esq. the commissioner of the Patent Office. Thirdly, through our naval, commercial and travelling citizens. Our Corresponding Secretary, who has tendered his resignation in consequence of being about to take up his residence for some years in France, has kindly tendered his services in this behalf—and his services there, in forwarding the objects of the association, may be rendered extensively useful. After all, much, very much, will depend upon our individual exertions. If we show a spirit to go ahead, and to be useful to the community, assistance will be tendered from every quarter. But only those who *do* exert themselves, can or ought to expect assistance from others. We must put our own shoulders to the wheel, before we call upon Hercules. We *can* render this association pleasant and useful to ourselves, and highly beneficial to the public, if we but resolve to do so. But unless we set out, and persevere, in the resolution to do so, we had better suffer the association to die in embryo, and to forget that we had the ambition to be useful in promoting horticultural improvement, but lacked the resolution and the spirit to carry out our laudable design.

In conclusion—to the gentlemen who have interested themselves in getting up this exhibition, and particularly those of a sister state, whose contributions of superior fruits and flowers afford the strongest incentive to perseverance on our part, I feel myself authorized to tender the grateful acknowledgments of the association. A multiplicity of circumstances, and I may say of misapprehensions, combined with protracted bad weather, have tended very much to diminish the interest of our first exhibition; and yet I believe I may venture to say, that there has never, on any occasion, been collected in our state, a greater number of excellent varieties of fruit, or finer samples, than has been exhibited on this occasion; and although the season has been highly unpropitious to the floral department, yet the exhibition of fine dahlias, the favorite flower of the season, has been peculiarly brilliant. We have no reason to despond, but much to induce perseverance and renewed exertion. We have laid the foundation of improvement in that branch of industry which administers largely to the wants and elegancies of life. We can rear the superstructure. We can *deserve* success, though we cannot *command* it. And even the high satisfaction of doing this, is a consoling, if not satisfying reflection, to him who derives pleasure in laboring for the public good.

Advantages of Planting Fruit Trees on Declivities.

Dodart first observed that trees pushed their branches in a direction parallel with the surface of the earth. If a tree stands on a steep it pushes both towards the hill, and towards the declivity; but on both sides it still preserves its branches parallel with the surface. As there is an attraction between the upper surface of leaves and light, I am also persuaded, though not equally certain of it from experiment, that there is an attraction of the same nature between the under surface of leaves and the surface of the earth. This I consider the true cause of the phenomenon;—I had long observed that the most fruitful orchards, and most fertile trees, are those planted on a declivity, and the steeper it is, though not quite a precipice, the more fertile they prove. It is well known that the spreading of trees always render them fruitful. On a plain they incline to shoot upwards; and therefore art is employed by skilful gardeners, and applied in various ways to check their perpendicular, and to promote their lateral growth. But this point is obtained on a declivity by nature. There a tree loses its tendency to shoot upwards, and in order to preserve its branches parallel with the surface, is constrained to put them in a lateral direction. Hence an important rule in the choice of orchards and fruit-gardens.—*Rev. D. J. Walker.*

There is another advantage in planting on declivities, particularly where there is a retentive subsoil—water does not stagnate about the roots of the trees, as is often the case upon level surfaces, but passes off freely down the inclined plain, and the trees are consequently more healthy and vigorous.

Notices to Correspondents.

We received, too late to be noticed in our last, a communication from a *mercantile* correspondent, expressing a strong inclination to become a farmer, but who is deterred by the fear, that, like many others who start in a rural career, he will become tired of farming and the country, and sigh again for city life. He askes us to explain the causes of this frequent disappointments and to suggest the antidote. We take the cause of the disappointment generally to be, that when city gentlemen turn farmers, they place their dependance of enjoyment upon wrong objects—upon the fruits, and not upon the labors of the farm. Accustomed to the busy throng,—possessing little knowledge of their new business, and either not the disposition or the patience to acquire it, their time hangs heavily on their hands; they soon find themselves disappointed in their expectation of profit and of pleasure, without a manly effort to secure either, and ennui drives them back to the city. The antidote lies in taking a direct and active interest in the labors and business of the farm—of devoting to it his mental, and at least a portion of his physical powers—and of persevering in his efforts till he understands something of the theory, and is familiar with, and can direct with judgment, the practical operations of the farm. Having attained this point, and conformed his habits of living to his situation, there is little danger that he will again sigh for city life.

We received also, cotemporaneously with the preceding, a communication from a *medical* correspondent, who is now a noviciate in husbandry, and who has described his farm, and asks our instructions in its management. We fear our medical friend underrates the business of farming, and over rates our capacity for instruction.—Should we ask his direction for the medical treatment of our family, although we should attempt to describe to him their constitutions and habits, he would probably reply to us, that medicine is a profound science, acquired by long study—an art, thoroughly mastered only by long practice—that he could only give general direction for the treatment of diseases—and that all special directions must be preceded *by an examination of the patient to be prescribed for*. Our correspondent will see from this analogy the task he has imposed upon his, and that we might subject ourselves to the charge of *quackery*, were we to attempt to prescribe in his particular case. A knowledge of agriculture cannot be infused into one by *inoculation*. It must be acquired *the natural way*. As a science it must be acquired by patiently studying the principles upon which it is based. As an art, it demands persevering practice to become a competent master. All we can do, is to advise Dr. H. to study agriculture as he studied medicine—make himself familiar with the nature and qualities of his soil, tamper a little with experiments, notice their effects, and he will ultimately settle down upon the best modes of practice. It may seem hard for him to undergo a second course of studies; but he may rely upon it, that the best counsellors are personal knowledge and experience. The Doctor, we believe, will find most, or all, of his special questions answered in the volumes of the Cultivator, either directly or indirectly.

Draining.—B. F. Wells, of Suffolk, has sent us a description and diagram of a salt and fresh meadow, which is rendered in a measure valueless by reason of the fresh water which saturates it, and is subject also to be inundated with sea water at high tides. He askes our advice as to the best mode of reclaiming it. The salt water must be kept out by an embankment, and gates that close with the flood tide, like those we have seen at Newark, N. J. The source or fountain of fresh water must be ascertained. If it is in the surrounding high grounds, it may be intercepted and carried off by underdrains, sunk into the hard pan, above the level of the meadow. It may be extended, if necessary, entirely around it. If the source is in the bottom of the marsh, the evil seems incurable, as it would seem to lie too low to be drained, without permitting an influx of salt water, at high tide, through the underdrains.

Influence of agriculture and manual labor schools.—We have two communications on this subject, which, we are sorry to say, are too carelessly written to appear without correction, which we have not yet found time to give them. Both of our correspondents seem to consider manual labor as agricultural schools, and that they are calculated to promote general improvement in the science and practice of agriculture. This, we believe, is not pretended to be the case in any existing manual labor school; and if so, we have not been advised that it has, in any instance, been successful. The pupils in these schools are not generally designed to be farmers. They work for health and economy, and not to learn the trade and mystery of farming. We should be sorry to have it believed, that these are a fair test of the utility of agricultural schools.

Miller's Tolls—We are not aware that any benefit will result, either to individuals or the public, from prolonging this controversy. It seems to be admitted on all hands, that the miller has a right, by custom if not by law, to take a *tenth* for toll—and no more. If our Oswego correspondent has had a *twentieth* abstracted from his grists, as he alleges, he has been cheated, as we have been; and he has his remedy against the miller—or he may send his work to a more honest man.

CORRESPONDENCE.

On Rotation of Crops.

Dear Sir—Although I have not the pleasure to know you personally, such is my confidence in your devotion to the cause which you are so successfully laboring to promote, as well as in your liberal indulgence of opinions opposed to your own, that I shall offer no apology for the following remarks elicited by your interesting article entitled "Rules and Suggestions in Husbandry." All of those I deem highly valuable: but there are a few which, although they have almost become axioms, appear to me at least *doubtful*, notwithstanding they are sustained by such a host of celebrated authorities, that any individual who ventures to question them incurs the risk of being called quite presumptuous. This risk, however, I am willing to run in, the hope of exciting some abler and more experienced agriculturist than myself to a full discussion of a subject so important to all cultivators of the soil as that which forms one of the chief topics of your article,—I mean, *the rotation of crops*. But to proceed with my comments.

In your 18th rule or suggestion you say,—"The natural fertility of a farm cannot be kept up or increased, where arable and mixed husbandry prevail, from the resources of the farm stock, without resort to an alternation, or change of crops. Although the diminution of fertility may be imperceptible in some extraordinary cases—and although some soils seem naturally and peculiarly adapted to certain crops,—yet, where the same crop is grown on one piece of ground in successive years, deterioration as certainly goes on as the sun shines by day."

Here, in the first part of your second sentence, although you evidently make an exception to the universality of your rule, *that* exception is entirely done away by the positive unqualified assertion in the last part. This naturally suggests the following question;—how is an imperceptible deterioration to be ascertained, and if *that* be practicable, can it be worth regarding in any of those cases, where it is so slight,—so gradual that nobody can see it?

The 19th rule declares, "that two white, or grain, or culmiferous crops, should not be made to succeed each other in the same field."

Now, in opposition to the universality of these rules, the facts which have fallen under my own observation, together with those communicated to me by perfectly veracious agriculturists, are so numerous and remarkable as to have made me, if not a decided infidel, at least a sceptic in regard to the absolute necessity of a rotation in crops, for the purpose, either of creating or preserving the fertility of soils. That *some* rotation is generally beneficial, and in a degree well worth regarding, I have no doubt. But like thousands of other good things, I feel equally confident, that its benefits have been immeasurably exaggerated, and thereby have prevented its adoption to the extent to which it might and probably would have been carried, had no Baron Munchausen-tales been told about it. Many an excellent practice has failed to become general, solely from the circumstance that the first who adopted it on the recommendation of those who claimed to be the inventors, did not half realize the promises made in its behalf. Exaggeration is the besetting sin of almost all inventors and discoverers, and this folly often deprives them both of the credit and the profit of their discoveries and inventions.

Permit me now to state a few of the facts which have produced my scepticism. The two eastern shore counties of Virginia comprise a large extent of country. The soil is generally sandy, and not such as is usually deemed either the most fertile or the most lasting: yet all with whom I have ever conversed, confidently declare, that their lands at least "hold their own" although they have been generally cultivated, for a long series of years, without rest, in alternate crops of corn and oats, and without apparent diminution of the amount of produce. The inhabitants ascribe this to a natural growth which they call a bean, but which is in fact a pea that almost invariably succeeds the oat crop, and is turned into the land when ploughed up for corn. Here, then, is a formidable exception of great extent, to the rotation creed, as well as to the poisoning system of Monsieur Candolle and others: for in two very large counties of Virginia, two white crops of grain constantly follow each other every year, without any perceptible deterioration, as the owners and cultivators of the soil all assert; and this too, in most cases, without any return to the land, of fertilizing matter, except the dead natural growth of the pea. Could this possibly happen, either if rotation was as indispensable as it is alleged to be; or, if the poison-fanciers were right in their strange notion? If *their* creed were true, neither corn nor oats could any longer propagate their breed in Accomack or Northampton; for both would have deposited by this time so much deadly poison for their offspring, that none could ever germinate, much less continue a healthful existence. Again, if your opinion be correct, the average equality of the corn and oat crops in these counties, for so long a period, without any alternation whatever, except from one to the other, can be accounted for only by supposing either that the soil of our eastern shore counties originally contained such a superabundant store of the peculiar food of corn and oats, that half a century has not sufficed to exhaust it; or that the natural growth of the pea restores annually, the quantum sufficit of this food to maintain from year to year the alleged equality of product. The fact itself cannot be doubted, unless we can persuade ourselves to believe that every cultivator in the two counties has deceived himself, which is hardly possible.

In several other parts of Virginia, I myself have seen pieces of land whose owners have assured me had been constantly cultivated in corn without rest, for ten, fifteen, and twenty years, and in some cases still longer, without apparent diminution of crops except in bad seasons. The same assurance has been given me by many tobacco-planters in the James-River country, as to the continued culture of that crop, on the same land,—even for thirty years in succession; and likewise of corn and wheat alternately, for similar periods, on other portions of that territory. Only a few days ago, talking on this subject with a friend from one of our counties bordering on the Chesapeake, he told me that the best crop of wheat he ever made, was on a piece of land from which he had taken a crop of oats only a few weeks before he sowed the wheat; and I have heard similar statements from others whose word I could not doubt. In most of these cases I understood that no manure was used, unless the weeds and stubble could be so called, which were turned under by the plough.

Take one fact as to cotton. Several years ago I was accustomed to visit a near relation who, for twenty odd years, cultivated this plant in a few acres near his house,—the soil of which, although good, appeared to have nothing peculiar in it,—nothing indicating any essential difference between that and other common soils of similar quality, on our tide-water-rivers. I saw the crop of cotton almost every year during the greater part of the time, and never could perceive any difference, in similar seasons. The proprietor himself always assured me he found none in the product, but what was manifestly attributable to the variation of the seasons,—the crop of one good year being quite equal to that of another. The only manure given to this cotton was drawn wood ashes, in which the seed was constantly well rolled before planting.

Let me now state a few facts as to garden vegetables, in opposition to the rotation doctrine, and the supposed necessity for a change of seed. In the tide-water portion of our state, I once saw, at a lady's table, some Irish potatoes of so good a quality, that I was induced to inquire where she procured her seed, and how she cultivated them. She informed me, that she had used the same seed for eighteen years, and had raised them every year, in the same square in her garden, only adding the usual quantity of manure in the trenches, every time of planting. The soil of her garden appeared to me much the same as is common with us. Of some other table-vegetables I can speak from my own experience; for example, the English pea, (as we call them,) the snap-bean, and the Siberian cale.* These I have cultivated for a number of successive years, without any change of seed or situation, and in similar seasons have never discovered any difference, either in quality or quantity. The manure used has been either from the horse stables, or drawn wood ashes.

To the foregoing statements it may perhaps be objected, that they contain more matters of opinion than of fact. True it is, that I have given no results of actual comparative measurements; but it is hardly conceivable that so many farmers and planters as have referred to, could have been cultivating corn, wheat, oats, and tobacco, for nearly half a century, without over measuring their crops. This is never omitted, although in some instances probably, less accuracy may be practised than in others. Still a measurement is always made with sufficient particularity to warrant the opinions I have stated, derived from so many different individuals, in different parts of Virginia, and concurring with a degree of unanimity which could hardly be possible unless sustained by similar facts. Taken all together, they appear to my mind most indisputably to refute the plant-poisoning-doctrine; and if not greatly to invalidate the rotation-creed, at least to throw in its way, some obstacles which I can perceive no satisfactory means of removing. If there are any I should be highly gratified to learn what they are. I am not conscious of any prejudices on either side; but notwithstanding the fearful odds against me, I must believe from an experience of nearly "three score years and ten," that some very profitable farming *may be* rationally expected without any rotation of crops, provided only that suitable manures, and in sufficient quantities, be annually applied to the arable parts of every farm.

Let me beg you, my good sir, not to mark me down as an utter infidel—guard the rotation system. To a considerable extent I profess myself a believer; but acknowledge, with all due humility and apprehension of reproof, that I am a bit of a sceptic, as to some of the marvellous benefits ascribed to the mere alternation of crops; for in almost every case to which I have paid particular attention, the effects seemed quite as much attributable to manure, as to rotation. Still I am willing to admit—nay, I finally believe, that the best system of husbandry is inseparably connected with, and dependant upon both.

In connection with this subject, there is an opinion very prevalent among us as to the comparative power of different crops to exhaust or improve land, which seems to have more in it of fancy, than of fact. I am aware that some European gentleman, (of what profession I do not recollect,) has published a table, which has appeared in our agricultural papers, wherein he professes to have ascertained this power, to the ninth part of a hair; but has left us utterly benighted, in the slough of despond, as to the modus operandi,—although, if he is a real practical agriculturist, he might readily have concluded his table would prove such a stumbling-block, such a pons asinorum, in the way of us American clodhoppers, that we never should be able to get over it without farther aid, than the mere tabular statement affords. The existence of the exhausting power in all crops, is too manifest,—too much a matter of daily observation to be denied; but what crop exerts it most, and the exact degree of such exhaustion, I humbly conceive, to be among the "unknowable things" of this world. One common notion, however, this table unquestionably *disproves*, which is, that some crops actually *improve land*, and hence are called *improving,—ameliorating crops.* Now, I would most respectfully suggest to all my agricultural brethren who read your highly useful paper,—(and I venture to call them brothers, because I myself feel the sentiment of fraternity for all,) that if any general rule whatever can be established on this subject, it may be expressed in something like the following terms: *All crops, if taken entirely off the land, exhaust in proportion to the number and size of the spongioles of their roots, and the time consumed in their growth and maturity; and none actually improve, but such, (if any such there be,) as return to the soil more of the food of plants, than they consume.* This I consider a universal rule; but if any one can produce what he believes to be an exception, I pledge myself at least to *the attempt* of disproving it.

A word or two in conclusion, and I shall cease to tax your patience with any more of my lucubrations. I assure you, in perfect sincerity, that they have been prompted solely, by an anxious wish to promote *our* cause,—*that* cause which I verily believe to be the main-spring, the only true source, both of individual and national wealth, prosperity, and happiness. If you believe this communication may, in any degree, contribute towards these vital objects, *then* I wish you to publish it; otherwise, it is my wish that you burn, or use it as waste paper. Its style and general character may possibly need some explanation,—nay some apology, with the graver, more solemn portion of our brethren. If such apology be required, here it is. *My* experience has thoroughly convinced me, that plain naked statements of facts in husbandry, however important they may be, are such soup meagre diet to most of our brethren, that very few, comparatively speaking, can be prevailed upon, ever to taste, much less to swallow such cookery. With this fact indelibly impressed upon my mind, I have endeavored to season the dish which I have offered to you and your readers, although it is with much fear and trembling, lest it may force upon your memories the old adage, —that, "God sends meat, but the devil sends cooks." I remain, dear sir,

Yours very respectfully,
JAMES M. GARNETT.

REMARKS.

We most cheerfully give insertion to the preceding communication, and not the less readily because some of its opinions seem to conflict with our own. We say *seem* to conflict—for we are still of the opinion, that were our views mutually understood, there would be found to be no great matter of difference between us. Besides, it is by free and liberal discussion—by the collision of opinions—that important truths are often elicited, and improvements made. The high standing of our correspondent, and his long practical experience in husbandry, will always render his favors acceptable to the conductor, and interesting to the readers of the Cultivator, however highly "spiced."

We must in the outset wholly disclaim being a disciple of the "plant-poisoning" theory of De Candolle and others. We have uniformly considered it illusory. But we do contend, that each species or family of plants require, and do tend to exhaust the soil, of specific portions of its fertilizing matters; and the exceptions taken by our correspondent do not seem to invalidate our general proposition. Our position is in a manner proved by the fact, that wheat requires carbonate of lime, clover, gypsum, &c. and that some soils will bear a succession of some kinds of crops, and not of other kinds. A soil may contain a large proportion, say twenty per cent, of the specific of food wheat, or corn, or tobacco; and as not more than a half, or a quarter per cent of this may be required or taken up, by a single crop, the supply would last forty or fifty years, without *perceptible* diminution, and yet at the end of the period would become wholly exhausted of it. For we believe the elementary food of plants combines in definite proportions, and that crop takes from the soil, of its specific food, not in proportion to what the soil contains of this food, but only what is required, by the laws of vegetable nutrition, to supply its absolute wants. We are induced to this conclusion by the fact, that on analysis, every farm crop is found to contain about the same elementary matters, and in the same proportions, on whatever soil they are grown—poor or rich—which they would not do were they permitted to gorge themselves with their favorite food, or were wholly deprived of it. It was these considerations which induced us to say,—"that when the same crop is grown on one piece of ground, for successive years, deterioration as certainly goes on as the sun shines by day."

And how is this proposition disproved, or even weakened, by the facts detailed by our correspondent? He tells us, in the first place, that corn and oats have been alternated in Accomac and Northampton, for half a century, without perceptible diminution of product. Are corn and oats "the same crop?" Besides, the pea, the bean, or the vetch, which always accompanies the oat, and which is turned under as food for the corn—is this nothing?—is not this virtually a *three* course system, instead of being a succession of the "same crop?"

The great wheat grown after the oat crop may be explained, though we do not mean to say correctly, by supposing what often takes place, that the oats were sown on a fresh turned ley, and that the vegetable matter of the soil only became soluble, or but partially so, after the wheat was sown.

The potatoes and the garden products, it seems, received an annual supply of manure—and this manure probably abounded in the specific food of the plants. Every field of a farm would probably continue to yield like the potato, the pea, &c. and supersede rotation of crops, "provided only," to use our correspondents words, "that *suitable* manures, and in *sufficient quantities*, be annually applied to the arable parts of every farm." It is the difficulty of obtaining this manure, of suitable quality, and in sufficient quantity, from the available means of the farm, thus annually, for every arable field, that a resort to alternating crops is deemed necessary.

The truth of the matter seems to be, that we meant to give *general* rules, and our correspondent has shown, that like all other general rules, they are liable to *particular* exceptions But let us put the question fairly: How will the general principle, or rather the want of a due observance of it, apply to Virginia, for instance? Have not successive crops of wheat, of corn, or of tobacco, greatly deteriorated some of her once fertile soils? Have they not reduced thousands, and tens of thousands, of her good acres to comparative sterility—to unproductive commons? If these questions are answered in the affirmative, they will in some measure sustain us in our general rule. If in the negative, we would ask, from what cause then has deterioration resulted?

We have said thus much in defence of the theory of rotation, not in the spirit of controversy, but because we deem it a valuable collateral branch of improvement whenever it can be reasonably adopted. So far as the experience of twenty years has enabled us to judge, we think its advantages manifestly great, not as a substitute for manure, but as an auxiliary. —*Cond. Cult.*

Rotation of Crops.

Bucks Co. Pa. 9th mo. 27th, 1838.

J. Buel—I observed with pleasure, in the 7th No. of the Cultivator, the following course of crops suggested. 1. Roots or Indian corn, with long manure upon the sod: 2. Grain, with grass seeds: 3. Grass, for two years.

Wheat, rye, barley and oats are the principal grains with which I am acquainted. But as clover, and I expect grass seed generally, takes but poorly upon oats, I think it would be prudent to discard that grain altogether in such a rotation. The others may any of them succeed corn; but wheat or rye cannot, either of them, well be sown after beets or turnips; and I suppose, as a general rule, not after potatoes, parsnips or carrots. Barley, then, appears to be the only alternative after roots.* But as it will not be advisable, as a common practice, to give up "bread stuff," we must raise wheat or rye, and therefore corn. If, then, we confine our rotation to corn, wheat or rye, and the grasses, we drop "an important link in the chain of alternation," and thereby lose "one of the best gifts which modern improvement has bestowed upon husbandry," ROOT CULTURE: and also introduce the unadvised plan of putting one crop in the ground soon after another of the same kind has been taken off. To obviate these difficulties the following rotation suggests itself: 1, corn: 2, wheat, or rye: 3, grass: 4, roots: 5, barley: 6, grass. There are two particulars in this course upon which I wish to be better informed. Wheat and barley, I think, exhaust nearly the same kind of nourishment from the soil, or require the same specific food. If this is a fact, could there not be some other crop profitably substituted for barley, which would not feed so extravagantly upon the elements which produce the "staff of human life?"

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* This I beg leave to recommend as preferable to all other winter-greens.

In some parts of Jersey rye is sometimes sown among corn, early in the fall, and a good crop mostly reaped the following summer. But to put wheat in after corn it is necessary to cut up the corn and carry it off previous to ploughing the ground. The stumps are then to be disposed of. And withal, some seasons, the corn does not ripen timely to afford an opportunity of getting the wheat put in properly, in season. The question then arises whether this is not the place to profit by some of the "powerful auxiliaries to the fold yard," mentioned in the following extract from the Cultivator.

"Green crops, that is, clover, buckwheat, rye, oats, &c. ploughed under as food for plants, are enriching crops, and powerful auxiliaries to the fold yard, but they are too seldom resorted to for this purpose."

Buckwheat and oats would require to be sown so late in the season that the ground would necessarily be exposed a long time to the scorching influence of the sun. I therefore conclude it would not be advisable to depend upon either of them alone. The advantage resulting from ploughing under a good clover sod for wheat is too well understood to need much comment. But sown among corn immediately after the last dressing it is rather too uncertain a dependence of itself for this purpose; though I have seen it sown at this time when it mowed a tolerable swath the following summer. I have known rye sown among corn for sheep pasture during the winter and early spring, and then ploughed under. And I have heard it said that rye, when pastured, becomes, like some of the grasses, almost perennial. The question appears to be, whether it would not answer a good purpose to sow rye and clover together, among corn, immediately after the last dressing, and pasture them during that fall and the following summer, and then plough them under for wheat? Is it not likely that such a practice would be an advantage to the wheat crop, and ultimately to the farmer's purse? If there would be any advantage in deferring the wheat crop a season after the corn is taken off, I would suggest the following course, desirous that any improvement may be pointed out which may present: 1, corn, with long manure upon the sod; sowed with clover and rye during the summer: 2, pastured and sown with wheat: 3, wheat, with grass seed; orchard grass where clover does not take well upon wheat after clover: 4, grass two years: 5, roots manured: 6, valuable substitute for barley, with grass seed: 7, grass one or two years. Poh! says the farmer, that course will never answer for me; I shall have to cut my fields all up into little bits. But, say I, the way to raise a good crop is to put in but little ground—do that well, and give it good attention afterwards. And we are thereby enabled to let such a length of time intervene between two crops, of the same kind, as to afford an opportunity for the elements which form the specific food for that crop to accumulate in such abundance in the soil as to induce a reasonable hope of an ample reward for our patience and pains.

I have no doubt but that in a course similar to this, the quantity of animal food for winter, would be greatly increased—thereby a much heavier stock might be kept: and accordingly, a large increase in the quantity of manure, which is said to be "the farmer's wealth."

But the desideratum appears to be a *valuable substitute for barley*, which will not impoverish the soil for wheat, and which is not quite so much of an enemy to young clover as oats. If it is a summer crop, to be fed in the fold yard, all the better for their land. M***

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*At the north, where the grain-worm prevails, spring wheat is generally sown instead of the winter varieties. This may follow any root crop.

Benefit of Applying Plaster.

MR. J. BUEL—The beneficial effects of plaster on different varieties and species of vegetation are generally understood in expediting the germinating process, and in advancing the young and tender plant in its incipient growth; but a development of its power and virtue, at different periods throughout the growing process, under a certain state and condition of the earth and atmosphere, has not been either sufficiently investigated or made public. During the excessive heat and drought which visited this section of county, in common with many others surrounding, and in some instances detached portions as it respects the latter, our late summer crops, under ordinary circumstances, suffered severely; the potato crop being quite light, and the corn crop short of an average yield. About four acres of corn, planted on the 10th of May, on a gravelly soil in good condition, much of which, however, had not a depth of more than ten or twelve inches, reposing on a slate rock. On the third week of the drought the leaves began to fold, and continued so until all hopes of a crop were at an end: most of it was in silk and setting. I sowed half of the piece most injured with plaster, broadcast, over the leaves, a bushel and a peck the acre, after sunset. The beneficial effect derived from it was almost instantaneous; its attractive power in absorbing the moisture, and probably other fertilizing principles from the atmosphere, in three or four days restored its healthy appearance much; the other half of the field, more favored with a deep, rich soil, was apparently much less injured by the drought; the whole piece was plastered before it was hoed; the half receiving the second plastering turned out the greatest yield: the drought continued for ten days after the second plastering; a few rows on the margin, of a similar depth of soil and equally fertile, which was not plastered, produced not half as much. About an acre of potatoes, planted in the same field, and plastered broadcast at the same period with the corn, at least doubled the product.

We all know that frequent experiments have been made on wheat, oats, corn and potatoes, at an advanced growth of those products, by sowing plaster, broadcast, over their tops or leaves, without any apparent beneficial effect. I have tried the experiment twice on potatoes and once on corn, without much success: the reason was obvious; the atmosphere was warm, and the earth supplied with a sufficient quantity of moisture.

The main and almost exclusive virtue in plaster is to keep up a moderate degree of warmth, and to supply, through the medium of the leaves, that moisture and fertilizing principle for the support, growth and maturing the grain, which the roots are incapable of affording and extracting from a parched up earth, and the leaves and stalks from a dry, arid atmosphere. Such was the case in July and a part of August with us. Plaster acts very slowly, and almost imperceptibly, even in a drought, on argillaceous or clayey soils, until the succeeding year, when it develops its beneficial effects on clover and other grasses. Plaster does its duty most effectually on all silicious compositions, on sandy, gravelly, and on all soils composed more or less of sand.

On a hasty perusal, a few days since, of the last June number of the Cultivator, I observed a well written production on the subject of lime and plaster as manures, by William Penn Kinzer, of Lancaster Co. Penn. It would require too much space in your useful journal to answer all his objections to the power and effect of plaster. I will answer a few of them as briefly as possible. Mr. Kinzer sowed a small portion of his wheat field with plaster in April, but derived no benefit from it: he says nothing on the subject of the state of the atmosphere or condition of the earth. Plaster affords but little benefit on a well conditioned calcareous soil, which he represents his to be, where a sufficient degree of warmth and moisture prevail, for it is only in their absence that it acts efficiently, even on silicious compositions. He found great benefit, however, from its use with lime. On that point he is unquestionably correct. While the lime acts as a stimulus and fertilizer, neutralizing all the noxious and acidifying principles, and promoting their decomposition, the plaster attracts the requisite moisture for a full development of the power and influence of the lime. Thus positive assertions are sometimes made, condemning in unequivocal terms the power and effect of an agent, without taking into consideration its peculiar nature or composition, deterring others unacquainted with its peculiarly specific and almost exclusive properties, from a trial of its virtues, to the great injury of the public, as well as individual loss. I would refer the reader to Mr. Kinzer's observations on the subject.

JOHN G. GEBHARD.

Claverack, Sept. 21st, 1838.

Live Fences of the Willow.

White-Hall, Va. 27th Sept. 1838.

JUDGE BUEL—Dear Sir—I do not recollect to have seen any thing said in regard to live fences made out of yellow willow: if any thing in the following is worthy your notice, or likely to be of advantage to the numerous readers of your excellent paper you may use it to the best advantage. In our region, say the counties of Frederick, Clark, Warren, Page and Shenandoah, there are many miles of live fence, especially upon the banks of the North and South branches of the Potomack river, made of the branches of the yellow willow. In the month of March they are cut down and trimmed with an axe, say eight or nine feet long, so that cattle cannot well reach the tops and trim them, in which case they do not live well: however they are planted at most all seasons of the year, though the spring is preferable; all sizes are planted, as near the edge of the water as possible, in the spring: at other seasons, when the waters are low, we do not plant so close. About the size of a man's wrist is the best size to live well, but they are often much larger, as well as smaller, and do well: they are generally planted three or four feet apart, the large end of the limb, branch or plant being cut sharp, ready to force in the ground, which is done by means of a Jackson, (as some call it,) made of tough oak, gum or locust, to drive in the ground, say eighteen inches or two feet: this Jackson, as it is called, has a pin through the top, an inch and a fourth or half thick, to draw the Jackson, and an iron socket at the bottom. It is best, perhaps, to have several sizes to suit the limbs. After the Jackson has been drawn, the plants pushed down in the hole firm, two or three hands will make a long string of fence in a day by having two good mauls: the hole is made in less than a minute. After the willows are set it is best to plat in brush of some kind; if you do not, and water should get high soon after planting, they will not stand so well; and another advantage in platting in brush is, sediment and trash settle in behind the willows, make them stand firm, and grow more rapidly. However, some few plant and leave them several years, then cut off the tops and plat the fence, which is not a good plan. A live fence in this way is ready for use as soon as it is platted. We have taken a great many rails and fire wood off of those fences when they get ten or a dozen years old, the growth on water is so quick.

I remain, dear sir, your most obed't servant,

SAM'L M. SPINGLES.

Siberian vs. Italian Spring Wheat.

Utica, September 25, 1838.

MY DEAR SIR—The interest which I feel in relation to agriculture has not abated; nor have I suffered my attention to, or observations upon, the wheat crop to be arrested or diverted by the ill-natured remarks which have been elicited from individuals in Oneida county, where so much Italian seed wheat has been sold. I last year gave the public my experience in regard to the Siberian variety of spring wheat; and I further did that which was not only my privilege but my duty to do, in comparing my own Siberian with the Italian which was cultivated on three farms adjoining my own; which were all the pieces of the kind within my knowledge. Whenever public feeling is to be awakened to this or to any other important object, it is to be expected that the more sordid and bubbling passions will foam over first; but you may rest assured, sir, that more rational feelings, with operative effects, have also been excited: in common with may others I have myself been induced to test the comparative merits of the two varieties. I took much pains to obtain from Rome a fine sample of Italian seed, which, with my own Siberian, I subjected to the following culture:

I had two pieces of ground, of what I considered equal quality as to soil and adaptation to wheat—the one was last year cultivated to peas, with about twenty loads of manure (recent) to the acre; the other was in Siberian wheat, after corn, without manure—the pea ground I considered of the best promise. I concluded to give this lot to the Italian wheat, and give the Siberian the trifling advantage of sowing first as to time upon the other—thus with the like preparation on both, of ground and seed, the two kinds were sowed the first week in May: both grew well—the Siberian was first fit for harvesting—both cut and secured in fine weather—the straw of the Siberian bright and silvery, and berry plump and full—the straw of the Italian lacked lustre and was somewhat rusty, insomuch that the kernel was so shrunk that it will injure both its sale and its price in market.

In my former communication I claimed for the Siberian variety of spring wheat its ability to withstand both rust and smut, to a greater degree than any other kind with which I was acquainted. My experience of the past season sustains its superiority, so far as a single experiment goes, but I do hope that through the medium of your invaluable paper the agricultural public will be furnished with sufficient data to form a correct opinion on this deeply interesting subject. With a market commanding two dollars a bushel for the best of wheat, and ten dollars a barrel for best of flour, shall it be considered obtrusive to urge the wheat crop upon the farmers' notice? Shall I be contradicted when I say that rust and smut have been for nearly half a century the greatest enemies of the wheat crop? And will you impeach my motives (whilst you have not distrusted my statement,) when I tell you that in my four years' experience it has resisted both perfectly? Far be it from me to consider the question as having been settled by the experience of any one individual for a few seasons, but in the absence of other and better testimony let it have its due weight. Respectfully yours,

THOMAS GOODSELL.

The ears are not well filled this season, in either the Siberian or Italian. As we have not thrashed, I am unable to say what will be the comparative yield per shock, or per acre.

Italian and Siberian Wheat—Dutton Corn.

Harmony, August 14th, 1838.

Dear Sir—I procured from Oneida county the Italian and Siberian wheat: the Italian did the best. This season, I procured the early yellow Dutton corn, a sufficient quantity to plant three acres: it proves to be the earliest, and most beautiful corn I ever saw. I have raised 150 bushels for seed, which, I think, will be insufficient to supply the wants in this vicinity. Yours truly,

EDMUND WELLS.

A Profitable Mixed Crop.

Middletown, Monmouth Co. N. J. Oct. 11.

Mr. Buel—Excuse me for troubling you with a few questions. Is the smut on maize of the same nature and habit as the smut on wheat? Does the smut adhere to the grain, and being absorbed by the plant, and circulating through the sap, produce the disease? And do you think the same steeps, used successfully for wheat, will destroy the smut on seed corn? I have been in the habit of selecting seed corn whilst gathering, and leaving some husk on, and tying it for a mark, and throwing it in the wagon with the others, and assorting it at the crib. Some of the smutty corn being thrown in the wagon likewise, impregnates all my seed corn.

I have been in the habit of using fish as a manure, with advantage. Now I have heard it asserted that in New-England, where they have used them many years, they have at length rendered the land barren and unproductive. Some intelligent men with whom I have conversed on the subject, think it not improbable that by the continued use of them, the ground becomes saturated with oil and forms an indecomposable substance, similar to oil paints. What is your opinion in regard to it? Will some of your readers, who know any of the facts in regard to their long continued use, publish that knowledge through your columns? By so doing they will oblige me and others of your readers.

I have some land that I wish to under-drain: but at the depth of eighteen inches it is, in many places, a loose quicksand. Will not the quicksand fill up the drain? How will slabs do for under-drains? Will they rot very fast where they are continually wet?

I have been successful in raising a large crop from a small piece of ground; perhaps it may be useful to state the circumstances. Watermelons having been an uncertain crop, for several seasons past, I determined last spring to plant potatoes amongst mine, so as to be sure of part of a crop. I struck it out both ways eight feet apart for melons, and then split the intermediate spaces both ways for potatoes, (making the hills four feet apart,) which I planted early, putting one large shovel full of manure in the potato hills, and three in the melon hills, and afterwards put three fish to a hill. The drought hurt the potatoes, but benefitted the melons. The piece contained three acres, and produced as follows, viz:

The watermelons,	47 loads, sold for	$352 25
potatoes,	207 loads, sold for	120 37
		3)472 62
Total per acre,..................		157 54

From your constant reader,

THOMAS ROBERTS, Jr.

Remarks—We have not made any observations in regard to the smut in Indian corn—nor seen any remarks of others; and of course do not feel qualified to answer the inquiries of our correspondent in this matter. Quicksand is a serious obstacle to encounter in draining; yet this obstacle, we think, may be overcome, where there is a moderate descent, and a continued run of water, by covering the drain well with sods or straw. Slabs are a worthless material for drains. The suggestion that the use of fish, in manuring lands, ultimately impoverishes them, is new to us; and if such be the case, which we very much question, it must be by accelerating the decomposition and exhaustion of the vegetable matter in the soil. The decay of the latter, particularly when fibrous or woody, is slow; but when brought in contact with animal matter, as fish, which ferments rapidly, its decomposition may be greatly accelerated. But even in this case, nothing would seem to be lost, as the first crops gain what the later ones lose.—*Cond Cult.*

The Crops.

Black-Rock, Sept. 16, 1838.

After all, our boasted wheat crop in west New-York is a small affair. I am told, on threshing, our farmers have not more than half the quantity they expected at harvest. And although the Ohio and Michigan crop is good, it will be so late to market, that flour will be high through the season. Indeed, pretty much all the mills of the country, excepting those at Black Rock [and at Oswego and Rochester] are dry. These cannot fail so long as Lake Erie holds out. The drought with us is terrible. No rain for several weeks; and indeed only half a dozen light showers since the 1st of June. How the country stands it so well I don't know; yet cattle look well, although the pastures are dry and perfectly parched up. Many of our meadows have been burnt over. Oats are light; potatoes not half a crop—turnips nothing; sugar beets and carrots good. Ruta bagas cannot be depended on—they are so subject to fly and insects—wet seasons only do for them with us. Hay was a good crop. I fear our cattle will go into winter quarters poor. And if the drought continues, it will be very difficult to plough for a large wheat sowing this fall, so hard and dry is the ground. L. F. A.

Chinese Corn.

Hallet's Cove, L. I. Sept. 21, 1838.

Mr. Jesse Buel—Sir—I send you four ears of the *Chinese tall prolific or tree corn* (a few grains of which were found in a box of tea some three years ago,) which was given me by a gentleman. It is a new variety, as it strikes off in branches from the stalk, hence its name "*Tree Corn;*" sometimes four, but seldom less than three branches, and bearing an ear at the end of each branch. It grows from eight to ten feet high, produces abundance of fodder, and is a large white flint twelve rowed corn—ears from ten to fourteen inches long. I counted six hundred and sixty grains on some ears. I planted this corn on the 10th of May; it had ears fit for boiling the 10th of July; its produce was much curtailed by the long drought—but notwithstanding, I counted *two thousand one hundred and twenty grains*, the produce of *one stalk*, being upward of two thousand fold. The Dutton, (which is an excellent corn) planted on the same day, on the same field, and received the same quantity of manure, cross-ploughing and hoeing, did not produce one-half: my patch about two hundred hills was examined by Mr. A. Polhemus of Hurlgate-farm, and many more of our neighbors, who all agree that it was something new, and something very superior.

This corn is for sale at the store of G. C. Thorburn, 11 John-street, New-York, and at William Thorburn's, North Market-street, Albany: the price is 25 cents an ear. One ear will plant *one hundred hills*. Now if there is a farmer between Maine and the Rocky-mountains, who would rather give two shillings for two gills of brandy, in preference of his being put in possession of seed for one hundred hills of such corn—he deserves to be fed on suppaan and butter-milk, as long as his little soul and big carcass will hang together. Yours,

GRANT THORBURN.

We received the four ears of corn accompanying the above letter, and thank our old friend for the compliment; we hope this new variety may realize his most sanguine expectations. —*Cond. Cult.*

Common School Libraries.

New-Rochelle, Sept. 26, 1838.

J. Buel, Esq.—Dear Sir—I have just seen the August No. of the Cultivator, and am gratified to notice that you advocate the formation of agricultural schools, and adoption of measures by government to advance the science, and give additional interest to the practical pursuit of this interesting occupation, by better acquaintance with the theory. You do not over-estimate the subject, and I trust the day is not distant when state authorities will bestow attention upon it, and adopt such measures as shall tend to make us an agricultural as well as a commercial and manufacturing people. Then shall we begin to realize the blessings with which a beneficent Providnece has surrounded us in the diversified soil and climate of our favored country.

But the more particular object I have in this communication is, to correct the impressions you entertain in relation to the school library, recently issued under the direction of the American society for the diffusion of useful knowledge. It is admitted that the fifty volumes do not embrace all the topics of general interest, that the committee were desirous they should; and which in their published prospectus they designed to introduce; but the repeated calls upon them "as stated in the introduction to each volume, induced them to issue a selection from existing publications, while they go on *as fast as possible* to complete the plan."

You will understand from the accompanying documents, the general objects of the society, and how prominent a place the subject of agriculture had in the proposed library for schools, independent of one designed to be issued expressly for the farmer whenever the committee shall receive the necessary materials, prepared and adapted to the genius and character of our own country, by practical and scientific men. The difficulties under which the committee have labored can well be compared to the magnitude of the undertaking. At a time when all our citizens were engrossed in their own occupations, and when few had sufficient resources to meet their daily engagements, the committee have gone on with their work, without seeking the pecuniary assistance of the community, and have prepared, principally of standard works, a library for our schools, which has found favor wherever it has been examined, and which I think must commend itself to you. Even when those books shall be included, which the committee promise to add when materials shall be found, and their means be sufficient, the present selection ought to have a place in the library. You are aware of the time, labor and means necessary to prepare a set of books on any given subject, properly adapted to a specific object. How difficult then must be the task of preparing a systematic series of books on agriculture, suited to our soil and climate, when the subject, as you admit, has been so much neglected? Must we, therefore, withhold all aliment from the minds now maturing in our common schools?

The committee do not pretend that the library is by any means complete, but that it is in itself unobjectionable. The undertaking is one of national importance, in which you and other philanthropists may engage, and by a united and wide spread co-operation make this library as comprehensive and useful to the rising population, as the territory over which they wish it to diffuse an influence, is vast and extensive.

A WESTCHESTER FARMER.

Making and Fining Cider.

Ballston, September 20, 1838.

Dear Sir—Agreeable to my promise, I send you an account of my process of making cider.

I grind my apples after they have become mellow, carefully throwing out all that are defective. I stir up my pomace till it becomes red from the action of the air; then press out the juice slowly—put it in casks—bung it up—and immediately place it in the cellar. Before the fermentation commences, I insert a flexible tube (lead pipe I have used) through the bung, and bend the other end into a cup of water or cider placed on the cask near the bung, to allow the carbonic acid gas to escape, and to prevent the oxygen of the air from decomposing the saccharine matter. So soon as the gas ceases bubbling through the cup, the fermentation has ceased; it is then drawn off into clean casks, bunged tight and placed in a cool dark cellar, where it will continue sweet for any length of time. The advantage of this process is, that you preserve the juice perfectly sweet, and you are more sure to draw it off at the right moment after fermentation has ceased. I place it in the cellar to ferment, because the temperature is more uniform, and it is not so liable to be agitated by sudden gusts of air or disturbed by other causes. When fermenting, the lighter particles of pomace are rising, the more heavy settling; and the least touch of the cask will disturb the operation. I use *no ingredient whatever* to make my cider good or to preserve it; and I almost invariably have it of the purest and best quality. Yours most respectfully, W. G. VERPLANCK.

The Wheat Maggot.

New-Scotland, October 9, 1838.

J. Buel, Esq.—Sir—In the October number of the Cultivator you ask for information respecting an insect or worm, which preys upon the wheat crop after it has ripened. I will describe a destroyer which I have seen, which may or may not be the one you allude to. I had five acres of winter wheat on a dry gravelly soil in the summer of 1832, and a few days previous to cutting it, I rubbed in my hand one of the heads, and among the kernels I discovered a greyish worm, about one-eighth of an inch in length, and about the thickness of a cambric needle: it appeared brisk and active, and, like the caterpillar, upon being touched coiled itself immediately up. It resembled a species of grub, though I saw nothing upon it in the form of legs; on examining the kernels in my hand, I found two-thirds of them punctured as with a small needle; the heart mostly eaten out, and they were easily rubbed fine. I looked still farther but saw nothing more of the worm or its work. In the autumn following, when preparing some of the above mentioned wheat for seed, by immersing it in strong pickle, I was not a little surprised to see apparently full and plump kernels, float on the surface, which, on examination, proved to be entirely eaten up, save the shells; and in most of them a small hole was clearly seen. From every two bushels thus immersed, about one quart floated from the above cause.

My wheat the next year was mostly destroyed by the weevil, [grain worm] so I saw nothing of this maggot, as the weevil destroys the grain while in the milky state.

I purchased half a bushel of Italian spring wheat last winter, from Mr. Van Rensselaer, at the Cultivator office, and on the 28th of May last, it was sown; having prepared it by immersion in a strong pickle, and then mixing with it as much quick-lime as could be made to adhere to the grain. It came up well and grew finely, wholly free from weevil, rust or smut. But behold! a few days previous to cutting it, I discovered one, and only one, of the same species of little grey worms. Just three months from the day it was sown, it was threshed, and yielded about as ten from one. The soil is not a right one for wheat, being too gravelly; and was shaded by woods on the north, south and west.

Before I lay down my pen, I must just remark, with regard to pickling and liming seed grain, that I believe it should be strictly adhered to, as I have practised it upon all kinds of grain, except peas and buckwheat, and can speak of its benefits to every kind. Yours with respect,

W. MURPHY.

Rohan Potato.

Oxford, *Ct*. *Oct*. 1, 1838.

Dear Sir—I planted, on the 26th of April last, two tubers of the Rohan potato which weighed 13 oz. on a dry loam.

I dug the crop on the 24 Sept. which measured two and a half bushels, and weighed 144 lbs. or more than 160 per cent, notwithstanding the drought. Other varieties on similar soil were not more than half an ordinary crop.

The Rohans are but little known, and will probably command a good price for a year or two; and unless some description of them is given in the Cultivator, there will probably be as many kinds palmed upon the public as there have been of Dutton corn.

My seed, which I had of your neighbor Thorburn, was of an oblong or kidney shape; but on digging the crop I found various shapes, round, kidney, and, as is generally termed, snagged.

On offering some of the kidney shaped ones for a premium at the horticultural fair at New-Haven, they were objected to by some, as not being Rohans on account of their shape. Very respectfully yours,

ALFRED HARGER.

The Grub—Ruta Baga.

Poughkeepsie, *Oct*. 16, 1838.

J. Buel, Esq.—Dear Sir—Being a subscriber to the Cultivator, I take the liberty of stating to you a few facts with regard to some of my crops this season. I observed in one of the spring numbers of the Cultivator, that salt petre was a preventive for the grub worm eating corn, by making a pickle, and soaking twelve hours before planting. I did so, as per order; and planted a field of seventeen acres, and at the proper time the grubs came along, and it appears the flavor of the salt petre just suited their taste, for they cleared ten and a half acres of my corn-field almost entirely; the remaining six and a half acres, I planted some of it in three times, and have now about one-third of an average crop. I would have been better off if Mr. Grub had taken the whole, as I ploughed up the ten and a half acres and sowed three and one-fourth bushels of buckwheat, from which I have 300 bushels of very fine buckwheat, and sold it at 75 cents per bushel, and I am certain there is 50 bushels lost on the field, as it had all to be mowed, as it was all lodged and could not be cradled. Therefore I think it will take more men than ever I have seen, to convince me that salt petre will stop the grub from eating corn.

I have succeeded very well these four years in growing the ruta baga. I have had each year about 600 bushels to the acre; this season the drought and the fly injured my turnips some, but I will have an average crop still. I consider it a very valuable crop, as I have sold them at from four shillings to six shillings per bushel, and in the spring, my horses, oxen, cows, sheep, hogs, and even the poultry eat them and do well on them, and they are remarkably good for horses that have got the heaves, and also a good preventive for that disease. My method of cultivating the ruta baga is the same that is practised in Scotland. I plough the ground in April, and on the 20th of June harrow it, and cross-plough and harrow until the ground is perfectly fine. I then draw my drills with the plough two and a half feet from centre to centre; I then take a one-horse cart or wagon, but a cart is best, as the drills are injured with so many wheels turning on them; I put manure in each drill as for potatoes; then I take the plough and split the drills right and left; then I take a light roller long enough to reach over two drills, with one horse, and roll the tops of the drills once over; then I take the drill barrow and sow the seed; then I pass the roller once over the seed; when the turnips are up about two weeks, I go through with a hoe and thin them, leaving them eight inches apart, and in two weeks more, I plough between the rows; I then go through with the hoe and clean the tops of the drills of all weeds and grass and in about 3 weeks more I plough them again; then in the fall I take a scythe and cut as many tops as the stock will use in one day, and so until all the tops are used; then take a dung hook and drag out all the turnips, make pits that will hold about six loads; make the pit two feet wide and two feet deep, and build them up like a roof, the more above the ground the better, as they will not keep if they are warm; cover with a little straw to prevent the earth from going among the turnips; for each pit make three little flues for ventilators; then put on from four to five inches of earth, clapped well down with the spade. The turnips will keep better in this way than in a cellar, as a cellar is too warm.

Please excuse me for troubling you with this long story, but I have seen this crop managed in this way in Scotland, and never failed, forty years ago. I remain, dear sir, your serv't,

JOHN BODDEN.

EXTRACTS.

The Philosophy of Vegetation.

[*From the Genesee Farmer*.]

Perhaps there are few subjects of so much interest to the farmer as a proper understanding of the causes and agents of vegetable nutrition. The economical application of manures, the propriety of their use, the value of a system of rotation in crops—in short the whole philosophy and practice of farming—may be said to be depending on this point. Is there but one substance in nature that constitutes the proper food of plants? or are they endowed with omnivorous powers, and capable of finding food in all things presented to them? If there is but one kind of food, what is that one?—and if there are many, what is their state when appropriated by the plants? These are a few of the subjects that enter into a consideration of the food of plants; and the opinions of writers on vegetable physiology have been as various and conflicting as the substances which chemical analysis has detected in plants have been numerous.

Some have maintained that the actual nourishment was derived from the air: some that water alone constituted the food of plants; others have asserted that the growth was owing to a single substance, and that the earths which are present in plants, as well as most of the salts, are to be considered as merely accidental, not being necessary to the formation or growth of the vegetable: the only substance which all are agreed in considering absolutely indispensable, since it is a large and apparently essential part of every plant, is carbon. If the plant derives its support from the air, then the carbonic gas which exists in it must be the source of supply: if taken into circulation by the roots, then the carbon must exist in some soluble form, since the greatest chemical skill has never been able to induce a plant to take up the minutest portion of insoluble carbon, or detect its presence as an operation of nature.

Amidst these conflicting sentiments, adverse and contradictory as they may at first seem, we think that the opinions of men of science are verging to an agreement on one or two of the most essential points; and what we consider as of quite as much consequence, these opinions very nearly coincide with the actual experience of the farmer, and give a strong support to the modern theories and practice of agriculture.

We believe that Klaproth was the first to discover and announce to the world the existence of a peculiar substance, which he considered of importance to vegetable organization from its analysis, and which, from his first finding it in the bark of the elm, he denominated ulmin. Braconnet continued the investigation commenced by Klaproth, and found there were few substances of vegetable origin in which ulmin did not exist, tracing it in considerable quantities in sawdust, starch, sugar, seeds; and indeed in nearly all plants it was present. Berzelius, the great Swedish chemist, embraced it in his researches, and extending them to the soil, found that it existed in the earth in abundance, as well as in the bark and ligneous substance of trees. From its presence in the earth, and the probability that it was from thence that plants derived it, Berzelius distinguished it by the name of *geine*, a word derived from the Greek word signifying the earth. Sprengel and Bouillay have discovered that it is a leading and efficient principle in vegetable and animal manures, and hence they have denominated it *humine*, a name by which it has been most generally known, though scientific men are appearing to incline to return to the nomenclature of Berzelius. The justly celebrated chemist and observer, Raspail, in his late work on Organic Chemistry, translated by Dr. Henderson, denies the existence of *geine*, or *humine* as a proximate principle in soils, and says, "it will be easy to see that all these phenomena, (described by Berzelius, Sprengel and others,) apparently so varied, which have given room for the discovery of so many substances analagous to ulmin in their nature, are essentially nothing but a development of carbon." The name, however, we consider of mere secondary importance, and whether it is called *ulmin*, or *humine*, or *geine*, or *carbon*, it cannot effect the results which seem to flow from the substance and render it one of the most important agents in vegetable nutrition, if not the only one yet known.

Geine, says Professor Hitchcock, in his late admirable Report on the Economical Geology of Massachusetts, "when wet, is a gelatinous mass, which on drying, becomes of a deep brown, or almost black colour, without taste or smell, and almost insoluble in water; and, therefore, in this state, incapable of being absorbed by the roots of plants. Yet after the action of alkalis upon it, it assumes the character of an acid, and unites with ammonia, potassa, lime, alumina, &c. and forms a class of bodies called *geate*, most of which are soluble in water, and therefore capable of being taken up by the plants; and it is in the state of *geates* that this substance, for the most part, exists in soils."

Silica, alumina, lime, magnesia, oxide of iron, potash, soda, and sulphuric and phosphoric acids, may be considered the inorganic principles of vegetables, and analysis detects their presence in the most of them; hence they will be found the constituents of all soils, for the most part existing as salts—for instance, carbonate of lime, sulphate of lime, muriate of lime, phosphate of lime, &c. Neither the earths nor the salts can be considered the proper food of plants, as both these may be present, and yet a weak or imperfect vegetation, or none at all, be the result. But if the combination of these salts with humus or geine has taken place, then, in connexion with the earths, vegetation will be vigorous, and the proper functions of plants fully developed. In the language of Dr. Dana, it would seem then "that the earths are the plates, the salts the seasoning, the geine the food of plants."

The 'Soluble Vegetable Extract,' of Davy and Chaptal, produced from carbonaceous mould, is the soluble *geine* of Berzelius, and the insoluble matter of the mold spoken of by Chaptal would seem to be the insoluble geine or humus of Berzelius and Sprengel. Geine is, therefore, the decomposed organic matter in the soil. When the result of recent decomposition, it is abundantly soluble in water; the action of the atmosphere converts this soluble matter into solid humus or geine, 'still partially soluble in water, and wholly soluble in alkali.' Soluble geine, and in this state only does it become the food of plants, acts neither as acid nor alkali. It is converted into a substance having acid properties by the action of alkali, and in this state combines with earths, alkalies and oxides, forming neutral salts, soluble in water, such as magnesia, lime, &c. and thus matter insoluble of itself is prepared for the food and nutrition of plants. It appears to have been satisfactorily established by late chemical researches, that this substance forms the nourishing basis of all soils, and that they are fertile or infertile exactly in proportion to the soluble geine they contain, or the application of materials capable of converting the insoluble into that which is soluble.

If there are any facts certain in agriculture, it is, that a soil composed chiefly of one of the earths, either sand, lime, or clay; or one that contains an excess of salts, as pure manures; are always barren. Plants may indeed exist to a limited extent, but they will be weak and without fruit. To these earths add geine, and a perfect healthy vegetation will be the result. The great essentials of vegetation, then, are the earths, salts, and geine, and their degree of fertility will mainly depend on the proportion with which the last is mixed with the first.

Every discovery in experimental philosophy—every advance in vegetable chemistry, seems to render more clear the great truth, that nature's works, though apparently complex, are carried on in the simplest manner, and with the fewest possible agents. The slight shades of difference found to exist in the constituents of most dissimilar substances, such as starch, lignin, sugar, and some of the acids, prove that slight causes produce powerful modifications of matter, and render it probable that the original kinds of matter are less numerous than have been usually supposed. All investigations point to an agency that pervades all the forms of matter, and by an arrangement of atoms consequent on vitality produces all the varied forms of vegetable and animal nature. This agent, under the name of caloric, galvanism, or electro magnetism, is constantly at work modifying, changing, combining, decomposing and arranging. To it we owe aggregation and cohesion—to its subtile and diffusive energy, all growth and circulation—and may it not be considered as certain that the earths and salts are a magnificent voltaic battery, ever ready for action when moistened with water, and thus reviving the dormant vitality of the seeds submitted to its influence. But though this vitality may be revived, and the slumbering energy of this germ of the future vegetable be restored to activity, it is clear that the circulation will produce little or no effects in inducing growth, unless matter suitable for absorption and after-deposition, is provided for the newly awakened energies and action. This is furnished by geine, and is presented in a state the most suitable for the circulating juices of the plant. Taken up by the roots, or absorbed from the air, it is converted into lignin or woody substance by deposition and æration, and thus becomes a new plant, prepared to run its course of growth, maturity and decay.

Taking this simple, and we think philosophical view of the subject, the reasons of many farming processes, hitherto but little understood, are made more plain; and various improvements suggested and made practicable. If a soil on analysis contains an undue proportion of any one of the earths, the evil can be remedied by combining them in the proper manner, by adding what is deficient until the balance is restored. But the fact, that the earths themselves, uncombined with salts or geine, are never fertile, and that all the combinations of which they are capable, can never be made to support vegetation, should not be lost sight of. Some soils, from the proportion of the earths found in them, are more friable and easier to work than others; and some combinations are proved to be more suitable for the union with salts necessary to the excitement of voltaic or galvanic agency and the consequent vitality and circulation of plants; but alone, no possible modification or combination can make what is called a fertile soil. Were we to name for comparison the agents and the several parts they perform in the process of vegetation, we would call the *earths* the plates of the galvanic battery, inert while dry, or not subjected to exciting causes; the salts by their solubility furnishing the acids, such as carbonic, sulphuric, phosphoric, necessary to rouse the battery to action; and when this is done, humus or geine offers the only matter that can be taken into circulation and constitute (properly speaking) the food of plants.

According to the modern investigations of science, every particle of matter is pervaded by this universal agent, and requires only the aid of moisture to its greater or less development; the intervention of the fluid serving as a conducting power between the several particles. Pure water is the weakest exciting power yet known, but at the same time the most durable. This is beautifully exemplified in the experiments of Mr. Crosse, who uses only water for the exciting power of his batteries when he requires their uninterrupted action for weeks or months, the slow continued excitement being more favorable to the development of animal life, or metallic or mineral crystallization, than one more powerful, but of shorter duration. This action of water shows why water alone, applied to the earths and through them to vegetables, has so feeble and tedious an operation on their development. On the contrary, if the acids are supplied, and this is done in a multitude of ways, the action becomes at once vigorous; and connected with a proper supply of food, vegetation will be rapid and abundant.

This theory of vegetable nutrition explains, in our opinion, far more satisfactorily than any other, the mode in which manures, vegetable, animal and mineral, produce their effect on vegetation, and stimulate its growth. According to Chaptal, the different substances afforded by animals, and useful as manure, including all their secretions, are, "gelatine, fibrine, mucus, fat, albumen, urea, uric and phosphoric acids, and some of the muriates or salts." Here, it will be seen at a glance, are a multitude of exciting and nutritive causes mingled, and when combined, as animal manures usually are, with vegetables decomposed, the available geine is considerably increased. The liquid manures found so powerful in Flanders, and the use of which is such a marked feature of the excellent Flemish husbandry, are, it is well known, mostly composed of the urine of animals. The analysis of urine by Mr. Brandt discloses the cause of this efficiency.

Water,	65
Phosphate of lime,	5
Muriate of Potash and ammonia,	15
Sulphate of Potash,	6
Carbonate of Potash and ammonia,	4
Urea,	5
	100

A more active combination could scarcely have been devised than this analysis shows such manures to be; and though Fourcroy and Berzelius slightly vary the constituents, their analysis does not materially alter or impair its efficiency. Of the above animal ingredients, we will select but one to illustrate our theory, as it is one respecting the efficiency of which as a manure there can be no doubt, and which is daily coming into more general use—we allude to phosphate of lime or bone dust.

Bones, as a whole, contain about equal quantities of phosphate and gelatine. The harder and more compact the bone, the greater the amount of phosphate, and the less the proportion of gelatine. The bones of the ox contain from 50 to 55 per cent. of gelatine; those of the horse only from 36 to 40; those of the hog from 48 to 50; and the bones of the legs and feet of the deer, elk, roebuck, and hare, give an analysis from 80 to 90 per cent of phosphate. All the roots, such as beets, carrots, &c. and the grains, such as wheat, corn, &c. contain considerable quantities of this phosphate; and its presence would seem to be of much importance in the vegetable and animal economy. When bone dust is deposited in the ground, it speedily undergoes decomposition, and the principal ingredients in its composition are set at liberty to form new combinations, and perform a new part in the great circle of nature's revolutions. The phosphoric acid leaves the lime, and as in all its forms of existence it is one of the most exciting agents, its application to the earths is almost as immediate as the dip of the chemist's plates into the galvanic trough. The lime set free is, by the absence of the neutralizing acid, perfectly caustic, and seizing at once on whatever geine is found in the soil renders it soluble, and thus fit for immediate use by the plants while in their excited state of action. Can it be wondered at then, that bone dust should be efficacious, or that its effect on vegetation should be almost instantaneous? It may be further remarked, that bone dust applied to very dry or very wet land, loses much of its efficiency; a reason for which may be found in the fact, that in the first instance the ordinary voltaic agent is but imperfectly supplied, and in the last, the acid is so diluted as to become but little superior to water itself.

The efficiency of carbonate of lime as it is generally applied to soils, is to be accounted for on the same principles. It differs, however, in this respect; in the phosphate the acid is set at liberty in the soil, in the carbonate it is driven off by burning. Like the phosphate, the lime is at liberty to unite with and render soluble, all the insoluble geine or vegetable matter in the soil, but unlike that it furnishes no acid to stimulate the voltaic agency to more vigorous exertions. Its effects, though certain, and most beneficial, are not so immediate as those of the phosphate. We may say, that by the application of common lime, the food of plants is *cooked* for their use; by the phosphate, it is not only cooked, but they are excited to devour it. The better the operation of lime in all its forms is understood, the more highly will it be prized and its use the more widely extended.

This theory of the nutrition of plants by voltaic agency, most happily explains the manner in which such small quantities of the salts of lime produce such astonishing effects on vegetation. Every experimental chemist knows what effect the combination of a few drops of acid with the water of his galvanic trough will have on his battery; and the application of lime to our battery of nature, when under proper circumstances, is equally effectual; —nay it does more, for the application of the acid by the chemist only excites his instrument to activity, while the lime furnished the earth by the farmer not only excites the action, but furnishes the material upon which that action can profitably be exerted. All persons acquainted with the use of lime are agreed that it produces little or no effect, except by mechanical division, only on lands that contain animal or vegetable matter that requires decomposition, a decisive proof that lime of itself does not constitute the food of the plant. But let a soil deficient in lime, and containing the food of plants, be furnished with the smallest quantity, and, unless rendered inactive by perfect dryness, or excessive moisture, its effects will be observable at once. Even the small quantity that adheres to wheat, when steeped and rolled in lime, produces a sensible effect on the vigor and rapidity of the shoot. So too with the sulphate of lime, which, at the rate of only one or two bushels an acre, produces such an effect on many kinds of vegetation.

If our notions of vegetable nutrition are correct, all soils will be fertile that contain lime, and geine or humus; and the object of the analysis of soils will be directed to the determination of these two points. The sand and the clay present in any soil can be known without difficulty. Every farmer knows whether his soil is adhesive, retentive of moisture, or, in other words, convertible into mortar by moisture and the operations of agriculture; or whether it is dry, porous, easily parting with water, and liable to leach; and he knows too that a combination of these soils will materially benefit, and remedy the evils of both. But he has not hitherto been able to determine the best applications to give fertility to his soil, or ascertain whether the defect was the want of lime or vegetable matter; and the methods of analysis proposed by Davy, Chaptal, Beck, and others, are too complicated and nice for his purpose.

This difficulty we imagine is now in a great measure overcome, and a method of analysis discovered, by which any farmer, with little time and expense, may determine the quantity of vegetable nutriment that exists in his soils, whether it is soluble or insoluble, and whether lime is present, or requires to be applied to promote decomposition and vegetation. Dr. Dana of Massachusetts, who has long been occupied in chemical investigations, connected with manufactures and agriculture, has lately given the following directions for ascertaining the geine in the soil, and the lime. It will be seen the process is very simple, and can scarcely fail of being effectual.—We quote from Prof. Hitchcock's Report:

"1. Sift the soil through a fine sieve. Take the fine part, and bake it just up to browning paper.

"2. Boil 100 grains of the baked soils, with 50 grains of pearlashes, saleratus, or carbonate of soda in 4 ounces of water, for half an hour; let it settle; decant the clear; wash the grounds with four ounces of boiling water;—throw all on a weighed filter previously dried; wash till colourless water returns. Mix all these liquors. It is a brown solution of all the soluble geine. All the sulphates have been converted into carbonates, and with all the phosphates are on the filter. Dry that, therefore, with its contents at the same heat as before. Weigh—the loss is *soluble geine.*"

For the lime:

"Replace on a funnel the filter and its earthy contents; wash with 2 drams of muriatic acid diluted with 3 times its bulk of cold water. Wash till tasteless. The carbonate and phosphate of lime will be dissolved, the alumina scarcely touched. We may estimate all as salts of lime. Evaporate the muriatic solution to dryness, weigh, and dissolve in boiling water. The insoluble part will be phosphate of lime. Weigh again—the loss is sulphate of lime."

To ascertain whether the residuum contains *insoluble geine:*

"Test it by burning a small quantity on a hot shovel—if the odor of burning peat is given off, the presence of insoluble geine is indicated. *Calcine* and filter. The loss in weight will give the insoluble geine."

Science of Gardening.—*Continued.*

[*From the Alphabet of Gardening.*]

GARDEN-PHYSICS.

The first topic to which I request attention under this head, is the direction in which plants and their several parts, naturally grow; a thing of important consideration in all the varieties of training, as much injury may be done by opposing natural laws, while much benefit may accrue from turning these artificially to advantage.

DIRECTION OF PLANTS.

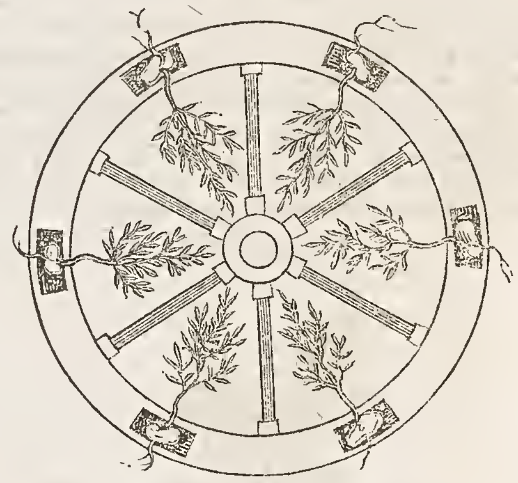
On going up a steep hill, we find ourselves forced to stoop forwards by an invisible force, as if it were pulling the body down to the slope. It is this force which causes a stone thrown up in the air to fall down again, and which causes a soap bubble and a balloon to rise up above the ground by pulling down from above them the heavier air, which, being very moveable, will not rest on the top of a light body, any more (and for the same reason) than a sheet of water would rest on the top of a cork.

It is inferred from certain ingenious experiments, that it is this same force which causes most plants to grow upright with their roots more or less perpendicular to the stem. Dobereiner, a celebrated German writer, proved by experiments, that the same species of plants will rise higher in condensed than in rarified air, and hence, on high mountains, trees become dwarfish; a circumstance also in part caused by the light being there more bright and intense.

On the supposition, that the roots of plants descend into the soil either from their dislike to light, or their natural propensity to extend themselves in search of nourishment, Dr. Grew, and recently M. Dutrochet, found, that when kidney beans were placed in a suspended box, with air above them, and holes below to admit light, they sent their roots down through the holes into the light, and not into the earth in the box.

M. Dutrochet also repeated the ingenious experiment of Mr. T. A. Knight, of planting kidney beans in moistened moss, and placing them on wheels, revolving both vertically and horizontally, by a shaft from a water mill. The beans germinated well, and the result was curious. The vertical wheel, which went at the rate of 150 turns in a minute, caused all the roots to point outwards, precisely in the direction of the spokes of the wheel, while the stems pointed as invariably towards the centre, where, in the end, they all met.

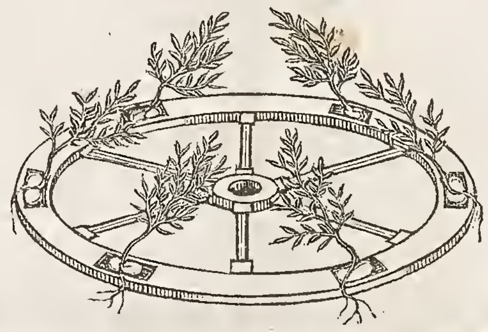
[Fig. No. 56]



Mr. Knight's vertical wheel, with germinating beans.

On the horizontal wheel, again, which went at the rate of 250 turns in the minute, the roots, instead of running directly downwards, as they would have done if at rest, pointed in a slanting direction outwards, while the stems pointed aslant inwards, forming a cone at some distance above the centre.

[Fig. No. 57.]



Mr. Knight's horizontal wheel, with germinating beans.

Lord Kames mentions a plane tree growing on the high wall of a ruin, which sent a root down along the wall to the ground; a circumstance easily accounted for on the same principle, though it has been adduced as a proof of instinct, if not of reason, in the tree itself.

From these facts, it is evident that the number of tall plants, such as Jerusalem artichokes, on a particular piece of ground, cannot be increased, as some have fancied, by making the surface irregular; nor can more trees rise on a small hill than on a spot equal to its base, though this will not apply to strawberries, New-Zealand spinach, and other creeping or spreading plants.

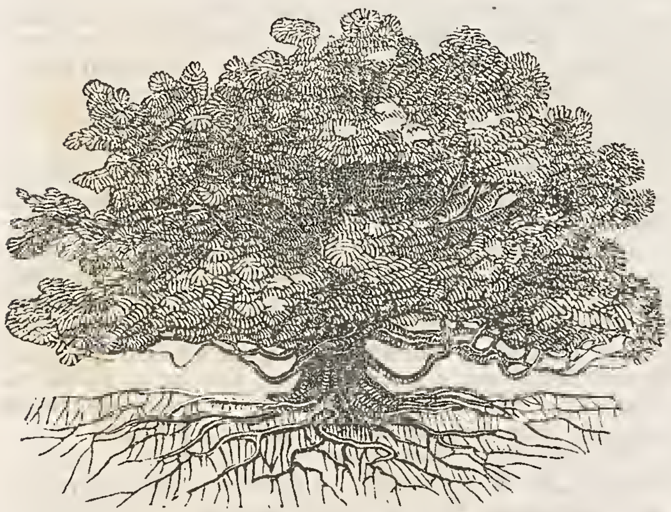
EXPOSURE AND SHELTER.

The degree of light, and of exposure, has a great mechanical effect on plants. In the interior of forests and crowded orchards, the wind produces much less effect than on solitary trees in a garden or park. When crowded, the tops push up into the light above, and not being agitated by the wind, their trunks do not thicken, or become stunted, to prevent the blast making a greater pull against the roots.

On the other hand, when standing in an open situation, trees, being freely exposed to every storm, give every advantage to its violence, by the wide-spreading of their branches.

In accordance with this, solitary trees become greatly larger than those which are crowded, while their system of roots is always proportional to the branches, in order to afford a heavier ballast and a stronger anchorage for counteracting the great spread of sail displayed in the wider expansion of the branches. The same is true of all or most garden plants, which extend in proportion to their room. Hence the necessity of wide planting when it is required to have plants with large spreading heads, as in the instance of New-Zealand spinach; and on the other hand of planting closely when plants are required to be tall, and at the same time slender, a case which more rarely occurs than the other.

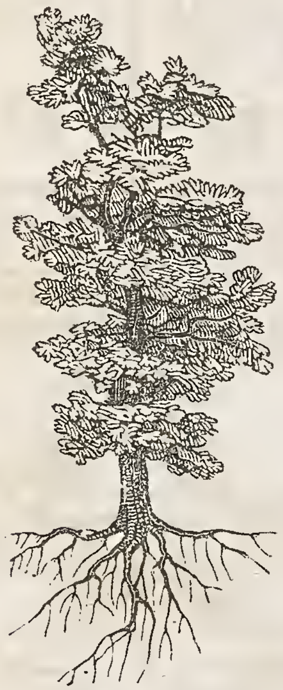
[Fig. No. 58.]



A tree taken from an open exposure to show that the roots spread out proportionally with the branches.

Recent writers on botany have endeavored to show that the tapering tuber of the carrot, the beet, and other simpler plants, are not properly roots, or at least that they have more the characteristics of stems than of roots; in other words, as every plant grows in two directions, one downwards, the other upwards, the spindle-formed tuber of the carrot is alleged to belong to the upper or ascending portion of the plant, rather than to the downward or descending portion. Independent of structure, however, this would appear to be equally rational as to allege that a man's feet belong to the upper portion of his body, but it appears to be correct enough to say that the partly horizontal portions of the iris, though under ground, are not roots but stems; and it must be very obvious that the creeping runners of strawberries are not stems.

[Fig. No. 59.]



A tree taken from a crowded plantation to show that the roots are equally small with the branches.

Weak stems which cannot rise high in a perpendicular direction by their own rigidity, are furnished with several means for effecting this. Some straggle up irregularly amongst other thick-growing plants, as the bramble and bitter-sweet; others, like the hop, the kidney-bean and convolvulus, twine closely around others stronger than themselves, and when they cannot meet with such, several shoots will twine around each other, to give mutual support.

It is important to remark, that different species, in twining for support, follow different laws, one going from right to left, of which there are twenty genera, and another from left to right, of which there are ten genera. A hop-plant, for instance, directs its course round a pole with the sun; but if untwisted and forced to take an opposite direction, it will injure or perhaps kill it.—If a honey-suckle do not meet with support, it twists into a spiral from right to left. It is of importance to attend to these circumstances in training.

MECHANICAL TEXTURE OF SOILS.

Though it has been stated above, that the roots, at least of trees, are generally proportional in extent to the branches, this must be taken with some limitation, inasmuch as it will in part depend upon the texture of the soil. The perpendicular extent of roots, for example, is greatly influenced by the looseness or compactness of the soil; and hence Du Hamel found the tap-root of an oak, which had been sown in a rich deep soil, to be four feet in length, while the stem rose only six inches high. Carrots and similar deep penetrating roots, when they meet with a stiff soil, not easily divisible, are not only dwarfed, but split into branches or twisted into a spiral. When certain roots, also, such as those of timothy grass, are planted in the moist soil natural to the plant, they are fibrous; but when on the top of a dry wall, they become tuberculated; for the purpose, it would appear, of laying up a store of nourishment in case of accidental drought. An alder root was found amongst gravel, marked all over with the contour of small stones.

Since then the mere texture of a soil, independently of the food of plants which it contains, produces such remarkable effects, it must be of great importance for the gardener to attend to this circumstance.

CIRCULATION OF WATER IN SOILS.

It is no less necessary for the due nourishment of plants, that the water by which soils are moistened have a proper movement or circulation, than it is for the animal food, when digested, to pass through the stomach and have a proper movement through the bowels. In the case of the animal, when this movement in the bowels is too rapid, as in cholera, the food is hurried off before it can be conveyed into blood, and when it is too slow, as in costiveness, the mouths of the minute tubes are pressed upon and obstructed, so that the food* cannot obtain admission. It is much the same with plants, when the soil is so loose and porous as not to retain moisture, or so stiff and compact as not to allow what water it imbibes to circulate. In the latter case, indeed, plants are more precisely like animals affected with costiveness, in that the rejections of the digested food are retained so near the mouths of the nutrient vessels, as to greatly hinder their getting at the proper materials. The difference in plants arises from their having to lengthen their rootlets to get beyond the rejections thrown out, which they obviously cannot do in a stiff hard soil. Even independently of having thus to continue their roots amidst a mass of such rejections, the water, in consequence of stagnating, and of course preventing a fresh supply from above, becomes soon exhausted of the nutritive materials with which it may have at first been mixed.

This is not mere theory, as some may be apt to consider it; for it has been proved by numerous facts, that the most fertile soils are those which are so compounded so as to admit of the greatest, most minute, and most immediate distribution, diffusion and circulation of water, or rather moisture; for when water is found in such portions as to be distinguished from the soil which it moistens, this will form, in most points of view a watery and bad soil.

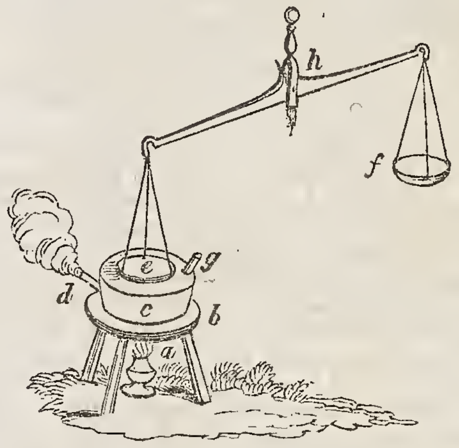
The chief causes of the circulation of water may be traced to the principle which makes a stream run down a slope. When rain accordingly falls on the level surface of a loose porous soil, it will sink into it; and if this, instead of being level, is sloping, the water will both sink partly into the soil, and also move slowly through it towards the bottom of the slope. If the soil is so loose to any depth as to cause this water to drain nearly all away, the first warm day will expand the water nearest the surface into vapour, and raise it into the air; and as soon as by this means the surface becomes dry, the moisture below will gradually rise, in the same way as water may be seen to rise into a bit of blotting paper, or a piece of lump sugar.

It hence becomes obvious, that though the surface soil be sufficiently porous to permit the due circulation of water both upwards and downwards, if the under soil at some little depth, (say from less than a foot to two feet or more,) be a stiff clay, a hard marl, or a level rock of any kind, the rain water, instead of circulating wholesomely, will settle there, from being out of the reach of the sun's influence to raise it; and in the case of the level rock, having no declivity to run off by. It is in such cases that draining becomes useful; or, where it can be effected, forming a gentle slope of the whole surface, which would farther operate on the circulation of the water by obtaining a more powerful influence of the sun, and thereby increasing the heat. The fancy stated in books, that the runs of earth-worms or dew-worms are important for draining off water, is without any foundation.

TESTS OF THE TEXTURE OF SOILS.

One of the best methods of ascertaining the capability of any soil, to take up and retain moisture, is that described by Mr. C. Johnson, for which purpose he employs the following apparatus.

[Fig. No. 60.]



Analysis of soils. *a* a small lamp; *b*. a stool, with a hole in the seat for receiving *c*, a shallow tin vessel, closely covered, but having a pipe, *d*, for the escape of steam; *h*, a pair of accurate scales, such as are used by apothecaries and goldsmiths.

In order to employ this apparatus, put a small quantity of the soil to be tried upon the top of the tin vessel, in which water is kept briskly boiling for about half an hour, so as to thoroughly dry the soil by expelling its moisture. Take ten grains accurately weighed of this dried soil, and add to it, by means of a quill, a drop or two of pure water; if distilled water can be had, so much the better. Weigh the whole a second time, which will now be a few grains above ten. Take out the weight of the water from the scale, leaving in the weight of the dried soil, and suspend the beam, so that the scale *e* may rest on the lid of the tin vessel, the water in which is still kept boiling; then with a stop watch note the exact time which the added water takes to evaporate, as will be shown by the beam of the balance becoming level. Mr. C. Johnson found, that soils requiring less than twenty-five, or more than fifty minutes, to evaporate the added water, and bring the balance to a level, were always proportionately unproductive; the first, from having too much flinty sand, and consequently no texture fitted for retaining water; and the second, from having too much clay, and consequently too few interstices to allow the water to escape.

Rich soil, treated in this way, required thirty-two minutes to bring the beam to a level; chalk twenty-nine minutes, poor flinty soil, twenty-three minutes, and gypsum, only eighteen minutes.

A very fertile soil from Ormiston, Haddingtonshire, containing, in one thousand parts, more than half of finely divided materials, among which were eleven parts of limestone soil, and nine parts of vegetable principles, when dried in a similar way, gained eighteen grains in an hour, by exposure to moist air, at the heat of sixty-two degrees Fahrenheit; while 1000 parts of a barren soil, from Bagshot Heath, gained only three grains in the same time.

Mr. C. Johnson farther found that one hundred parts of burnt clay, when exposed in a dry state for three hours to air saturated with moisture at sixty-eight degrees, took up twenty nine parts of water; that gypsum, in similar circumstances, took up only nine parts; and chalk only four parts.

Another method of testing the texture of soils is, by taking what is termed their specific gravity; that is comparing what they weigh in air with what they weigh in water. Sufficient accuracy for practical purposes may be obtained by drying two different soils, at an equal distance from a fire, or in an oven, at the same time, and then weighing in the air a pound of each in a thin bladder with a few holes near its top, or neck. When the weight has thus been obtained in the air, the bladder may be put into water, letting it sink low enough to permit the water to enter through the holes in the neck, in order to mix with the dried specimen of the soil. The weight in water, divided by the difference of the two weights, will be the specific gravity, and the less this is, the greater will be the capacity of the soil to take up and retain water. Muschenbroek thus found rich garden mould to be 1630 compared to 1000 of water, and Fabroni found a barren sand to be 2210 compared to 1000 of water.

Or fill a wide necked pint or quart bottle half full with water, and add the soil to be tried till the water rises to the brim. Then if the bottle can contain one pound of water, and gains half a pound additional when filled in this way, half with water and half with soil, the soil thus tried will be twice as heavy as water, and its specific gravity will be two. If it only gain a quarter of a pound, its specific gravity will only be one.

M. Giobert ascertained that a pound of fertile soil contained, of flinty sand, about 4400 grains, of clay about 600 grains, of lime about 400, besides seventy of water, and about twenty-five grains of inflammable materials, chiefly carbon. On a comparative trial of a barren soil, M. Giobert found that a pound weight contained about 3000 grains of flinty sand, about 600 grains of clay, about 400 grains of lime, and little or no inflammable materials. Mr. Grisenthwaite directs an equal portion of two soils perfectly dry, to be introduced into two tall glasses, in the midst of each of which a glass funnel has been previously placed. The soils are to be put in so as to retain, as nearly as possible, their natural state when in the ground, and are consequently not to be too much pressed down. When this has been done, water is to be poured very gradually into each of the funnels, and it will rise up as it does in a piece of lump sugar into the dry soil, as may be seen through the glass. The more rapidly the water is seen to rise the better will be the texture of the soil.

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* Technically, *Chyle.*

I shall next turn the attention of the beginner to the changes which food, taken up by the spongelets, or suckers, of roots, undergoes in the different parts of the interior of the plant, a subject which is usually termed *physiology*, though the original meaning of this word is merely a "discourse or treatise on nature." As I believe the term is well understood, I shall employ it here.

A Table

For foretelling the Weather throughout all the Lunations of each year, forever.

This table and the accompanying remarks are the result of many years actual observation, the whole being constructed on a due consideration of the attraction of the sun and moon, in their several positions respecting the earth, and will, by a simple inspection, show the observer what kind of weather will most probably follow the entrance of the moon into any of its quarters, and that so near the truth as to be seldom or never found to fail.

MOON. If the new moon, first quarter, full moon, or last quarter, happens TIME OF CHANGE.	IN SUMMER.	IN WINTER.
Between midnight and 2 in the morning, ...	Fair.	Hard frost, unless the wind be S. or W.
— 2 and 4 morning, ...	Cold, with frequent showers.	Snow and stormy.
— 4 and 6 "	Rain.	Rain.
— 6 and 8 "	Wind and rain.	Stormy.
— 8 and 10 "	Changeable.	Cold rain, if wind be W. Snow if E.
— 10 and 12 "	Frequent showers. ...	Cold and high wind.
At 12 o'clock at noon and 2 P. M.	Very rainy.	Snow or rain.
Between 2 and 4 afternoon,	Changeable.	Fair and mild.
— 4 and 6 "	Fair.	Fair.
— 6 and 8 "	Fair, if wind N. W. Rainy if wind S. W.	Fair and frosty, if wind N. or N. E. Rain or snow if S. or S. W.
— 8 and 10 "	Ditto.	Ditto.
— 10 and midnight, ...	Fair.	Fair and frosty.

OBSERVATIONS.

1. The nearer the time of the moon's change, first quarter, full and last quarter, are to *midnight*, the fairer will the weather be during the seven days following.

2. The space for this calculation occupies from 10 at night till 2 next morning.

3. The nearer to *midday* or *noon* the phases of the moon happen, the more foul or wet weather may be expected during the next seven days.

4. The space for this calculation occupies from 10 in the forenoon to 2 in the afternoon. These observations refer principally to the summer, though they affect spring and autumn nearly in the same ratio.

5. The moon's change, first quarter, full and last quarter, happening during six of the afternoon hours, i. e. from 4 to 10, may be allowed by fair weather; but this is mostly dependent on the wind, as noted in the table.

6. Though the weather, from a variety of irregular causes, is more uncertain in the latter part of autumn, the whole winter, and the beginning of spring, yet in the main, the above observations will apply to those periods also.

7. To prognosticate correctly, especially in those cases where the wind is concerned, the observer should be within sight of a good vane, where the four cardinal points of the heavens are correctly placed. With this precaution, he will scarcely ever be deceived in depending on the table.—*Dr. Adam Clarke.*

Preserving Roots.

[*From the Yankee Farmer.*]

Every person that has a family should lay in a good stock of roots for winter, whether he raises them or not; if he raise them, the best should be selected in the fall and properly preserved; and if he has to purchase them, then he should do it while they are in good condition, and save them well, instead of buying them after they have lost much of their good qualities, as is the case when they are saved without proper attention.

Beets, carrots, turnips, parsnips, &c. are often put into the cellar without any protection from the air, and they soon become dry and poor, or they may be put in large piles in a warm cellar and heat, and thus become poor. These roots of the proper shape and quality, should be selected very soon after they are dug, and saved in pure earth or sand. If there be a convenient place to lay them on the ground in a bin, or corner of the cellar, in small quantities, they may be saved well by covering them well with earth; if the quantity of roots be large, there should be alternate layers of roots and earth. If it be convenient, it is as well to put the roots in a close box or cask, first a layer of earth, then one of roots, and a good covering of earth on top. Either of these methods may be followed, as most convenient. The roots are best saved by being embedded closely in earth and having enough to cover them to prevent its drying readily.

When roots are covered with earth, they may be saved in a cooler cellar than when exposed, as they will be much less liable to freeze, and when thus protected they keep better where it is tolerably cool. Any pure earth, having only a common degree of moisture, is good for saving roots, and will answer about as well as sand if it be fine so that it will run down closely and cover them. A person living in a city and having only a garden spot, can generally get good earth for this purpose, by removing the top as far as it has been cultivated and taking up the pure soil below.

Most farmers have good cellars in which they can lay their potatoes on the earth, and by keeping their cellars shut close and free from light, they usually save their potatoes well without covering them, but they must not infer from this that other roots may be kept well in the same manner, for as they are more liable to injury from being dried and exposed to air, they should be protected with more care.

We have known good turnips and beets become very poor in a few months, when with proper care in laying them down in earth they might have been kept perfectly good till warm weather. We had some early garden stone turnips last fall, which kind is of as transient duration as any kind cultivated; we put them in a barrel with layers of earth, and they were excellent the first of May; they continued good till the warm weather caused them to grow.

Most persons that raise parsnips let them remain in the ground till spring, and then they can have only a few messes before they begin to grow; instead of this way, a part should be dug and put in the cellar, packed in earth, that they may be used as wanted through the winter.

The best roots for eating are of a small or middling size; the large ones should be given to stock. Turnips that were sown late and have acquired only one third or one half the usual size, are of a much better quality for present use, and they keep far better than those that have a full growth.

There is generally time enough to raise turnips for winter use after digging early potatoes. Some of sufficient size were raised in that way last year, and we have seen some this season that have already attained a good size for eating, on ground that has produced a crop of potatoes; and they will probably grow a month or more yet.

Receipt for Curing Pork and Hams.

[*From the Farmers' Cabinet.*]

As soon as the pork becomes cool, I cut and sort it, taking great care to have the tubs perfectly sweet and clean. In cutting, I take out all the spare ribs, and make pickled pork of all the side between the ham and the shoulders; cutting it into pieces of suitable size for family use. I trim the hams and shoulders well. I cover the bottom of the tub with rock salt, and then put in a layer of pork, nicely packed; then cover this layer with salt, and so on, until the tub is filled. I use rock salt and very bountifully. In six or eight days, make a pickle of salt, and cold water, as strong as possible, and cover the pork previously salted with it. It will then keep for use for years if you choose.

In preparing the hams and shoulders, I weigh several, to come at the probable weight of the whole. They are packed with great care, in suitable tubs. My process is to sprinkle some coarse salt at the bottom; then pack in the hams and shoulders firmly, side by side, being careful not to put the back of one flat on the top of another. The spaces are filled up with chines, hocks and jowls. To about every 300 weight of meat, I take 30 pounds of rock salt, one pound of salt petre, and fourteen pounds of brown sugar, or half a gallon of good molasses, (generally the latter.) Take as much pure water as will cover the meat, put in a clean vessel, add the above articles, boil it, removing the scum as it rises, and when no more rises set it to cool, after which pour it on the meat until it is covered three or four inches.

If the hams are small, weighing from 12 to 15 pounds, let them remain in the pickle five weeks—if from 15 to 25, six weeks—if from 25 to 45 seven weeks. When you remove them for the purpose of smoking, put them in clean cold water for two or three hours. If there is too much salt or salt petre adhering to the surface of the hams, the water will take it off. The smoke should be made of clean green hickory. A fire should be built only in dry weather. And when the meat has acquired a yellow tinge, not red or black, they are removed and hung up in a dark place where they are not disturbed by flies or vermin. DAVID COMFORT.

Things a Farmer should not do.

[*From the Common School Assistant.*]

1. A farmer should never undertake to cultivate more land than he can do thoroughly; half-tilled land is growing poorer; well tilled land is constantly improving.

2. A farmer should never keep more cattle, horses, sheep or hogs, than he can keep in good order: an animal in high order the first of December, is already half wintered.

3. A farmer should never depend on his neighbor, for what he can by care and good management produce on his own farm; he should never beg fruit while he can plant trees, or borrow tools when he can make or buy; a high authority has said, the borrower is a servant to the lender.

4. The farmer should never be so immersed in political matters as to forget to sow his wheat, dig his potatoes and bank up his cellar; nor should he be so inattentive to them as to be ignorant of those great questions of national and state policy which will always agitate, more or less, a free people.

5. A farmer should shun the doors of a bank as he would the approach of the plague or cholera; banks are for traders and men of speculation, and theirs is a business with which farmers have little to do.

6. A farmer should never be ashamed of his calling; we know that no man can be entirely independent, yet the farmer should remember, that if any one is said to possess that enviable distinction, he is the man.

7. No farmer should allow the reproach of neglecting education to lie against himself or family: if knowledge is power, the beginning of it should be early and deeply laid in the district school.

8. A farmer should never use ardent spirits as a drink; if, while undergoing severe fatigue and the hard labor of the summer he would enjoy robust health, let him be temperate in all things.

9. A farmer never should refuse a fair price for any thing he wants to sell; we have known a man who had several hundred bushels of wheat to dispose of, refuse 8s. because he wanted 8s. 6d. and after keeping his wheat six months, was glad to get 6s. 6s. for it.

10. A farmer should never allow his wood house to be emptied of wood during the summer season; if he does, when winter comes, in addition to cold fingers, he must expect to encounter the chilling looks of his wife, and perhaps be compelled, in a series of lectures, to learn that the man who burns green wood has not mastered the A B C of domestic economy.

11. A farmer should never allow a window to be filled with red cloaks, tattered coats, and old hats; if he does he will most assuredly acquire the reputation of a man who tarries long at the whiskey, leaving his wife and children to starve at home.

Facts for the Fireside.

[*From the Vermont Phœnix.*]

'Tis thus Benevolence her laws fulfils,
And Justice executes what Nature wills.

All the laws of Nature, but especially those of our own organization, are instituted in infinite benevolence; and every instance of pain, sickness and suffering, is an example of the penalty attached to one or more of these violated laws.

The two most prominent laws of our organization relate to nutriment and exercise.

Our bodies are made up of organs fitted to the performance of certain functions. These organs, thus in a state of constant *action* necessarily occasion a wear and waste; and this waste demands a supply for the usual reparation. Whence then is this supply derived?—Chiefly from solids and fluids received into the stomach. Under the influence of the vital power the necessary selection and appropriation is made.

A diet too poor and unstimulating often begets scrofula and many other constitutional maladies. The poor Irish, and the hungry herds who subsist on the meagre pittance of soup societies, are painful examples of the truth of this remark. Among the opulent, however, the opposite error prevails—as their bloated forms and gouty limbs plainly show.

Gluttony is a breach of the law, the penalty of which is so irretrievable that no violator can escape.

A certain amount of food is necessary for the healthy support of the human body, and every iota taken into the stomach, over and above what the law of nature requires, tends to weaken the constitution and induce disease.

The quantity that some people are able to crowd into their stomachs, by long habits of gluttony, is indeed enormous. A case is recorded of a man who ate 64 pounds of food daily, for six days; and another of a Frenchman who used to eat his own weight of beef every 24 hours. A man, recently, in the state of Maine was at work felling trees, and had his dinner brought him at 12 o'clock. At 2 o'clock he left his work, saying he should work no longer unless he could get something more to eat. On inquiry, it was found that he had eaten for his dinner the following articles, viz:—two quarts of fish and potatoes, two quarts of bread and milk, two quarts of old cider, and a one quart or a three quart dish of baked pudding—the good lady of the house did not recollect which. The gentleman who employed him very wisely remarked, that he did not hire him oftener than he could help, for he thought it must take nearly all his strength to digest his food.

It is a fact that the great mass of the community eat food not only too rich and stimulating in quality, but also use far too much in quantity. And but a glance at the community will show that their penalties are meted out in the form of dyspepsias, liver diseases, dropsy, gout, and premature death.

The tender mother wonders that her sinless offspring should suffer so much pain, and then be snatched from her tender embrace by a "mysterious providence," when in fact the child only suffers the penalty of just and immutable laws which her own pampering has broken.

The stomach, like every other organ, requires rest after the performance of its labor. And yet how every mother will tell her dyspeptic son to "eat little and often." Oh, ruinous practice! "eat little and often"—the echo of these words has been the death dirge of thousands. Ah! how does it ring upon the ear of the poor dyspeptic, and how does it hasten his progress to that grave which he so much dreads!

The Wealth of a Country depends upon the Farmers and Mechanics.

[*From the Maine Farmer.*]

What is wealth? Those things which are convenient and necessary to use, and which administer to our wants and our comforts. Money alone, cannot therefore, be considered as wealth, because if the articles or things above mentioned are not to be had, or are not in existence, a man would be poor indeed, though he were loaded with gold and silver. If he were hungry and there was no bread to be bought, if he were shivering with cold and there were no garments made for sale, his gold would be but of little service. It is true, mankind, by a common consent, have agreed that gold and silver should be the sign or evidence of property,—or in other words, the *measure* of property; and he who has a certain amount of it, has evidence of so much wealth.—He can exchange it for the very things or articles which do in fact constitute wealth.

Thus a man who has a hundred dollars in his pocket has the *ticket*, as it were, to entitle him to *enter* into the possession of an hundred bushels of corn, or a hundred yards of cloth, or a hundred acres of wild land,—or a yoke of oxen, or a horse and wagon, as the case may be. But if these things do not exist, and he needs them, his *ticket* is of no more use, than if he had a ticket to go into a theatre, and it should have been burned down before he used it. The elements therefore of wealth consists in natural productions, brought together, changed and modified by the skill and labor of man; of the farmer and mechanic. Commerce, though necessary and honorable, is nothing more than the *moving* or *changing* of these productions from place to place. It has always appeared singular to us, that merchants should consider themselves, as too many, far too many of them do, above the farmers or the mechanics, merely on account of their profession, when they are indeed only the *teamsters*, to the others. They are the agents to transport their productions hither and thither, as calls may exist for them. But to return to the subject. If we are right in the position which we have taken, that wealth consists in natural productions changed and wrought upon by the labor of man, it follows that the country which possesses the most of the elements or materials to work upon, such as good soil—abundance of water power—forest of timber—quarries of different kinds of stones, mines, and beds of different kinds of minerals, &c. &c., must have the most natural wealth. It then only requires the hand of industry and skill to put these materials into shape, and to put them together to form real substantial wealth. This is the duty of the farmer and mechanic. They are the second creators of wealth.—They take the raw materials as it came from the hands of the Almighty, and change it by their labor into the thousands and tens of thousands of different forms which render it useful to man, which make it subservient to the wants and comforts of human life. The more industrious and skilful this class is, the more wealth will be accumulated in the country. Do farmers and mechanics consider these things rightly? Are they not too apt to think themselves as mere plodders and servants, rather than as second to the great first cause in the production and increase of wealth? And indeed is there not a false standard of respectability too much in use in society, and are not the productive classes apt to measure themselves by it? This standard appears to be *idleness and a fine coat;* and consequently, the more idle a man can be, and the finer the dress, the more of a gentleman. Not so. Respectability should consist in an improved mind, and skilful and industrious hands.—Moral qualifications being equal, he should have the most honor, who, by the combination of the efforts of his mind and physical powers, has contributed most largely to the increase of those things which constitute wealth.

Such an one has done more for the amelioration of society, than a thousand unproductive *dandies*, who loll in the shade and wash in Cologne. And society should bestow upon such a corresponding meed of honor.

New Mode of Stacking Grain.

[*From the Farmers' Magazine.*]

Sir,—The long continuance of rain in this part of the country has occasioned many very serious losses in our hay crops, and as the weather continues here in a very unsettled state, I am apprehensive hill farmers may probably suffer considerably in the ensuing corn harvest, unless every precaution is taken which prudence may dictate. I am therfore induced to intrude on you for a small space in your valuable publication, to state a practice which farmers in the upper part of the county of Cardigan are in the habit of, and without which I am convinced they would in the generality of seasons lose a very large portion of their corn. Our hills are much more subject to rain than the land in England, I therefore do not presume to offer advice to any but those who are situate as we are. Our practice in the upper part of Cardiganshire is to bind *all* our corn, spring as well as winter crops, and to put them into small mows in the field in the shape of a sugar-loaf. We begin each mow by placing three sheaves on the stubble, the head of each sheaf inclining to the centre of the intended mow, and resting on the binding of the sheaf next to it. We then build our mow by adding other sheaves, the heads of which resting on the three laid as a foundation, gives a position to the but of each succeeding sheaf, inclining downward so as to throw off the rain. In this manner we proceed until we have added as many sheaves as will nearly make a load for the vehicle we have (whether cart or wagon) to carry with. We then contract the top of the mow to as sharp a point as possible, over which we place a reversed sheaf banded close to the but, and with a long rod running down through it into the top of the mow, spreading the ears of the upper sheaf or cap as equally round the mow as we can. By this method I have had corn which has stood in the field three weeks during continued rain brough home without the loss of a single sheaf. I am not sure but the above practice may be generally *known* to hill farmers in different parts of the kingdom, but I am quite sure it is not generally practised by them, as I have very frequently seen beautiful crops of corn within a few miles of me, spoiled by farmers attempting to harvest them in the manner of the English farmers. I am, sir, your very humble servant. A. C. F.

18th July, 1838

There is one material advantage in the above practice which should be noticed. We can get up our crop into mow between showers, and carry home in similar opportunities, without exposing more than one load at a time to the weather.

What has become of Mr. Kimberley's plan, noticed in your magazine for February last, page 89? I am fully persuaded it is practicable, and am anxiously looking for the development.

Horticultural Exhibition.

The large room in the Stuyvesant Institute, has been graced the last three days with very a choice variety of fruits and vegetables, sent by contributors to the exhibition of the Horticultural Society of the country on the Hudson. This association has only been formed the present season, and this is the first attempt to array the products of the society before the public. The society being yet in its infancy, the exhibition does not, of course, embrace the extent and variety of articles that might be expected of older and more mature associations, but what has been gathered is of rare quality and fine appearance.

The garden and nurseries of the Downings, at Newburg, have contributed fruits of the finest flavor and size. The grapes and plumbs, gages, pears, apples and peaches from that place are a beautiful sight, and display a taste and culture highly creditable to the cultivators. Not less praiseworthy are those of Roe, of Newburgh. The black Hamburgh grapes of both these gardens, as well as those of J. P. Cushing, at Watertown, near Boston, appear to be fine beyond example. The other varieties of this fruit are numerous. A kind of pear called Dutchess D'Angoulcime, produced by E. Vose, of Dorchester, Mass. is very fine in appearance, as well as some fruit* from the farm of Judge Buel, of Albany. The sickel pears of Mr. Arden, of West Point, are a superior fruit, excelling, undoubtedly, the vergalu, which is falling into neglect. The black Hamburgh grapes of Miss Verplanck, Fishkill Landing, raised in the open air, are, we think, equal to those of Cushing, under glass. The Muscat of Lunel, however, of the last mentioned person, presents tempting clusters.

In the vegetable line, there are numerous parcels, consisting of celery, carrots, parsnips, beets, pumpkins, corn, &c. &c. all of course, mammoth productions, and raised by the best gardeners in our vicinity.

Thorburn seems to have monopolized most of the Dahlias, of which there are hundreds of every hue, and some very rare.

On the whole, the society has made a good beginning, and we hope will thrive in its efforts to increase the taste for horticultural pursuits. The valley of the Hudson is a field which may be yet cultivated with a certainty of its producing fruits which will rival those of the most favored climates.—*Evening Post.*

Rohan Potatoes.—In our last number, we recorded the fact, that friend Orsment, of the United Society, had raised one bushel of potatoes from a single tuber. We have now to notice, that the Hon. William Clark, Jr. of Northampton, raised *two bushels and one peck*, from one Rohan potato.—*Yankee Farmer.*

Durham Cattle.—The Lexington Intelligencer of the 14th September says, there have been two sales of short horn Durham cattle in that neighborhood, being the stock of Maslin and Samuel Smith, Esqrs. At the sale of the latter, a cow and sucking calf sold for $2,100.—Another at $1,350—others at $1,100, $1,000, &c. The whole stock of Samuel Smith sold for between $20,000 and $30,000.

A bold child, who looks you in the face, speaks the truth, and shames the devil—that is the stuff of which to make men good and brave—aye, and wise men.—*Bulwer.*

Expenditures of the Government.

In the House of Representatives, on Thursday last, the Speaker laid before the House a letter from the Secretary of the Treasury, in answer to a resolution of the 25th June, showing the amounts of expenditure, exclusive of the public debt, for each year, from 1824 to 1838. They are as follows, viz:

For the year	1824,	$15,330,444	71
Do	1825,	11,490,459	94
Do	1826,	13,062,316	27
Do	1827,	12,653,095	65
Do	1828,	13,296,041	45
Do	1829,	12,660,460	62
Do	1830,	13,229,553	33
Do	1831,	13,864,067	90
Do	1832,	16,516,388	77
Do	1833,	22,713,755	11
Do	1834,	18,425,417	25
Do	1835,	17,514,950	28
Do	1836,	30,868,164	04
Do	1837,	39,164,745	37*

* This sum is subject to small variation on the settlement of the accounts of the Treasurer.

Note—The above sums include payments for Trust Funds and Indemnities, which, in 1837, were $5,610,404. 36.—*National Intelligencer of July.*

Sickness in the West.—The Land Sales.—The citizens of Northern Indiana have addressed a petition to the President of the United States, asking a postponement of the sales of the public lands in that section. They give as their reasons for making this request, that "there is now prevailing throughout all that section an unparalleled epidemic, that is carrying hundreds to their graves, and thousands to their sick beds, while their crops are rotting in the fields unharvested; amid such universal distress that it renders it impossible for the settlers to make the necessary exertions to obtain the means of purchasing their humble homes."

Young Men's Department.

Poor Richard's Almanac.

*The Way to Wealth, as clearly shown in the Preface of an old Pennsylvania Almanac, entitled, Poor Richard Improved.**

Courteous Reader,—I have heard, that nothing gives an author so great pleasure, as to find his works respectfully quoted by others. Judge, then, how much I must have been gratified by an incident I am going to relate to you. I stopped my horse lately, where a great number of people were collected, at an auction of merchants goods. The hour of the sale not being come, they were conversing on the badness of the times; and one of the company called to a plain clean old man, with white locks, 'Pray, Father Abraham, what think you of the times? Will not these heavy taxes quite ruin the country? How shall we ever be able to pay them? What would you advise us to?'—Father Abraham stood up, and replied, 'If you would have my advice, I will give it to you in short, "for a word to the wise is enough," as Poor Richard says.' They joined in desiring him to speak his mind, and gathering round him, he proceeded as follows:

'Friends,' says he, 'the taxes are, indeed, very heavy and, if those laid on by the government were the only ones we had to pay, we might more easily discharge them; but we have many others, and much more grievous to some of us. We are taxed twice as much by our idleness, three times as much by our pride, and four times as much by our folly; and from these taxes the commissioners cannot ease or deliver us, by allowing an abatement. However, let us hearken to good advice, and something may be done for us; "God helps them that help themselves," as poor Richard says.

'I. It would be thought a hard government that should tax its people one tenth part of their time, to be employed in its service: but idleness taxes many of us much more; sloth, by bringing on diseases, absolutely shortens life. "Sloth, like rust, consumes faster than labor wears, while the used key is always bright," as poor Richard says. "But dost thou love life, then do not squander time, for that is the stuff life is made of," as poor Richard says. How much more than is necessary do we spend in sleep! forgetting, that "the sleeping fox catches no poultry, and that there will be sleeping enough in the grave," as poor Richard says.

'"If time be of all things the most precious, wasting time must be," as poor Richard says, "the greatest prodigality;" since, as he elsewhere tells us, "lost time is never found again; and what we call time enough always proves little enough;" let us then up and be doing, and doing to the purpose; so by diligence shall we do more with less perplexity. "Sloth makes all things difficult, but industry all easy; and he that riseth late, must trot all day, and shall scarce overtake his business at night; while laziness travels so slowly, that poverty soon overtakes him. Drive thy business, let not that drive thee; and early to bed, early to rise, makes a man healthy, wealthy, and wise," as poor Richard says.

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* This "*some fruit*" comprised samples of 36 varieties of autumn and winter apples, of known celebrity, and about 20 varieties of pears.—*Cond.*

* Dr. Franklin for many years published the Pennsylvania Almanac, called *Poor Richard* [*Saunders*,] and furnished i with various sentences and proverbs, which had principal relation to the topics of "industry, attention to one's own business, and frugality." The whole or chief of these sentence and proverbs he at last collected and digested in the above general preface, which were read with much avidity and profi and perhaps tended more to the formation of a national ch racter in America, than any other cause.

'So what signifies wishing and hoping for better times? We may make these times better, if we bestir ourselves. "Industry need not wish, and he that lives upon hope will die fasting. There are no gains without pains; then help hands, for I have no lands," or, if I have, they are smartly taxed. "He, that hath a trade, hath an estate; and, he that hath a calling, hath an office of profit and honor," as poor Richard says; but then the trade must be worked at, and the calling well followed, or neither the estate nor the office will enable to us pay our taxes. If we are industrious, we shall never starve; for, "at the working man's house, hunger looks in, but dares not enter." Nor will the bailiff or the constable enter, for "industry pays debts, while despair increaseth them." What though you have found no treasure, nor has any rich relation left you a legacy, "diligence is the mother of good luck, and God gives all things to industry. Then plough deep, while sluggards sleep, and you shall have corn to sell and to keep."—Work while it is called to-day, for you know not how much you may be hindered to-morrow. "One to-day is worth two to-morrows," as poor Richard says; and farther, "never leave that till to-morrow, which you can do to-day." If you were a servant, would you not be ashamed that a good master should catch you idle? Are you then your own master? Be ashamed to catch yourself idle, when there is so much to be done for yourself, your family, your country, and your king. Handle your tools without mittens; remember, that "the cat in gloves catches no mice," as poor Richard says. It is true, there is much to be done, and perhaps you are weak-handed; but stick to it steadily, and you will see great effects, for "constant dropping wears away stones; and by diligence and patience the mouse ate in two the cable; and little strokes fell great oaks."

'Methinks I hear some of you say, "must a man afford himself no leisure?" I will tell thee, my friend, what poor Richard says; "employ thy time well, if thou meanest to gain leisure; and since thou are not sure of a minute, throw not away an hour." Leisure is time for doing some thing useful; this leisure the diligent man will obtain, but the lazy man never; for "a life of leisure and a life of laziness are two things.—Many, without labor, would live by their wits only, but they break for want of stock;" whereas industry gives comfort, and plenty, and respect. "Fly pleasures, and they will follow you. The diligent spinner has a large shift; and now I have a sheep and a cow, every one bids me good-morrow."

'II. But with our industry we must likewise be steady, settled, and careful, and oversee our own affairs with our own eyes, and not trust too much to others; for, as poor Richard says,

> "I never saw an oft removed tree,
> Nor yet an oft-removed family,
> That throve so well as those that settled be."

And again, "three removes is as bad as a fire;" and again, "keep thy shop, and thy shop will keep thee;" and again, "if you would have your business done, go, if not, send." And again,

> "He that by the plough would thrive,
> Himself must either hold or drive."

And again, "the eye of a master will do more work than both his hands;" and again, "want of care does us more damage than want of knowledge and;" again, "not to oversee workmen, is to leave them your purse open." Trusting too much to other's care is the ruin of many; for, "in the affairs of this world, men are saved, not by faith, but by the want of it;" but a man's own care is profitable; for, "if you would have a faithful servant, and one that you like, serve yourself. A little neglect may breed great mischief; for want of a nail the shoe was lost, and for want of a shoe the horse was lost, and for want of a horse the rider was lost," being overtaken and slain by the enemy; all for want of a little care about a horse-shoe nail.

'III. So much for industry, my friends, and attention to one's own business; but to these we must add frugality, if we would make our industry more certainly successful. A man may, if he knows not how to save as he gets, "keep his nose all his life to the grindstone, and die not worth a groat at last. A fat kitchen makes a lean will;" and

> "Many estates are spent in the getting,
> Since women for tea forsook spinning and knitting,
> And men for punch forsook hewing and splitting."

"If you would be wealthy, think of saving, as well as of getting. The Indies have not made Spain rich, because her outgoes are greater than her incomes."

'Away then, with your expensive follies, and you will not then have so much cause to complain of hard times, heavy taxes, and chargable families; for,

> "Women and wine, game and deceit,
> Make the wealth small, and the want great."

And farther, "what maintains one vice, would bring up two children." You may think, perhaps, that a little tea, or a little punch now and then, diet a little more costly, clothes a little finer, and a little entertainment now and then, can be no great matter; but remember, "many a little makes a mickle." Beware of little expenses; "a small leak will sink a great ship," as poor Richard says; and again, "who dainties love, shall beggars prove;" and moreover, "fools make feasts, and wise men eat them."

'Here you are all got together to this sale of fineries and nick-nacks. You call them *goods*, but if you do not take care, they will prove *evils* to some of you. You expect they will be sold cheap, and perhaps they may, for less than they cost; but, if you have no occasion for them, they must be dear to you. Remember what poor Richard says, "buy what thou hast no need of, and ere long thou shalt sell thy necessaries." And again, "at a great penny-worth pause a while." He means, that perhaps the cheapness is apparent only, and not real; or the bargain, by straitening thee in thy business, may do thee more harm than good. For in another place he says, "many have been ruined by buying good penny-worths." Again, "it is foolish to lay out money in a purchase of repentance;" and yet this folly is practised every day at auctions, for want of minding the almanac. Many a one, for the sake of finery on the back, have gone with a hungry belly, and half starved their families; "silks and satins, scarlet and velvets, put out the kitchen fire," as poor Richard says. These are not the necessaries of life, they can scarcely be called the conveniencies; and yet, only because they look pretty, how many want to have them? By these and other extravagancies, the genteel are reduced to poverty, and forced to borrow of those whom they formerly despised, but who, through industry and frugality, have maintained their standing; in which case it appears plainly, that "a ploughman on his legs is higher than a gentleman on his knees," as poor Richard says. Perhaps they have had a small estate left them, which they knew not the getting of; they think "it is day, and it will never be night; that a little to be spent out of so much is not worth minding; but always taking out of the meal-tub, and never putting in soon comes to the bottom," as poor Richard says; and then, "when the well is dry, they know the worth of water." But this they might have known before, if they had taken his advice; "if you would know the value of money go and try to borrow some; for he that goes a borrowing goes a sorrowing," as poor Richard says; and indeed so does he that lends to such people, when he goes to get it again. Poor Dick farther advises, and says,

> "Fond pride of dress, is sure a curse,
> Ere fancy you consult, consult your purse."

And again, "pride is as loud a beggar as want, and a great deal more saucy." When you have bought one fine thing, you must buy ten more, that your appearance may be all of a piece; but poor Dick says, "it is easier to suppress the first desire than to satisfy all that follow it;" and it is as truly folly for the poor to ape the rich, as for the frog to swell in order to equal the ox.

> "Vessels large may venture more,
> But little boats should keep near shore."

It is, however, a folly soon punished; for, as poor Richard says, "pride that dines on vanity, sups on contempt; pride breakfasted with plenty, dined with poverty, and supped with infamy." And, after all, of what use is this pride of appearance, for which so much is risked, so much is suffered? It cannot promote health, nor ease pain; it makes no increase of merit in the person; it creates envy, it hastens misfortune.

'But what madness must it be to *run in debt* for these superfluities! We are offered by the terms of this sale six months credit; and that perhaps has induced some of us to attend it, because we cannot spare the ready money, and hope now to be fine without it. But ah! think what you do when you run in debt; you give to another power over your liberty. If you cannot pay at the time, you will be ashamed to see your creditor, you will be in fear when you speak to him, when you will make poor pitiful sneaking excuses, and by degrees come to lose your veracity, and sink into base, downright lying; for, "the second vice is lying; the *first* is running in debt," as poor Richard says; and again to the same purpose, "lying rides upon debt's back;" whereas a free-born Englishman ought not to be ashamed nor afraid to see or speak to any man living. But poverty often deprives a man of all spirit and virtue. "It is hard for an empty bag to stand upright." What would you think of that prince, or of that government, who should issue an edict forbidding you to dress like a gentleman or gentlewoman, on pain of imprisonment or servitude? Would you not say, that you were free, have a right to dress as you please, and that such an edict would be a breach of your privileges, and such a government tyrannical? And yet you are about to put yourself under that tyranny, when you run in debt for such dress! your creditor has authority, at his pleasure, to deprive you of your liberty, by confining you in a gaol for life, or by selling you for a servant, if you should not be able to pay him. When you have got your bargain, you may, perhaps, think little of payment; but, as poor Richard says, "creditors have better memories than debtors; creditors are a superstitious sect, great observers of set-days and times." The day comes round before you are aware, and the demand is made before you are prepared to satisfy it; or, if you bear your debt in mind, the term, which at first seemed so long, will as it lessens, appear extremely short; time will seem to have added wings to his heels as well as his shoulders.—"Those have a short lent, who owe money to be paid at Easter." At present, perhaps, you may think yourselves in thriving circumstances, and that you can bear a little extravagance without injury; but

> "For age and want save while you may,
> No morning sun lasts a whole day."

Gain may be temporary and uncertain, but ever, while you live, expense is constant and certain; and, "it is easier to build two chimneys than to keep one in fuel," as poor Richard says; so, "rather go to bed supperless than rise in debt."

> "Get what you can, and what you get hold,
> 'Tis the stone that will turn all your lead into gold."

And when you have got the philosopher's stone, sure you will no longer complain of bad times, or the difficulty of paying taxes.

'IV. This doctrine, my friends, is reason and wisdom; but, after all, do not depend too much upon your own industry, and frugality, and prudence, though excellent things; for they may all be blasted, without the blessing of heaven; and therefore ask that blessing humbly, and be not uncharitable to those that at present seem to want it, but comfort and help them. Remember Job suffered, and was afterwards prosperous.

'And now, to conclude, "experience keeps a dear school, but fools will learn in no other," as poor Richard says, and scarce in that; for, it is true, "we may give advice, but we cannot give conduct:" however, remember this, "they that will not be counselled cannot be helped;" and father, that "if you will not hear reason she will surely rap your knuckles," as poor Richard says.'

Thus the old gentleman ended his harangue. The people heard it, and approved the doctrine; and immediately practised the contrary, just as if it had been a common sermon, for the auction opened and they began to buy extravagantly.—I found the good man had thoroughly studied my almanacs, and digested all I had dropt on those topics during the course of twenty-five years. The frequent mention he made of me must have tired any one else: but my vanity was wonderfully delighted with it, though I was conscious, that not a tenth part of the wisdom was my own, which he ascribed to me, but rather the gleanings that I had made of the sense of all ages and nations. However, I resolved to be the better for the echo of it; and, though I had at first determined to buy stuff for a new coat, I went away, resolved to wear my old one a little longer. Reader, if thou will do the same, thy profit will be as great as mine.

I am as ever, thine to serve thee,
RICHARD SAUNDERS.

Chemical Catechism—Chapter VI.

[*From Parkes's Chemical Catechism.*]

OF LIME.

How is lime to be distinguished from the other earths?

Lime is of a white colour, and of a hot caustic taste; it forms peculiar salts with acids, which is perhaps the most decisive proof that can ever be obtained to identify this or any other earth: it changes vegetable blues to a green; it is incapable of fusion; it solidifies water,* when sprinkled with that fluid, occasioning it to give out a greater quantity of caloric; it absorbs moisture and carbonic acid,† when exposed to atmospheric air; but is itself very sparingly soluble in water, and possesses the peculiar property of dissolving more copiously in cold than in hot water.

In what state is lime found in nature?

Lime is never found pure; it is always in a state of combination, generally with an acid, and more frequently with the carbonic acid, as in chalk, marble, limestone, &c.‡ It is found also in vegetables, and is the basis of animal bones. It occurs likewise in the waters of all springs and rivers.

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* Quick-lime has such an affinity for water that it will absorb one-fourth of its weight of that fluid, and yet remain perfectly dry. The water becomes solidified and identified with the earth. The heat, therefore, that is evolved in the process of slaking lime, proceeds from the water as it passes to the solid state, and not from the earth as is sometimes supposed.

† The effect of carbonic acid upon lime may be shown by the following experiment:—Add gradually a very small quantity of water impregnated with carbonic acid, to a jar about one-fourth filled with lime-water. A milkiness will ensue, because the carbonic acid forms with the lime an insoluble compound. On adding more of the carbonated water, and shaking the jar as these additions are made, the milkiness at last disappears, and the whole precipitates becomes re-dissolved. Hence, it appears that lime with a *small* quantity of carbonic acid is insoluble, and soluble with a *larger* quantity.

‡ The vast mountains of calcareous earth which occur in different parts of the world, owe their origin, in general, it is supposed, to the destruction of marine testacious animals, which in long process of time, formed these extensive and accumulated heaps.

> "For in vast shoals beneath the brineless tide,
> On earth's firm crust, testaceous tribes reside:
> Age after age expands the peopled plain,
> The tenants perish, but their cells remain:
> Whence coral walls and sparry hills ascend
> From pole to pole, and round the line extend."—*Darwin.*

Fourcroy, in his *Chemical Elements*, has given a beautiful account of this process of nature, to which I refer; as I am persuaded every reader of taste must be charmed with its perusal. See *Dr. John Thompson's Edition, part iii. chap. 7, sect.* 1.

According to Capt. Cook, there are in the Southern Ocean, perpendicular coralline rocks, formed entirely of sea-shells, which are of such magnitude as to render the navigation of those seas extremely dangerous.

The shells of some testaceous animals in the South Sea are of a vast size. The *kemo* shell on the coast of Sumatra is frequently found three or four feet in diameter, and as white as ivory. See *Marsden's History of the Island of Sumatra, page* 10.

It may he remarked, that while *testaceous* shells are formed with carbonate of lime, the shells of *crustaceous* animals, and the shells of birds' eggs contain also a portion of phosphate of lime. Its use in the former is not known; but the design of nature in furnishing the shells of eggs with phosphoric acid is very apparent. The body of the egg contains neither phosphoric acid or lime: it was necessary, therefore, that nature should provide means of furnishing both these substances, which it does at the expense of the shell; which becomes thinner and thinner during the whole time of incubation, till the living embryo hath appropriated a sufficient quantity for

How is lime procured from these minerals?

Carbonate of lime, by whatever name it is called, whether chalk, marble, limestone, oyster shell, &c. is broken into convenient pieces, and piled in alternate layers, with coal, furze or other fuel, in proper kilns, where it is kept for a considerable time in a *white* heat. By this means, the carbonic acid and water are driven off, and tolerably pure lime is the product.*

What are the chief uses of lime?

Lime united with the acids is applied to various useful purposes, and next to silica, forms a material portion of the solid fabric of the terrestrial globe. In its pure state, it is used in many of the arts,† particularly in making mortar for buildings. It is employed by the farmers as a manure; also by bleachers, tanners, sugar bakers, soap-boilers, iron masters,‡ and others, in their several manufactories, and in medicine.

How do you explain the operation of lime in forming mortar?

Pure lime has, when united to a certain portion of water, a very strong affinity for silica, another most essential ingredient in all mortar and cements; for without this it never hardens—but when mixed in proper proportions, the gradual absorption of carbonic acid from the atmosphere occasions it in a series of years to become as hard as unburnt limestone.§

How does lime act so as to be of use as a manure for land?

The use of lime in agriculture may be attributed to the property which it possesses of hastening the dissolution and putrefaction of all animal and vegetable matter,|| and of imparting to the soil a power of retaining a quantity of moisture necessary for the nourishment and vigorous growth of the plants, corn, &c.¶ for there is no good soil that does not contain a certain portion of lime, though always, without exception, combined with carbonic acid.

What is the use of lime in the operation of tanning leather?

Lime is used by the tanner in a state of solution; in this the hides are immersed in order to dissolve the gelatinous part of the skin, and to facilitate the removal of the hair.**

How is lime used in refining sugar?

By boiling the sugar in lime-water the manufacturer deprives it of a certain uncombined acid,* which prevents its crystallization.

What is the use of lime in the manufacture of soap?

Lime is mixed with the alkali in order to deprive it of carbonic acid. The alkali is thus rendered what is called *caustic*, and by this means is fitted to combine with the oil or tallow which is thereby converted into soap.

We have hitherto spoken only of lime and of carbonate of lime:—Is lime found in any other state of combination?

Yes: lime occurs in combination with sulphuric acid forming gypsum;† with the fluoric acid constituting fluor spar;‡ with the phosphoric acid in a mineral called *apatite*,§ and in some precious stones.

What is magnesia?

Magnesia is a very soft, white light earth, with little taste or smell; unalterable in the fire, and almost insoluble in water. Nevertheless it absorbs a considerable portion of water when that fluid is poured upon it, and heat is evolved. It dissolves in alkaline carbonates, but is not soluble in the caustic alkalies.

How is magnesia procured?

Magnesia is never found in a state of purity, but always in combination with some acid. It is generally procured from sulphate of magnesia,|| which exists with the muriate of this earth in sea-water, and in many springs. Magnesia is also a component part of several minerals.

What are the uses of magnesia?

Pure magnesia, as well as the sulphate and carbonate, has important uses in medicine.¶ It is also required in some chemical processes, and is employed by the manufacturers of enamels and procelain. Calcined magnesia is also the most effectual antidote in case of poison by the mineral acids.

We have spoken of each of the earths separately, but are there not instances in nature of the earths entering into combination with each other?

Yes: minerals are found in every part of the world, in which the earths are combined in different proportions by processes unknown to us, which nature employs to produce that endless variety of what, in common language, we call rocks, stones, gems,** &c.

Is the design of Nature in forming so many distinct earths very apparent?

The earths have several properties in common; yet as every earth possesses different and specific properties, it is evident that Nature designed them for different and distinct purposes of utility.

You have enumerated the separate uses of most of the earths:—Can you recollect the collective advantages which arise from this class of bodies?

The uses of some of these earths are not yet discovered; but the benefits which we derive from lime, clay, silica, and magnesia, are very various and important.

In order to impress your memory, and to finish the consideration of this class of bodies, endeavour to recollect some of the more important uses of those earths with which you are best acquainted.

Lime, then, has an extensive and important use in agriculture;†† it is employed in building, &c. and adds much both to the neatness and durability of our dwellings. Silica is the basis of all mortar and cements, and is a necessary ingredient in earthen-ware, porcelain, and glass. Barytes is employed in chemical laboratories as a re-agent. Magnesia, besides being the basis of several salts, is of great use in medicine; and Alumina, by a due mixture with silica, is capable of forming vessels for chemists that will resist the action of the most concentrated acids; it is the material of which the bricks are formed which construct the walls of our habitations, and it is also spread out by the great Author of nature in strata within our hills and mountains, to arrest the progress of subterraneous waters, and to produce those springs that fertilize the valleys, and which take such diversified courses upon the surface of the globe.

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the formation of its bones. Part of the albumen combines with the shell for this purpose, and another portion forms feathers.

One thousand parts of egg shells are composed of

Carbonate of lime, ...	896
Phosphate of lime,..............	57
Gluten and moisture, ...	47
	1000

If fowls are kept in a state of confinement, where they cannot get at any calcareous earth, they lay their eggs without shells.

* Bishop Watson found by experiment, that upon an average, every ton of limestone produced 11 cwt. 1 qr. 4 lbs. of quick-lime, weighed before it was cold; and that when exposed to the air it increased in weight daily, at the rate of a hundred weight per ton for the first five or six days after it was drawn from the kiln. This fact is worth the notice of those farmers who fetch their lime from great distances.

† Lime is used in the manufacture of glue. The design of it is to prevent its becoming flexible by the absorption of moisture, and to add to its strength. Some persons use alum for the same purposes.

‡ The iron ores that are wrought in this country, contain a large portion of alumina, and silica: in order, therefore, to flux these earths, and more effectually separate the iron, a quantity of lime is usually mixed with the ore in the furnace; lime having the property of rendering the other earths more fusible.

§ When lime is made into mortar, it takes a long time in acquiring the portion of carbonic acid which it possessed in the quarry; but the mortar hardens as this absorption takes place. This accounts for the great strength of some ancient buildings, in which the mortar is found to have a greater degree of firmness than even limestone itself.

The nature of the sand which is mixed with lime to form mortar or cement, is of the utmost consequence; the harder and sharper the sand, the better, for if this matter be of a friable nature like chalk, the mortar must be weak.

|| When quick-lime is spread upon arable land, it destroys by its causticity the organization of all animal and vegetable matters remaining in the soil, and thus renders them a fit pabulum for the future crop. In like manner the lime would also burn up the tender shoots of the fresh plants, and sterilize instead of fructifying the ground; but Nature has so ordered it, that, as the lime falls to powder upon the land it should gradually absorb carbonic acid from the atmosphere, which deprives it of its causticity and converts it into chalk.

¶ Hence lime and chalk are found to be particularly useful on sandy soils. Marl is a mixture of carbonate of lime and clay. See additional notes, No. 20. Marls are useful in agriculture only in proportion to the calcareous earth they contain. Unless they contain more than 30 per cent of lime, they are of no value to the farmer. Of all the modes of trial, the one best suited to the unlearned farmer, is, to observe how much *fixed air* the marl gives out; and this he will learn by dissolving a little of it in diluted muriatic acid, and observing what portion of its weight it loses by the escape of this air. Thus, if an ounce loses only from 40 to 44 grains, he may conclude that the ounce of marl contained only 100 grains ot calcareous earth, and that it would be his interest to pay seven times as much for a load of lime as he must pay for a load of marl at the same distance.

Every farmer should ascertain the *nature* of his lime before he uses it in agriculture, as there are many extensive districts in England where the lime contains magnesia, which renders it injurious to the growth of vegetables.

**The theory of tanning is shortly this: After the impurities of the skins are removed, they are steeped in an infusion of oak-bark, which consists of two distinct substances, viz. the gallic acid, and the tanning principle; the latter of these combines chemically with the gelatine and albumen of the skins, and forms leather.

* Lime is frequently used by chemists in processes where there is a superabundant and injurious quantity of acid. The lime seizes the acid, and frees the solution from it, by forming with it a neutral salt.

† Gypsum, or, as it is also called, selenite or sulphate of lime when crystallized, is composed of about 33 lime, 46 parts of sulphuric acid, and 21 water.

‡ Lime combined with the fluoric acid forms those beautiful fluor spars which are brought from the mines of Derbyshire. The most usual colour of this mineral is that of a deep purple; but by exposing it to the rays of a hot sun, or to different degrees of artificial temperature, the artist has found the means of forming a suit of colours of great variety and beauty.

§ The bones of all kinds of animals are formed of lime and phosphoric acid in the proportion of 48.5 parts of that earth and 51.5 of phosphoric acid.

|| Sulphate of magnesia (the Epsom salt of commerce) is found in several mineral waters. The *bitter* saline waters generally owe their taste to this salt. That which is found in the shops is generally procured from the mothers which remain after the separation of common salts from sea-water, by subsequent evaporation and crystallization. All the salts formed with this earth are bitter, and generally very soluble.

¶ When magnesia is taken as an aperient, it ought to be in the state of carbonate of magnesia, or what is called mild magnesia. When as an absorbent to correct acidities, calcined or caustic magnesia is most proper. On several accounts it is of consequence to attend to this distinction.

**Potter's clay is a mixture chiefly of silica and alumina; the colouring earths used as pigments are mixtures either of clay and the oxides of iron, or clay and charcoal; garden mould is a mixture extremely various, sometimes containing silica, alumina, magnesia, iron, lime, and carbon; the common mill-stone is generally composed of alumina and silica; and the crumbling sandstone is a mixture of iron and silica: it is, however impossible to enumerate the endless diversity of substances which Nature offers ready formed for the use of man; for the mixtures of the earths which are found *naturally* combined comprehend most of the varieties of clay, slates, stones, gems, rocks, crystals, zeolites, quartz, flints, &c.

"†† The goodness of a soil depends upon its being able to retain the quantity of moisture which is proper for the nourishment of vegetables, and no more. Now the retentive power of a soil increases with the proportion of its alumina, lime, or magnesia; and diminishes as the proportion of its silica increases."

☞ Farmers' Directory. ☜

☞ We receive almost daily inquiries for seeds, implements, farm stock, &c. many of which it is difficult, and some of them out of our power, to answer satisfactorily. The expense of making and answering these inquiries amounts to no little in the aggregate. To remedy this inconvenience, and to render a service to the seller and buyer, we propose to insert in the extra which will accompany our February number, a Farmers' Directory, that is, to give the names, residence and business, so far as they shall be notified to us by the 10th January, free of charge, of gentlemen engaged in vending agricultural seeds, implements, and choice breeds of farm stock, in whatever state they may reside. As for example,

W. Thorburn, Albany, vends seeds and implements.

H. D. Grove, Buskirk's Bridge, Washington co. N. Y. will sell 100 Saxony sheep.

G. B. Smith, Baltimore, Md. sells Rohan Potatoes and Dutton seed corn.

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ARTICLES.		New-York. Oct. 22.	Boston. Oct. 24.	Philadelphia Oct. 22.	Baltimore. Sept. 18.
Beans, white,............	per bush.	1 25.. 1 30	1 35.. 1 75	1 50.. 1 75	1 00.. 1 25
Beef, ...	cwt..	7 50.. 7 75	6 25.. 7 50	7 00.. 9 00	7 00.. 8 59
Bacon, western, ...	lb....	11.. 12	13.. 14	12 00..13 00	15.. 16
Butter, fresh,............	lb....	15.. 25	18.. 27	17.. 19	31.. 33
Cheese,.	lb....	6.. 9	6.. 10	8.. 09	9.. 10
Cotton, best, ...	lb....	9.. 16	9.. 13	9.. 14	9.. 12
Flour, best, ...	bbl..	8 25.. 8 75	8 37.. 9 00	8 00.. 8 37	7 25.. 7 50
Grain—Wheat, ...	bush.	1 85.. 1 87	....	1 75.. 1 80	.. 2 00
Rye, ...	bush.	1 03..	1 20.. 00	96.. 1 03	65.. 66
Oats, ...	bush.	38.. 50	53.. 54	41.. 46	.. 25
Corn, ...	bush.	91.. 95	98.. 1 02	92.. 94	.. 1 00
Hams, pork,........	lb....	12.. 14	16.. 17	13.. 15	14.. 15
Pork, in hog, ...	cwt..	....	10 00..11 50	....	.. 7 25
Seeds—Red Clover, ...	bush.	12 00..13 00	12 50..13 00	14.. 15	11 00..
Timothy, ...	bush.	2 35.. 2 85	2 63.. 2 75	2 75.. 3 25	2 25.. 2 50
Wool—Saxony, fleece,...	lb....	45.. 50	55.. 60	50.. 58	50.. 55
Merino, ...	lb....	37 . 38	50.. 55	48.. 52	45.. 50
1-4 and com......	lb....	32.. 37	35.. 40	35.. 37	35.. 40
Sheep, ...	head,	....	1 62.. 3 25	1 00.. 2 87	....
Cows and Calves,........		30 00..45 00	25 00..37 00	30 00..40 00	30 00..40 00

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A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

On the Utility of Agricultural Schools.

We lay down, and intend to illustrate, the following propositions:

I. That science has become important, if not essential, to the successful prosecution of the arts of labor;

II. That a knowledge of many of its principles is particularly necessary for the improvement of agriculture;

III. That theory and practice—science and art—when made companions, reciprocally aid and improve each other; and hence,

IV. That the best way of promoting useful improvement in both, is to blend them together in schools of instruction—to teach the science and the art simultaneously, to those who are destined to manage the productive labors of our country.

Our object in introducing these propositions to the notice of the reader, is to turn the public attention to the importance of wedding science to art—of teaching both simultaneously,—in agriculture and the mechanic arts; and of enlisting the feelings, and inviting the aid, of our patriotic citizens, which we would fain hope might embrace no inconsiderable number of our statesmen, to the establishment of schools of scientific and practical agriculture.

In the discussion of the subject, we shall avail ourselves of the opinions of some of the most eminent men of the age. Although most of the quotations we shall make, may have a special reference to the mechanic and manufacturing arts, they apply with equal force to the art of agriculture.

It is self-evident, that if an individual—be he a manufacturer, a mechanic or a farmer—can, in consequence of new modes of applying and economizing labor, afford to sell his goods or his farm products, for a third less price than his neighbor—it is self-evident, we say, that such an individual possesses a decided advantage—that he will command the market—will grow rich, while his neighbor must grow poor—and that the disparity in the condition of the two, under like prudent management, will go on progressively increasing. It is precisely with communities and nations as it is with individuals. The country which produces the cheapest and best manufactured goods, or the best and cheapest agricultural productions, will ever possess a decided advantage in the market of nations—will monopolize the profits of commerce, and become opulent and powerful—while her rivals will sink as she rises, and become poor and dispirited. So true is it, that the prosperity of a country depends essentially on the extent and economical management of its productive labor. The productive labor of our country is performed principally by the agricultural, mechanic and manufacturing classes.—Hence, whatever tends to increase the amount of our domestic productions, or to cheapen their cost, has a direct tendency to benefit all classes—to increase the aggregate wealth of the state, and to multiply the comforts and enjoyments of its inhabitants.

This brings us to the consideration of our first proposition, *that science has become important, if not essential, to the successful prosecution of the arts of labor.*

But first let us inquire, *what is science?* Sir J. J. F. Herschel says,—"Science is the knowledge of many, orderly and methodically digested and arranged, so as to become attainable by one. The knowledge of reasons and conclusions constitute *abstract*, that of causes and their effects, and of the laws of nature, *natural science.*"[*] It is to the latter of these branches of science that our remarks will principally refer.

Half a century has produced a wonderful revolution in most of the arts of labor. Old and tedious processes have been superseded by the application of science, and by inventions which the rays of science have enkindled into being. The elements—fire, water and air, have been brought more under human control, rendered more subservient to human wants, and are applied, to a prodigious extent, as substitutes for human labor. Science itself has advanced in improvement and usefulness, with accelerated speed; and the processes of the manufacturer and artisan are now almost wholly regulated by its laws; and it is progressing in new discoveries with rapid pace. "Indeed, such is the quickening power of science, that it is scarcely possible, that its simplest germ should be planted in the human mind, without expanding into a healthy growth. It generates, as it moves on, new thoughts, and new inquiries, and is forever gathering without exhaustion, and without satiety. The curiosity which is once awakened by it, never sleeps; the genius, which is once enkindled at its altar, burns on with unextinguishable flame."[†] The consequence of this accelerated progress in scientific knowledge, and its more general application to the arts of labor, has been, that our manufacturing operations have been simplified, their labor abridged, and their products improved and cheapened. And wherever the principles of science have been applied to agriculture, the change has been equally great and salutary. But agriculture, from its modest pretensions, its humble condition, and, we are sorry to add, from a limited knowledge and rooted prejudice, in most of those who conduct its details, has been the last to profit, and has profited the least, from the general discoveries and improvements of the age. Practical farmers are seldom men of scientific knowledge, and scientific men seldom descend to the drudgery of practical agriculture. In the work shops, science and art have long been companions, and have mutually profited by each other's counsel and aid. When they shall combine their labors in the field, not only will agriculture double her products, but useful knowledge will be diffused, prejudice will be eradicated, and the husbandman will rise, in the scale of society, to that independent position which our constitution and laws have assigned to him, and which the perpetuity of our political institutions require he should occupy.

Our second proposition is, *that scientific knowledge is particularly essential to the improvement of agriculture.*

The sciences which have been principally instrumental in improving the manufacturing and mechanic arts, are chemistry, and those which relate to mechanical philosophy. A knowledge of these is equally important in the business of agriculture. Chemical knowledge is essential to a correct ascertainment of the properties of soils—of lime, marl and other fertilizing matters—a knowledge of which would often save useless expenditure, and ensure certainty of results. It is also beneficial in conducting economically a great many operations on the farm, and in the kitchen. Even

"The farm-servant," says Lord Brougham, "or day-laborer, whether in his master's employ, or tending the concerns of his own cottage, must derive great practical benefit,—must be both a better servant, and a more thrifty, and therefore a more comfortable cottager, for knowing something of the nature of soils and manures, which chemistry teaches, and something of the habits of animals, and the qualities and growth of plants, which he learns from natural history and chemistry together. In truth, though a man be neither machanic nor peasant, but only one having a pot to boil, he is sure to learn from science lessons which will enable him to cook his morsel better, save his fuel, and both vary his dish and improve it. The art of good and cheap cookery is deeply connected with the principles of chemical philosophy, and has received much, and will yet receive more, improvement from their application. Nor is it enough to say, that philosophers may discover all that is wanted, and may invent practical methods, which it is sufficient for the working man to learn by rote, without knowing the principles. He never will work so well if he is ignorant of the principles; and for a plain reason:—if he only learns his lesson by rote, the least change of circumstances puts him out. Be the method ever so general, cases will always arise in which it must be varied in order to apply; and if the workman only knows the rule, without knowing the reason, he must be at fault the moment he is required to make any new application of it. This, then, is the first use of learning the principles of science: it makes them more skilful, expert and useful in the particular kinds of work by which they are to earn their bread, and by which they are to make it go far and taste well when earned."[*]

A knowledge of the principles of mechanics is also important to the farmer, to enable him to judge of the relative value of farm implements, to detect their faults, and to correct them. But the business of the farm embraces a wider scope—it embraces the whole range of natural science—the earth, the air, the water, and the various tribes of domestic animals and cultivated plants come within its purview.

"The Creator of the universe," says Gov. Everett, "has furnished us the material [for useful scientific investigation]; it is all around us, above and beneath us; in the ground under our feet; the air we breathe; the water of the ocean and the fountains of the earth; in the various subjects of the kingdoms of nature. We cannot open our eyes, nor stretch out our hands, nor take a step, but we see, and handle, and tread upon the things, from which the most wonderful and useful discoveries and inventions have been deduced. What is gun-powder, which has changed the character of modern warfare? It is the mechanical mixture of some of the most common and least costly substances. What is the art of printing? A contrivance less curious as a piece of mechanism, than a musical box. What is the steam engine? An apparatus for applying the vapor of boiling water. What is vaccination? A trifling ail, capable of protecting human life against one of the most dreadful maladies to which it is exposed.

"And are the properties of matter all discovered? its laws all found out? the uses to which they may be applied all detected? I cannot believe it. We cannot doubt, that truths now unknown are in reserve, to reward the patience and the labors of future lovers of truth, which will go as far beyond the brilliant discoveries of the last generation, as those do beyond all that was known to the ancient world. The pages are infinite in that great volume, which was written by the hand divine, and they are to be gradually turned, perused, and announced, to benefitted and grateful generations, by genius and patience; and especially by patience; by untiring, enthusiastic, self-devoting patience. The progress which has been made in art and science is indeed vast. We are ready to think a pause must follow; that the goal must be at hand. But there is no goal; and there can be no pause; for art and science are in themselves progressive. They are moving powers, animated principles: they are instinct with life; they are themselves the intellectual life of man. Nothing can arrest them, which does not plunge the entire order of society into barbarism. There is no end to truth, no bound to its discovery and application; and a man might as well think to build a tower, from the top of which he could grasp Sirius in his hand, as prescribe a limit to discovery and invention.

"Never do we more evince our arrogance, than when we boast of our knowledge. True science is modest; for the keen, sagacious eye discerns that there are deep, undeveloped mysteries where the vain sciolist sees all plain. We call this an age of improvement, as it is. But the Italians in the age of Leo, and with great reason, said the same of their age; the Romans, in the time of Cicero, the same of theirs; the Greeks, in the time of Pericles, the same of theirs; and the Assyrians and Egyptians, in the flourishing periods of their ancient monarchies, the same of theirs. In passing from one of these periods to another, prodigious strides are often made; and the vanity of the present age is apt to flatter itself, that it has climbed to the very summit of invention and skill. A wiser posterity at length finds out, that the discovery of one truth, the investigation of one law of nature, the contrivance of one machine, the perfection of one art, instead of narrowing, has widened the field of knowledge still to be acquired, and given, to those who come after, an ampler space, more numerous data, better instruments, a higher point of observation, and the encouragement of living and acting in a more intelligent age. It is not a century since the number of fixed stars was estimated at about three thousand. Newton had counted no more. When Dr. Herschel had completed his great telescope, and turned it to the heavens, he calculated that two hundred and fifty thousand stars passed through its field in a quarter of an hour!"[†]

"It is a curious fact, that objects, at once the most familiar and most useful, are apt to be the last on which we bestow careful investigation and reflection. The great elements of physical nature, earth, air, heat and water, the very instruments by which we live, move, and have our being—how seldom do even these excite more than a passing notice. We till the soil, indeed, for it is the fertile parent of our daily bread; yet we rarely look beyond the surface to unfold the mysteries that lie beneath. The air is inhaled at every breath, yet we care not whither it cometh, or whither it goeth. The principle of heat is the supporter of animal and vegetable life throughout the universe; yet, though it greets us each morning with the rising sun, and calls upon us from every shining hill-top for admiration, how rarely do we think of it but as a mere matter of course. And water—how wonderful, how beautiful, how useful, how seldom do we regard it but as the vulgar instrument of daily comfort or daily necessity!

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[*] Nature and advantages of the study of the physical sciences.

[†] Judge Story's discourse before the Mechanics' Institute of Boston.

[*] Library of Useful Knowledge.

[†] Importance to practical men of scientific knowedge.

"All this is susceptible of easy explanation. Familiarity breeds contempt in more ways than one. Whatever is new and rare excites curiosity and invites attention; while, on the other hand, commonness begets indifference. We are apt to imagine that *whatever is familiar is thoroughly understood;* while things which are new are fancied to possess properties which do not appear upon the surface. A drop of water is not less beautiful or less wonderful than a diamond, yet who stops to ponder over the one, or fails to pause and gaze with admiration on the other? Thus it is that the useful, the beautiful, the truly wonderful, are neglected, because they are common, while we eagerly run after more glittering toys, because they are rare."—*Fireside Education.*

How well do these remarks apply to the very *common* business of agriculture! It is too common a concern to arrest the attention of those who are not immediately interested in its labors; and even the practical farmer, we are sorry to add, too often *presumes* he understands it thoroughly, merely on the ground, that he has long been familiar with its details. And yet it is the great business of our country—the basis of its independence and wealth, and the main safeguard of its freedom. It is a business susceptible of being vastly improved by modern science; and yet we have no public means of extending to it this important aid. We have schools in abundance—we believe we may with propriety say in excess—for it is rather by their quality than their number that we should judge of their usefulness—to teach the higher branches of learning to the few—to the non-producing classes,—tending to create artificial distinctions, where none should obtain but such as are rewards to merit—and these schools have been established and maintained by a public expenditure of three millions of dollars in this state.

"The light of heaven is not more the right of all," says a late writer, "than the light of knowledge; and a scheme to appropriate to a privileged class of persons the glorious rays of the sun, while all beside are to be wrapped in the chill shadows of night, would not be more a conspiracy against the natural rights of man, than is any system which would shut out from the view of the people at large, the intellectual light implanted by education."

Now we insist, that with the advantages of learning that have been extended to the comparatively small unproductive classes, coupled with the practical instruction which would be obtained in agricultural schools, our agriculture would in a few years be made to double its products, agricultural labor would be more honored and more inviting, and a corresponding improvement would be witnessed in the intellectual and moral condition of society. Although a *common* employment, it is an *indispensable* one; and although mere animal power may *perform*, it requires mind—science—to *direct* its operations, with usefulness and profit.

"Within a few years," says the author last quoted, "society seems to have received a new impulse, and the conviction, that not only the happiness of private life, but the security of our institutions, depends upon the diffusion of knowledge, seems to pervade all classes. Nay, the opinion has gone abroad, that education is the only lever which can lift a community from the degradation to which the tendencies of human nature would drag mankind. If you would correct a prevalent vice, if you would purify the fountains of society, it is admitted that you must begin with the young. It is difficult to change the character of those who have reached mature age, and become the subject of established habits. The oak which has struck its roots deep and strong into the soil, and whose branches are hardened by time, cannot easily be bent to new forms. It is the sapling alone that submits to be trained at the will of the cultivator."

Wherever science has been applied to agriculture, and blended with the labors of the field, it has proved of great advantage. To illustrate its utility, Lavoisier, the great French chemist, undertook the management of a farm, and in four years he doubled its products, and more than doubled its profits, by the aids which science contributed to its culture. Von Thaer, who is at the head of the great agricultural school of Prussia, has produced, it is believed, still more favorable results. The students of the Hoffwyl agricultural school of Fellenburgh, obtain great salaries all over Germany, as managers of farms and landed estates. So manifest have become the advantages of science to the improvement of agriculture, that schools of practical and scientific instruction have been established in the German states, in France, Russia and in Ireland. Indeed, small as is the smattering of agricultural science among our farmers, we are daily profiting by it; and individual farms and districts evince a superiority of culture, in proportion as its principles are recognized and judiciously applied.

Our third proposition is, *that theory and practice—science and art—when acting in concert, reciprocally aid and improve each other.*

"It was not until some fortunate discoveries in the arts had led to opulence," says Judge Story, "that scientific men began to surrender their pride, and to devote themselves practically to the improvement of the arts. The first great step in modern science was to enter the work-shop, and superintend its operations, and analyze and explain its principles, and the benefits derived from this connexion have already been incalculable both to art and science. Each has been astonishingly improved by the other; and a hint derived from one has often led to a train of inventions and discoveries, the future results of which are beyond all human power to measure. Thus, dignity and importance have been added to both. The manufacturer, the machinist, the engineer, the chemist, who is eminent in his art, may now place himself by the side of the scholar, the mathematician and the philosopher, and find no churlish claim for precedency put in. His rank in society, with reference either to the value of the products of his skill, or the depth of his genius, sinks him not behind the foremost of those, who strive for the first literary distinction. This fortunate change in the public opinion, which has made it not only profitable, but honorable, to pursue the mechanical arts, is already working deeply into all the elements of modern society."

"It may now be said with truth, that, in a general view, science precedes art; that is, the improvements which are made in art, arise more often from an exact investigation of principles, than from bare experiments and accidental combinations. Principles suggest the experiment, rather than experiment the principles. In the most important branches of manufactures, where skill is constantly in demand, and economy in operation is so indispensable, and competition is universal, there is now a perpetual tasking of the wit of man to invent some cheaper, thriftier, or neater combination. Something to increase the velocity, and uniformity of motion, the delicacy and certainty of spinning, the beauty or fineness of fabrics, the simplicity or directness in application of power, or something to ascertain or separate the worthless from the valuable in materials, is the ambition of a thousand minds at the same instant; and the project holds out ample rewards to the fortunate discoverer."

"It is so obvious that he who is engaged in the practice of an art, must, with equal advantages, be far better qualified to improve and perfect its operation, than he who merely theorizes without any knowledge of practical difficulties, that it is matter of surprise, that it should have been so long overlooked."

"I might remark, that genius and talent are limited to no rank or condition of life. They have been distributed by the bounty of Providence, with an equal hand, through every class of society. They are among those gifts, which poverty cannot destroy, or wealth confer; which spring up in the midst of discouragements and difficulties, and, like the power of steam, acquire new elasticity by pressure; which ripen in the silence of solitude, as well as in the crowded walks of society; which the cottage may nourish into a more healthy strength, than even the palace or the throne. The most formidable enemy to genius is not labor, but indolence; want of interest and excitement; want of motive to warm, and of object to accomplish; ignorance of means leading to indifference of ends. Hence it is, that the very highest and very lowest orders of society, often present the same phenomena—a fixed and languishing disease of the intellectual powers, where curiosity wastes itself in trifles, and a cold listlessness, brooding over the thoughts, lets fall a preternatural stupor. Their misfortune is that so beautifully touched by the poet—

"But knowledge to their eyes her ample page,
"Rich with the spoils of time, did ne'er unroll,"

"I might remark, in the next place, that the rewards of science are most ample, whether they be viewed in reference to personal enjoyment, to rank in society, or to substantial wealth."

"It is from considerations of this nature;—that what has been, must continue to be; that art is never perfect, and nature inexhaustible; that science, while it is the master of art, is itself ultimately dependent upon it; that the intellectual power grows up in all stations, and in all soils; that, all other circumstances equal, he who knows and practises, must forever take the lead of him who merely knows, and has none of the skill to apply power, or the practical sagacity to overcome difficulties; that he, whose interests are indissolubly connected with his science, and who feels at every turn the animating impulse of reward, as well as the pleasure of speculation, and the desire of fame, has more enduring and instant motives for exertion, than he who merely indulges his leisure, or his curiosity;—it is, I say, from these considerations, that when the artizan and the mechanic [and the farmer] shall have become instructed in science, the inventions of this class will have become more numerous, more useful, more profitable, than those of any other class, and even perhaps of all other classes of society.

"What an animating prospect does this afford! What noble ends to poor, neglected suffering genius! What constant comfort to cheer the hard hours of labor, and the heavier hours of despondency! Much less of success in life is really dependent upon accident, or what is called luck, than is commonly supposed. Far more depends upon the objects which a man proposes to himself; what attainments he aspires to; what is the circle which bounds his visions and his thoughts; what he chooses, not *to be educated for*, but *to educate himself for;* whether he looks to the end and aim of the whole life, or only to the present day or hour; whether he listens to the voice of indolence or vulgar pleasure, or to the stirring voice of his own soul, urging his ambition on to the highest objects. If his views are low and grovelling; if the work-shop [or farm], in its cold routine of duties, bounds all his wishes and his hopes, his destiny is already fixed; and the history of his whole life may be read, though the blush of youth still linger in his cheeks. It is not a tale merely twice told; it has been told for millions. If, on the other hand, he aspires to be a man, in dignity, independence, spirit and character, and to give his talents their full scope and vigor; if, to a steady elevation to the practice of his art, he adds a scientific study of its processes and principles, his success is as sure as any thing on this side of the grave can be."*

"The distinct purpose [of the Boston Mechanic Association] is," says Mr. Webster, "to connect science, more and more, with art; to teach the established, and invent new, modes of combining skill with strength; to bring the power of the human understanding in aid of the physical power of the human frame; to facilitate the co-operation of the mind with the hand; to augment convenience, lighten labor and mitigate toil, by stretching the dominion of mind, farther and farther, over the elements of nature, and by making those elements, themselves, submit to human rule, follow human bidding, and work together for human happiness."†

We have endeavored to show, that science is essential to the successful prosecution of the arts, in order to sustain our rank in the rivalship of nations, to maintain our commercial advantages, and to ensure our progress in enterprise, wealth and the other elements of national prosperity;—that science is particularly necessary to our improvement in agriculture, the great business of our country, the stay of its commerce, the principal source of its wealth, the bond of its union, and the security of its freedom; and that science and art—theory and practice—when combined, reciprocally aid and improve each other. This brings us to our fourth and last proposition, viz.

That the best way to promote useful improvement in science and art—the great instruments of wealth and power,—is to teach both, simultaneously, to those who are destined to manage the productive labors of our country.

We shall confine our remarks, on this branch of the subject, to the arts of agriculture and agricultural mechanics.

That a knowledge of the leading principles of natural science, is essential to agriculture, in its most improved and profitable management, is evidenced in the established utility of schools of scientific and practical instruction, in European countries, and in their continual multiplication; and in the improvements which science has effected in our own agriculture, wherever its principles have been coupled with intelligent practice. This fact being conceded, the question presents, how are our young farmers to acquire the requisite knowledge? our common schools do not teach it; nor does the farm afford the requisite means of instruction. And as for our colleges and academies—

"Generally speaking," says Gov. Everett, "even now, all actual instruction in the principles of natural science is confined to the colleges; and the colleges are, for the most part, frequented only by those intended for professional life; but it does not seem a proper arrangement, that none but those intended for the pulpit, the bar, or the profession of medicine, should receive instruction in those principles, which regulate the operation of mechanical powers, and lie at the foundation of complicated machinery; which relate to the navigation of the seas, the smelting and refining of metals, THE COMPOSITION AND IMPROVEMENT OF SOILS, the reduction to a uniform whiteness of the vegetable fibre, the mixture and application of colours, the motion and pressure of fluids in large masses, the nature of light and heat, the laws of magnetism, electricity and galvanism. It would seem that this kind of knowledge was more immediately requisite for those who are to *construct and make use of labor saving machinery,* who are to navigate the ocean, to lay out and direct the excavation of canals, to build steam engines and hydraulic presses, and to conduct large *agricultural* and manufacturing establishments. Hitherto, with some partial exceptions, *little has been done to afford to those engaged in these pursuits that*

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* Discourse before the Boston Mechanic Institution.

† Introductory lecture, before the Boston Mechanic Institution, by Hon. Daniel Webster.

knowledge, which, however convenient to others, would seem ESSENTIAL to them. There has been scarce anything which could be called education for practical life; and those persons who, in the pursuit of any of the useful arts, have signalized themselves by the application of scientific principles for the invention of new processes, or the improvement of the old, have been self-educated men."

"Neither is it intended, that the education which we recommend, should extend to a minute acquaintance with the practical applications of science to the details of every art. This would be impossible, and does not belong to preparatory education. We wish only that the general laws and principles should be so taught, as greatly to multiply the number of persons competent to carry forward such casual suggestions of improvement as may present themselves, and to bring their art to that state of increasing excellence, which all arts reach, by long-continued intelligent cultivation."*

Our young men, destined to agricultural pursuits, do not, cannot, get scientific instruction in the college; for the collegiate period of life is that in which they must acquire a practical knowledge of their business. It is only, therefore, by combining labor with study, that they can expect to profit largely by the advantages which science proffers. And in schools of this kind, not only the elementary principles of science may be learnt, but the application of these principles may be tested and illustrated in practice—and, what is of no little moment, the best practices in the art, in all its diversified branches, may be taught at the same time. Instead of seriously interfering with each other, study and labor, we have seen, being directed to a common object of usefulness, tend to enlighten, encourage and animate each other.

Children belong to the republic; that is, the public have a deep interest in the manner of their being brought up and educated—whether to habits of industry and usefulness, or those of indolence and vice. They are the materials which are to constitute the moral and political fabric of the rising generation; and every measure which has a tendency to render them intelligent and virtuous, indirectly benefits every member of the community.

"An intelligent class" remarks Gov. Everett, "can never be, as a class, vicious; never, as a class, indolent. The excited mental activity operates as a counterpoise to the stimulus of sense and appetite. The new world of ideas; the new views of the relation of things; the astonishing secrets of the physical properties and mechanical powers, disclosed to the well informed mind, present attractions, which—unless the character is deeply sunk—are sufficient to counterbalance the taste for frivolous or corrupt pleasures; and thus, in the end, a standard of character is created in the community, which, though it does not invariably save each individual, protects the virtue of the mass."

We shall close our remarks on this deeply interesting subject, with another extract from Gov. Everett's essay on the importance of scientific knowledge.

"Contemplate, at this season of the year," says he, "one of the magnificent oak trees of the forest, covered with thousands and thousands of acorns. There is not one of those acorns which does not carry within itself the germ of a perfect oak, as lofty and as wide-spreading as the parent stalk; which does not unfold the rudiments of a tree that would strike its roots in the soil, and lift its branches towards the heavens, and brave the storm of a hundred winters. It needs for this but a handful of soil, to receive the acorn as it falls, a little moisture to nourish it, and protection from violence till the root is struck. It needs but these; and these it does need, and these it must have; and for want of them, there is not one out of a thousand of those innumerable acorns, which is destined to become a tree.

"Look abroad through the cities, the towns, the villages of our beloved country, and think of what materials their population, in many parts already dense, and every where rapidly growing, is, for the most part, made up. It is not lifeless enginery, it is not animated machines, it is not brute beasts, trained to subdue the earth: it is rational, intellectual beings. There is not a mind, of the hundreds and thousands in our community, that is not capable of making large progress in useful knowledge; and no one can presume to tell or limit the number of those who are gifted with all the talent for the noblest discoveries. They have naturally all the senses and all the faculties—I do not say in as high a degree, but who shall say in no degree?—possessed by Newton, or Franklin, or Fulton. It is but a little which is wanted to awaken every one of these minds to the conscious possession, and the active exercise, of its wonderful powers. But this little, generally speaking, is indispensable. How much more wonderful an instrument is an eye than a telescope! Providence has furnished this eye; but art must contribute the telescope, or the wonders of the heavens must remain unnoticed; and it is for want of the little, that human means must add to the wonderful capacity for improvement born in man, that by far the greatest part of the intellect, innate in our race, perishes undeveloped and unknown. When an acorn falls upon an unfavorable spot, and decays there, we know the extent of the loss;—it is that of a tree, like the one from which it fell;—but when the intellect of a rational being, for want of culture, is lost to the great ends for which it was created, it is a loss which no one can measure, either for time or eternity."*

"The design of promoting the advancement of the sciences, is a far nobler object of ambition," says Lord Bacon, "than either *private* aggrandizement or *patriotism* itself. The first is vulgar and degenerate; the second, that is, the ambition of those who endeavor to raise their own country in the scale of nations, is more noble, but has not less of cupidity: but if any one should labor to restore and enlarge the power and dominion of the whole race of man over the universe of things,—this kind of ambition, if so we may call it, is without doubt more wise and dignified than the rest. Now this power of man over things is entirely founded in arts and sciences."

Culture and Propagation of the Morus Multicaulis.

The point seems to be settled, at least for the present, that in the states south of New-York, the multicaulis is to supersede all other descriptions of the mulberry for the fabrication of silk. And even in our northern latitude, many persist in saying, that it may be cultivated with great profit, and some have realized large sums from their plants and buds. The price here is now two and a half cents per bud. But we ought to repeat, that the only certain mode relied upon for preserving the plants through the winter, at the north, is either to take up the entire plant in autumn, and bury it in the ground, or to cut it off near the surface, bury the top and cover the stump. It is contended, that the sprouts which will annually spring from the plant, thus cut down, will afford more leaves than the tree would if left to grow, while the foliage is much more easily gathered. Besides this, a great gain is effected by obtaining the tops for propagating, as under good management almost every bud will produce a plant the coming season.

The interest has become so general in the increase of this plant, that directions for propagating it cannot fail of being acceptable to our readers; and we therefore sit down to give these directions, not however as derived from personal experience, but from the practice of two of the oldest and most eminent growers of the plant in the United States—Gideon B. Smith, of Baltimore, and T. S. Pleasants, of Goochland, Va. We extract these directions from the communications of these gentlemen, published in the Farmers' Register.

Mr. Smith directs as follows:

"The simplest and most common mode of cultivating the multicaulis is as follows:—Prepare the ground in the spring as for corn. Run furrows four or five feet apart as preparatory to planting corn. Then take the limbs and young wood that grew last year, cut off close to the tree, and lay them lengthwise, the but end of one limb a short distance, a foot or so, from the top end of the last laid down; cover the whole limb, with a hoe, about one or two inches deep; generally every bud on each limb will grow, and make a tree from three to five feet by autumn. The ground should be kept free from weeds and grass by cultivation, as in corn. About the last of July, it is best to take a sharp spade and separate the young trees, by driving it down midway between them; but this is not essential; they can be separated when taken up the spring [or autumn] following. The next spring they should be taken up and planted in regular form in the orchard, where they are permanently to remain. The best method is to plant them six or eight feet apart in the row, and the rows ten to sixteen feet apart—the rows running north and south, or north west and southeast. By this mode of cultivation it will be perceived, that eight or ten times as many multicaulis trees may be raised on an acre of ground as cornhills, and that, as the crop is ready for the market, (when they are raised to sell,) as early as the crop of corn, there is no reason for the extravagant prices demanded for them. They would be a very profitable crop at five cents a tree.

"There are other modes of cultivation which it may be well to describe here. When cuttings are scarce, and the loss of many of them is of much consideration, a hot-bed should be made in the usual way, and the cuttings started in it as follows:—Cut all the limbs and young wood into short pieces, with *one bud* on each; lay them flat on the surface of the hot-bed, in lines lengthwise, the ends of the cuttings a quarter of an inch apart, and the lines of cuttings two inches apart, with the bud uppermost. Then sift rich garden mould over them, half an inch deep, and put the glass frames on the beds. Every night and morning water them with a watering pot, merely enough to keep the earth moist.—They should be planted in the hot-bed one month before the usual disappearance of frost. In and around Baltimore, the first of April is the time, as frost usually disappears altogether about the first to the tenth of May, By the time the frost disappears, the plants will be about the size of cabbage plants, and may be taken out of the bed and planted in the orchard where they are permanently to grow. During the time they are in hot-beds, care should be taken in warm days to give them air, by raising the glass frames [sashes]; and if severe frosts occur, to cover the glass with straw or matting; and when they are set out in the field they should be well watered, for a few days, in the evening. The practice of propagating as above, from single buds, was first adopted by me, and followed for many years with very great advantage."

"Another method is by layers. Instead of cutting off the limbs and tops, bend the whole tree down to the ground, and cover it, limbs and all, two or three inches deep, with good mould—it would be well to turn np the ends of the limbs, so that the points are just above the ground. All the buds that are on the whole tree under ground, will generally grow, and each one make a tree by autumn, when they are to be taken up and separated. The objection to this plan is, that the young trees are apt to be too crowded, and consequently do not grow as large as when the limbs and young wood are cut off, as in the first mode; and I do not find that it is any more certain, or possesses any one advantage, over that mode. All other modes of propagating, as grafting, &c. are perfectly useless, and therefore nothing need be said about them."

The following is from letters of Mr. Pleasants to Mr. Ruffin, editor of the Farmers' Register:—

"On the subject of *one bud cuttings* of multicaulis, I can give thee my experience this year, which perhaps may be of some value. It is probably known to thee, that with scarcely any exceptions, there was a great failure in getting cuttings to start last spring. John Carter is the only cultivator I know who has succeeded well. Next to him, I place myself—but at a considerable distance in the rear. To the north, not more than one in fifteen or twenty grew. The failure was owing to a most peculiar season, for I never saw cuttings start better than mine did. An excessive drought, at the time the plants began to root, dried them up. In preparing my cuttings, out of some of the strongest and best wood, I cut 10,000 or 15,000 with one bud. The remainder had two buds. The one bud cuttings I planted to themselves, in the same sort of ground with the others, and they were all subsequently treated alike. Taking the piece at large, they stand as well as the best spot of two bud cuttings, and much better than the greater part of them. They came up with great regularity, and have come off very evenly.

"If the season is propitious, there is no reason why a cutting with one bud should not grow as well as one with two buds. A large one may be stuck deeper in the ground, and in a drought, it may be longer under the influence of moisture. But with *early planting*, I have no hesitation in relying upon my good one bud cutting; and early planting, by the way, is more or less important to the success of every mode. I have never taken up my multicaulis so early in the spring, but what I found the buds started, and the little rootlets in the act of being thrown out. The growth must, therefore, be checked by exposure to the air and transplanting.—From my observations, the conditions I would recommend (and which I rely on so fully that I intend to practise them,) in order to insure success to one-buds, are as follows: Preserve the plants during winter in a cool place, not exposed to the sun. Let the ground be prepared, so that the planting be may commenced as early as the season will permit; if in February the better, and at all events early in March, [in Virginia.] The soil should not be so light or sandy as to become thirsty very soon. Let the cuttings be prepared by separating midway between the joints, and stick them deep enough for the bud to be covered from an inch to an inch and a half, according to the texture of the soil. The bottom of the slip will then be about two and a half inches beneath the surface, a depth to which the ground seldom becomes entirely dry in the early part of the spring—and if there be any choice of ground in the lot, select for single buds that part which lies the lowest. With these precautions' and, above all, *early* planting, no failure can, in my opinion, ensue. By a strong cutting, I mean one taken from the larger part of the main stem, of a vigorous stem, and those near the base of thrifty lateral branches. Some days ago, I removed the earth from a number of my single bud plants, for the purpose of examining them carefully. I found some smaller than I intended to plant, but the trees were as large as those from the largest cuttings. My plants will this year yield per cutting about forty buds, on the average, perhaps more; and the most of them grow on a thin shallow soil, that never was manured. It is the opinion of many men of judgment, that the present prices will be nearly or quite sustained another year."

In cutting off the laterals, or branches, for propagation, Mr. Pleasants recommends, that the lower bud on the branch be left to produce a new branch another season. He also thinks fall planting of the buds will succeed best, and intends to try it.

The editor of the Register gives some additional facts in regard to propagation, from Mr. Sydney Weller, of N. Carolina. It is well known that the wood ta the terminal points of some of the branches do not ripen early enough to render them sound and hardy, and that the cold of winter therefore destroys them. Mr. Weller cuts the branches after the occurrence of the first slight frost, and buries them. The consequence is, that the tender, half-ripened wood matures in the soil, and the buds all grow in the spring.

In propagating by buds, upon light soils, it would evidently be of service to tread the earth upon the buds, after they are covered, as we do upon garden seeds, with a view to render the ground more compact, and prevent excess of evaporation.

Another mode of propagating is, first to take up the entire plant, particularly when it has grown but one year, and to bury it horizontally, roots and all, in the manner practised with branches. It is said, that being thus connected with the roots, the buds and plants which they produce, are not liable to be injured by drought.

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* Essay on the importance of scientific knowledge.

* Essay on the importance of scientific knowledge.

The Farmers' Garden.

KITCHEN DEPARTMENT.

In the enumeration of articles to be cultivated in the garden, for consumption in the family, other than the fruits we have spoken of, we shall notice those which are of most easy culture, suitable to our climate, and of substantial use in household economy; and shall notice them in alphabetical order.

1. Asparagus. This is one of the most valuable products of the garden, both on account of the little labor which it demands, and the rich and abundant returns it makes for the table, or for market: for after a bed of it is once established, it is rendered productive for many years with but little labor. The ground should be dug deep, well manured and pulverized, and laid off in beds of four feet or more, with two feet alleys between them. It is preferable to trench the ground, and to throw in manure at the bottom of the trench. Sow the seeds thinly in drills a foot asunder, and two inches deep; and when the plants are well established, thin them to eight or twelve inches asunder. If plants are to be used,—and they are to be had at the nurseries at 50 to 75 cents the hundred,—gather from four to six inches of the earth from the top of the beds, into the alleys, place the plants at twelve inches distance each way, then cover them with the dirt taken from the surface. The asparagus from seed, if the soil and management are good, may be cut the third year; from transplanted roots generally the second year. The drier the bottom of the bed, the deeper may the planting be made. The beds should be kept free from weeds, and in autumn it is advisable to cover them with coarse dung, which should be taken off in the spring, and the surface well loosened with a fork. With care an asparagus bed will last twenty years; Cobbett says three generations. We are acquainted with but one variety, and that is good enough. The seed may be sown in the spring—the plants put out then or in autumn. In our latitude asparagus is fit to cut from the 15th to the 25th April; and the cutting may be continued till the middle of June.

2. Balm, is a perennial plant, purely medicinal. There are two varieties, the high and low. A few plants of each in the border are desirable.

3. Basil is a sweet pot-herb, and is dried for winter use. It is an annual, and the seed should be sown in very fine earth.

4. Beans. What are with us generally termed English beans (*Vica faba*) are not much cultivated, not proving productive in our hot summers. They should be planted in April, where they will be most protected from heat, in rows four feet apart, and the plants four inches apart. Of the kidney, or common bean, there are a great many varieties, both of bush sorts and runners. The early sorts may be planted late in April or early in May, the general crop the 20th May, and even in July for pods to be preserved during winter. Of the runners, the Lima, horticultural and sieva (formerly called case knife beans) are the most esteemed. The Lima should be planted as early as the warmth of the soil will permit. Bush beans are ordinarily planted in drills, two feet apart, or in single drills upon the edges of the plats or borders. The pole beans may be planted in hills, two and a half to three feet each way. Beans not only serve a valuable purpose as food in the summer, but are useful in winter, either after they have ripened, or when gathered green, and pickled in the pod, or dried in the berry. This is particularly the case with the Lima, when shelled green and dried. Most sorts of the bean like a light, dry, but rich soil.

5. Beets. Though not generally raised by farmers, the beet is a valuable root for the table, and for all kinds of farm stock. Their nutritive properties are indicated by the sugar they afford—their profitable culture by the great product which they yield. This is one of the good things of which there is no danger of having too much; and yet a rod of ground will supply a family. Sow the turnip rooted for early use, and the blood variety for winter. The beet is sown in drills, at least a foot apart, and the plants should be thinned to six inches. Great size is not desirable, as those of medium growth are found to be preferable for flavor and nutritive properties. Harvest the beet as soon as it has done growing, as it deteriorates, if suffered to stand longer in the ground. It is a good practice to steep the seed in tepid water, for 24 to 48 hours before it is deposited in the ground, and to press the earth upon it afterwards.

In preserving beets, and most other roots, for winter use, they should be kept from heat and too much air. After they are freed from external moisture, they should either be secured in pits, or packed, or at least covered, in the cellar with dry earth or sand.

6. Brocoli is but little cultivated, though it is a delicious vegetable. It belongs to the cabbage family, and is managed like it. The head is boiled and eaten like the cabbage. There is a white and a red, the latter the most certain crop. It comes to maturity for eating about as soon as cabbage, and may be sown very early, for early use, and the last of May for autumn use.

7. Bene. This is highly esteemed, not only for the oil which is afforded by its seeds, but as beneficial in allaying local inflammation, particularly of children, in the bowel or summer complaint. A leaf of this plant immersed in a tumbler of water, transforms the liquid into a thin jelly, inodorous, and without taste or colour, which children will drink freely.

8. Cabbage. Although this is a common garden production, very little attention is given to varieties, or to a succession for the table; and size is regarded rather than quality. Cabbages may be in use ten or eleven months in the year. The early sorts, if the plants are reared in a hot-bed, may be fit to eat in July, and Savoys keep good till May. Every farmer understands the culture of this plant; but few have experienced the advantages of transplanting them *twice*, i. e. first from the seed bed where they are generally crowded, and have crooked stems, into a bed of rich mould, at four to six inches apart, which is termed *pricking out;* and secondly, when they have there become thrifty, and of good size, into the place where they are to head. A hundred may be pricked out with a dibble in a few moments, and the plants are rendered doubly valuable by it. The dibble is a sharp pointed stick, with which a hole is made for the plant, and, when it is inserted in it, the earth is pressed to the root. The Savoy is the most delicate, and keeps best for late spring use. Cabbages keep well during winter in a trench, the heads down close together, and roots even with the surface, covered merely with earth; but they should be thus buried in a dry soil, and as late as possible before winter sets in. Cobbett recommends, as the best mode of preserving cabbages in winter, as follows:

> "Lay out a piece of ground four feet wide, and as long as is required for your cabbages. Dig on each side of it a little trench, a foot deep, and throw the earth upon the four feet bed. Make the top of the bed level and smooth. Lay some poles, or old rails, at a foot apart, long-ways, upon the bed. Then put some smaller poles, or stout sticks, crossways, upon the rails or poles, and put these last at five or six inches apart. Upon these lay corn-stalks, or broomcorn-stalks, or brush of trees, not very thick, but sufficiently thick to cover all over. Then, just as the frost is about to lock up the earth, take up the cabbages, knock all dirt out of their roots, take off all dead or yellow looking leaves, and some of the outside leaves besides; put the cabbages, head downwards, upon the bed, their roots sticking up; and cover them so thick with straw as for the straw to come up nearly to the root of the cabbage. Do not pack them quite close. It is better if they do not touch each other. Lay some bits of wood, or brushwood, to prevent the straw from blowing off. If the frost catch you, before you have got the cabbages up, cut them off close to the ground, and let the stumps, instead of the roots, stick up through the straw. Out of this stack you will take your cabbages perfectly green and good in the spring, when the frost breaks up; and to this stack you can, at all times, go, in the winter, with the greatest facility, and get your cabbages for use, which you can to no other species of conservatory that I ever saw or heard of. The hollow part below the cabbages takes away all wet that may come from occasional rains or melting of snows, and the little ditches on the sides of the bed keep the bed itself free from being soaked with wet. Even if deep snows come and lie for months, as in Nova Scotia, New-Brunswick and Canada, it is only removing the snow a little, and here are the cabbages always fresh and good."

We have no doubt of the utility of this mode; and to those who raise cabbages for winter and spring market, when the price is always high, Cobbett's directions are particularly worthy of attention.

9. Kale, is of the cabbage family, the leaves and sprouts of which are boiled in winter and spring as greens. There are several kinds, none of which that we have seen stand well our northern winters, which is required to have them useful. We have not seen the Siberian, recommended by Mr. Garnet. We might presume, from its name, that it would prove hardy with us.

10. Kale (Sea) has been highly extolled as a substitute for asparagus, and as coming earlier in use than that plant. We have tried it, but can say nothing in its favor, except it requires more labor than it is worth.

11. Camomile is a medicinal herb of great use. There is a single and double flowering variety. It stands our winters tolerably well. A small root will increase to a bed in a season. The flowers should be gathered ere they begin to fade. The stems, gathered and dried, possess in a great measure the virtues of the flower.

12. Capsicums. (peppers)—The large squash variety is used for pickles, the small bird kind for sauce. The seed should be sown early in fine earth. Where there is a hot-bed, it is well to sow in this. Thin the plants to eight inches.

13. Carrot. This, like the beet, is never lost to the grower; as it is readily eaten by most domestic animals; and is deemed equal to oats for horses. Sow in drills, in May, one foot apart, press the earth upon the sown seed, and thin the plants to five or six inches. The Altringhan and orange varieties are the best. ☞ The ground for all tap-rooted vegetables should be dug deep. A top-dressing of ashes is excellent for the carrot.

14. Cauliflower. Although this plant is considered a delicacy, resembling much the brocoli, yet it is seldom brought to perfection with ordinary care. The French call it the flowering cabbage; and it may be managed like the cabbage, except that it demands much moisture and a rich soil.

15. Celery is yet very little cultivated in the farmer's garden. Fifty plants will suffice for an ordinary family, and these may be raised in a trench of twenty-five feet. The seed should be sown early, if in a hot-bed the better, and the plants pricked out, as directed for cabbage. In July dig a trench a foot deep and a foot wide. Lay the earth upon the sides, or if more than one trench is dug, between the trenches, which should be five feet apart. Put into the trench rotted dung, or compost, dig it in, and set out your plants, six inches apart. As the plants progress in growth, draw the earth from the sides to the stems, taking care not to cover the heart, or central shoots; and continue this earthing, once in a week or ten days, till late in autumn, using as you have occasion. If covered so as to exclude wet, celery may be kept in the ground all winter; but the common mode is to preserve it in the cellar, by packing the roots in dry earth, or planting them in a trench. Some persons, who esteem the roots, plant on the surface of the ground, and do not earth the plants till they are removed to the cellar for winter use. These keep much the best.

16. Chives, often called sives, are perennial, and are often employed as edgings to walks. The tops are used in the spring in salads.

17. Corn. Early varieties, and particularly sweet corn, may be planted in the garden, for table use. Sweet corn may be preserved, when full grown, for winter use, and with dried beans, can be made into *succatash* at all seasons. Pick the corn when full grown, husk and place the ears in an oven, heat moderately; then take the corn from the cob, finish the drying process in the sun or an airy room, and pack it away for use. It will keep years.

18. Cress, or pepper-grass, is a grateful salad, alone or with lettuce. Sow in drills very thick, and cut before it comes into rough leaf.

19. Cucumber. For an early crop, where a hot-bed is not used, dig holes in a warm part of the garden, put into each, half a barrow full of hot unfermented stable dung; cover the dung with six inches of good mould, and plant your seeds. Small boxes, with two to four lights of glass, are advantageously used to protect cucumbers and melons in May and June, both from cold and insects; and when once prepared may be preserved for years. The main crop, for pickles, &c. may be planted the first week in June.

20. Dandelion, although considered a pest, affords one of the earliest and best greens. It is cultivated in many gardens for this use. It may be slightly covered with earth in autumn, and in this way it becomes finely bleached. The French esteem it as a salad.

21. Dock. The species called Patience Dock, of early growth and broad leaf, is often cultivated as a green. Six feet square upon a warm border will afford a great supply.

22. Egg plant. The fruit of this plant is highly esteemed by many. The seed should be sown early, if in pots in a hot-bed the better, and transplanted early in June into the open ground. Put the plants two feet apart each way. Care must be taken to protect the young plants from the black flea.

23. Endive is principally cultivated as a winter salad. Sow early for summer crop, and the middle of July for winter use. To bleach endive, which adds to its value, gather all the leaves up with your hand when they are dry, draw them into a conical form, and tie them round with matting or a soft string. When they have remained in this state about a fortnight, they will be bleached and fit for use. The curled sort is the handsomest, the plain the best. For winter or spring use, the plants are taken up in the fall, with balls of earth, and placed in light earth in a cellar.

24. Garlick, although seldom used as food by Americans, is nevertheless often in demand for medicinal uses. It is perennial and hardy. A few cloves or roots will occupy but a foot of ground and may prove serviceable.

Dairy Management in Scotland.

We have before us the report of the committee of the Highland Society of Scotland, by whom premiums were awarded for butter and cheese. The report particularizes the deviations from ordinary practice of the successful competitors; and without affirming that these deviations were really instrumental in securing success, they deem them entitled to particular notice. We shall notice such of these details as seem most likely to be serviceable to our readers; and it will be remembered that they come from the successful competitors.

CHEESE MAKING.

Mr. Harvie keeps his cheese-house at the regular temperature of 78° Fahrenheit, throughout the whole season of cheese making, and executes the different processes of manufacture without delay. He thinks it impossible to produce cheese of fine quality and taste, without the use of the thermometer.

Mr. Harvie thus describes his modes of making double Gloucester, Stilton and Wiltshire cheese.

"*Double Gloucester cheese* is made from milk as taken from the cow, carefully put through a scarce [strainer,] into a tub of sufficient size for the cheese to be made. In the extreme of summer heat, the milk from the cow may be found too warm. It will be so if above 94°, but the temperature may be easily brought down by the addition of cold skimmed milk. The rennet is then applied, and, if good, the curd may be expected to coagulate in 20 or 25 minutes. The whey is taken away with a skimming dish, and the curd pressed with the hand till it becomes firm. The curd is then broken down with a double cheese knife, and put into a drainer with a gentle pressure above it. The curd is improved by washing with boiling water instantly drained off. The curd is then broken down as small as possible, salted, wrapped in a cloth, put into the cheese vat, [cheese hoop] and sent to the press. The cloth is regularly changed until it remains dry under the press, which is the only criterion to shew when the curd is sufficiently pressed. With the most expert cheese-makers, it may happen, that whey remains in the centre of the curd, which, if not quickly observed and removed, will crack and deform the cheese. An experienced person can detect this fault at an early stage, and by applying, for a short time, the cheese over the steam of a boiler, the whey will ooze out, and by the immediate application of the press, it may be all squeezed out. After the pressing is over, the cheese should be laid on a dry shelf, with a little fog or meadow hay under it to expedite the extraction of damp. The cheese should be turned daily, and well rubbed with a dry cloth, but after getting firm, once a week will be sufficient. It will be found a great conveniency to have a spare press, and cast iron presses are far preferable to others, as the pressure can be regulated in them at pleasure.

"*Stilton cheese* is made by mixing the evening's cream with the morning's milk, in the proportion of one gallon of cream to three gallons of sweet milk, and treated as above.

"*Wiltshire cheese* is made with new milk and cream, in the proportion of one quart of cream to two gallons of new milk, and treated as above."

Mr. Mackay, who received the first premium for his *skimmed milk cheese*, thus details his process—

"The cheeses were made from skimmed milk, one-half of which had stood 24, and the other half 12 hours, when both were carefully creamed, and one-half heated to a degree that will make the whole the requisite temperature. The milk, when thus prepared, receives the steep or rennet. A gill of rennet, made from a calf's stomach, will be sufficient for a quantity of milk that will make a cheese of forty pounds. After the rennet is put in, the milk must stand until it be all properly curdled. The curd is then broken very small with a skimming dish, and allowed to settle down till all the whey be taken off; it must then be cut with a knife in a drainer, and allowed to remain in it till properly cooled.—The curd must then be put into a vessel, and cut very small with a curd-knife, and a small quantity of salt used; it is again put into the drainer a second time, and allowed to remain there for the space of an hour. It is again taken out of the drainer, put into a vessel, well washed, and the requisite quantity of salt added. It is then put into a cloth, then in the cheese vat, and lastly in the press, and the cloth removed thrice a day, until the curd is properly pressed into a cheese."

Mr. Dickey heats his night's milk, for full milk cheese, to a temperature equal to that coming from the cow in the morning, before he adds the rennet. Mrs. Lumsden sets her milk, i. e. puts in her rennet, when the milk is at a temperature of 85°.

BUTTER.

Mrs. Macinnis, who received a premium, describes her mode of making and curing butter, as follows:—

"Earthenware vessels are used for keeping the milk, and placed in the dairy on cool stone shelves. The milk allowed to stand twelve hours, after which the cream is taken off and put into earthen jars, and made into butter the following day. The butter, when made, clean washed with spring water, and half an ounce of fine salt given to every pound of 16 ounces. It is then kept wound up with a cloth, as it accumulates for four or five days, when it is all worked together, and another half ounce of salt added to every pound, and packed into the vessel that is to contain it, with a wooden mallet made for the purpose. A little salt is sprinkled over the top, which is covered closely up, so as to exclude the air as much as possible."

Mr. M'Kenzie's milk vessels are all made of oak; the dairy-house stands in an airy situation, into which no one is allowed to enter but the dairy-maid. The milk vessels are always scalded in hot water, or steamed, before they are used.

"Joseph Leisk makes butter from cream and milk, because he considers it only practicable in large dairies to make butter from cream alone. The milk is put into large vessels, and left undisturbed for four or five days, until churned. It is necessary that the milk be actually *soured*, not thickened, otherwise it will not part with all the butyraceous matter; but it should be soured by natural, and not by artificial means, by letting it stand a sufficient time. Two or more milkings may be churned together, provided they are not mixed but in the churn. It is necessary to add warm water, to raise the temperature to 90°, otherwise the butter will not all be extracted from it. The butter is first packed in stone dishes, and afterwards in wooden kegs. The second packing gives an uniform color and taste to the butter."

William Merriless begins to churn his cream at a temperature of 56°, when churning rises it to 60°. He does not wash his butter; but it is beaten with the hand till it is completely cleaned of the milk.—The quantity of milk produced from cows fed on artificial grasses is much greater than that from cows fed on the hill; but the quality of the latter is much superior to that of the former, and yields much more cream. One pound of fine salt is allowed to one stone of 14 lbs. of butter. The butter is laid aside for two days, when it is again broken down, and beaten with the hand, and packed into small jars for family use.

A Hint to Housewives.

As greatly as we commend scrubbing, as promotive of cleanliness and health—and loth as we are to check any tendency to tidiness in our wives and daughters, we do believe that scrubbing our floors with water is sometimes carried to a prejudicial length. Ventilation, or pure air, is the first requisite to health and comfort; and dry heat, though it be uncomfortable, is seldom unhealthy. But moist heat is the bane of health. When, therefore, the floors, or even the hearths, of our apartments, are subjected to a weekly or daily drenching, in order that they may look neat and cleanly, they must be unhealthy. Now a portion of this water is converted into vapor, in proportion to the temperature of the room; and unless ventilation be given to a dry external atmosphere, the inmates of the dwelling must suffer, in a measure, the evils that result from a marshy residence. One of the most eminent surgeons of London, the late Dr. Taunton, has declared, that many an illness had been caused, and frequently death ensued, from sleeping in a bed room that had been scoured, and had not been thoroughly dried, before its occupant retired to rest. The preventive of the evil, consists in scrubbing during the prevalence of a brisk dry atmosphere, when the windows of the rooms can be freely opened; or in using *clean dry, or hot sand, instead of water*—a practice which is coming into use with high prospects of usefulness. Combe has furnished us with a good illustration of the advantages of using sand, instead of water, for purifying inner apartments, in a letter which he has published from Capt. Murray, R. N. That gentleman commanded a ship of war, on the West-India station. While five other ships in company, lost from sixteen to fifty men each, not one of Capt. Murray's crew, consisting of 150 officers and men, and although moored in the midst of the squadron, and having daily intercourse with the other ships—not one of Capt. Murray's crew died or was sick. He ascribed this happy exemption to the circumstance of keeping his ship clean and *dry*. "*Every morning the lower deck, cock-pit and store-rooms were scrubbed with dry holystones and hot sand, until quite white*—the sand being carefully swept up and thrown overboard."

The admonition which this fact affords, may prove useful to the master, as well as to the mistress, and should instruct him to keep the grounds about his house and out buildings free from filth and stagnant water, and to avoid building in marshy situations, if he would avoid sickness himself, and prevent it in his family.

Forcing Rhubarb.

Mr. Knight has left directions for having this excellent plant in use for winter. He gives the following *rationale* of the principles on which his practice is founded. "The root of every perennial plant contains within itself, during winter, all the organizable matter, which it expends in the spring, in the formation of its first foliage and flower-stems, and it requires neither food nor light to enable it to protrude these, but simple heat and water; and if the root be removed entire, as soon as the leaf becomes lifeless, it will be found to vegetate, after being replanted, as strongly as it would have done if it had retained its first position." His mode of proceding was literally to fill some large deep pots with the roots taken from the garden, in autumn. Some fine sand loam was then washed in, to fill entirely the interstices between the roots, the tops of which were so placed as to be level with each other, and about one inch below the surface of the mould in the pots, which were covered with other pots of the same size inverted upon them: being then placed in a vinery, where there was no light, and copiously supplied with water, the plants vegetated rapidly and strongly, and from each pot he obtained three successive crops, the leaf-stocks being crowded so closely as nearly to touch each other, over the whole surface of the pots. The heat of a hot-bed, kitchen, and, on the approach of spring, a cellar, will afford a sufficient high temperature. Tubs or other wooden vessels may be substituted for earthen pots. Plants which have grown one year in a rich soil, either from cuttings or seeds, will answer to force.

"Serious Suggestions Addressed to the Interests and Honor of Farmers."

Such is the caption of a very able article, addressed to the farmers of Kentucky, by the editor of the Franklin Farmer. Its object is to demonstrate the propriety of a more liberal state policy for the improvement of its agriculture, particularly by the establishment of schools of practical and scientific instruction. The certain tendency and sure effect of such a policy, it is contended, will be, to enlarge and elevate the science, i. e. the principles and practice of husbandry; to promote vast improvement in the modes of tillage, and all the departments of husbandry; to contribute the most effctual aids, physical and intellectual, to this great branch of industry, and to elevate the dignity and standing, in every sense, of the tillers of the soil. Commerce and manufactures, which, he adds, are subordinate interests, have received ample—we do not say unmerited—encouragement, while agriculture has been wholly neglected. And why, he asks, is this? It has been owing, he intimates, to the listlessness and indifference of the farmers themselves. He closes with the following appeal to their interests and patriotism:

"Now we ask the farmers of Kentucky, each and all; have you done your duty to yourselves, to your sons and to your country, in regard to the great measures in which you are most deeply interested? Have you done enough for the promotion of agricultural education—have you felt and *acted* as if you felt, that your pursuits are the most important and dignified of all that engage the labors of mankind? Have you been willing, or at least, inactive spectators, of the course of legislation, which has passed by the interests of agriculture, unnoticed? Have you stood by and witnessed acts of favor extended to every other pursuit, and your own neglected as if unworthy of attention? Have you ever, as a freeman of this republic, and having the right to instruct your representatives, urged them to support measures of legislation in favor of agriculture; or rebuked or reprimanded them for their disobedience? Have you done nothing for the encouragement of agricultural education? Have you never felt, that in your pursuits as a farmer, in your actions as a citizen of the country, in your discipline as a father;—that you owe a great moral debt to your contemporaries, to your country and to your children, which cannot be discharged but by engaging heartily and earnestly, with all your ability and energy, in the labors which we have suggested? If you return a negative response to these inquiries, you have failed to sustain the high dignity and character of your position in community. You have met, as meets a coward, the noble responsibilities imposed on you by your existence in the nineteenth century, in this age of onward and upward march to the highest point of prosperity and improvement in all that relates to the happiness and well being of your fellows. You have, in short, sunk below the standard which the age has excited for the measure of your standing in community. But notwithstanding this dark picture, there is a day of brightness dawning, whose light will allure to press you onward in the paths of national and individual prosperity and honor. You cannot longer remain in the rear. Your post is in advance; and you must occupy it. The age expects you to transmit to your sons, such an amount of useful, practical knowledge, and withal, such a spirit of pride in your pursuits, as will testify that you appreciate the value of one to the success of the other; and such as will render your sons honorable and useful members of community. You are to demonstrate, in short, by every means and in every action, that your character and pursuits are the most exalted and dignified, and that you *know* it, and appreciate your position rightly. With these remarks we leave you for the present to the responsiblity you owe yourselves, your children, your country and your God."

The example of Massachusetts, in encouraging the improvement of agriculture, we hope at least will arrest the inquiry of all Legislators, as to its tendency upon the interests of the State, if it does not induce them to imitate it. The state agricultural society of that state has offered premiums to exceed $2000, and six of her county societies give each over $600. These premiums have been awarded for several years principally through the wisdom and liberality of her legislature; and no one murmurs—all classes are pleased, because all classes, either directly or indirectly, participate in its benefits.

On the Practicability and Means of Improving our Agriculture.

An Address, delivered before the Fulton County Agricultural Society, on the occasion of its organization, at Johnstown, Oct. 18, 1838, *by* J. Buel; *published at the request of the Society.*

Gentlemen of the Society—To those who can carry back their recollections thirty or forty years, the improvements which in that time have been made in the mechanic and manufacturing arts will appear surprising. Forty years ago we imported all our cotton, and most of our woollen goods, except of household manufacture—all of our hardware and cutlery, a great portion of our nails, saddlery, hats, &c. and I well remember, that a hatter in Albany, to give currency to his hats, was obliged to deceive his customers, by putting into them bills, representing them to be of British fabric. Now most of these, and many other articles indispensable to our comfort, are not only produced within ourselves, in quantities sufficient for domestic use, but millions in value of them are annually exported to foreign countries. Not only are they produced in abundance, but they are produced at a far less price than formerly. East India hum-hums, a coarse slazy kind of cotton goods, were once reputed cheap at twenty-five cents a yard. We have now better goods, made at our mills, at six and seven cents a yard; and it is but little more than twenty years, since the invention of power-looms reduced the price of weaving from eleven and twelve to one and two cents a yard. There is scarcely a manufactured article in use, which has not, in consequence of the improvements in mechanics and manufactures, been improved in quality, and diminished in price.

Whence these great and recent improvements in our sister arts? They are not owing to the diminished price of labor; for that has increased, rather than diminished; nor to a reduction in the price of provisions—for these, too, are higher than formerly. They have been brought about by the diffusion of useful knowledge, and the consequent development of the powers of the mind. The manipulations in the arts have been greatly abridged by labor-saving machinery, and many of the processes have been simplified and cheapened, and the results rendered certain, by the aid of science—by a knowledge of those laws which Providence has ordained for the government of matter, inorganic, as well as organic. Mind has been put in requisition, as well as physical power. And these changes have in some measure been effected by a more systematic arrangement of business—by a division of labor—and by a general and rapid dissemination, by means of the press, of a knowledge of the improvements which are every day being made in these useful arts of labor.

Let us now turn to agriculture, the parent of all arts—the source of our purest and most substantial enjoyments—the basis of our national prosperity and independence. This is as susceptible of improvement as the other arts of labor. What progress in its improvement have we made, during the last forty years? Have our labors been abridged by the general introduction of improved labor saving implements of husbandry? Have our lands increased in fertility, and in the amount of their products? Has the diffusion of useful knowledge, in the business of husbandry, been as extensive as it has in the manufacturing and mechanic arts? The valley of the Mohawk was long ago celebrated for its fertility and its wealth. Have enterprise, intelligence and improvement, in rural affairs, kept pace with the spirit of the age? I fear these questions cannot be answered affirmatively. I fear that it will be found, on an impartial investigation, that while all the other arts of labor have, with rapid strides, been progressing in improvement, our farmers have too generally been taking a Rip Van Winkle nap;—that with all the natural means of improvement, and all the common incentives to employ them, they have been listlessly treading in the footsteps of their fathers, unmindful of the salutary changes which are enlightening and enriching those engaged in other branches of labor.

I have said that agriculture is susceptible of improvement, and that our farmers have the power and incentives to bring it about, if they would do as others do, make a joint stock of their knowledge, and thus individually profit by the experience of all. Scotland, in a little more than forty years, has increased her agricultural products four fold, and yet but few of her farmers are owners of the land they till. They are tenants at a heavy rent, which Prof. Low, one of her late agricultural writers, averages at more than eight dollars an acre per annum, while the burdens, in the form of taxes, are assumed by him to be about $140 upon a farm of 500 acres. Thus the occupant of such a farm pays annually, in rent and taxes, about 4,500 dollars, which of course is a draw-back upon his nett profits, and most of which the American farmer, with Scottish intelligence and industry, might annually add to his income. Yet the Scotch farmer prospers under all these disadvantages.

What I have remarked of the increased profits of Scotch agriculture, will apply with very little abatement, to many districts of our country, and particularly to the county of Dutchess, in our state. Entire farms in that county have netted the cultivators an annual profit of fifteen and seventeen dollars an acre. Forty years ago these farms did not probably nett a quarter of this sum; and if I am able correctly to identify one to which I make reference, it was, forty years ago, mostly *old field*, a term denoting worn out land, and was lying in commons!

One of the best farmers of the age, a man of science and extensive practical knowledge in farming, has affirmed, that by doubling the expense, in labor and manure, he has, upon the same land, been enabled to treble his profits, and to quadruple his products. I allude to Von Thaer, who has for twenty-four years been at the head of the great agricultural school in Prussia.

If I might be permitted, without being charged with egotism, to cite my own experience in the business of improvement, I would point to my farm, on the Albany barrens, which many of my hearers have seen, I presume, in its present and former state—as a further evidence that we *can* improve our lands. Twenty years ago, my soil was poor,—very poor—and my farm a part of the commons—a waste. It is now as productive, and its culture affords as liberal a profit, as any of the lands in yonder fertile valley. It is worth, for farm culture, the interest of two hundred dollars per acre; and this year the product has been greater than I have named, although but ordinary labor was bestowed in the culture. It may be said that I have expended capital in my improvements. This is true. I laid out extra money and labor to put it into good condition, and I am now realizing compound interest upon the amount of the outlay: For having *put it* into good condition, I am enabled to *keep it so*, and to cultivate it, with as little expense as I could cultivate poor lands that would not yield me a third of the profit that I now realize. Capital is useful to its owner in proportion to the income which it brings him; and if by vesting it in farm improvements, it is made to yield as much as it would yield in bank stock, or loaned on bond and mortgage, it would seem to be prudent, if not wise, so to vest it.

I believe it will not be denied, by any one conversant with the history of the times, that improvements in *our* agriculture have been trivial, compared with those which have been made in the other arts of labor, or those which have been made in husbandry in other districts and in some other countries. On the contrary, it is but too apparent, that, with individual and local exceptions, our old lands have been deteriorating in fertility without any material improvement in the mode of their culture. A bare reference to the wheat crop in the valley of the Mohawk, comparing it now with what it was forty years ago, will serve to substantiate this truth.

From the examples I have cited, and from the personal observation which most of you have been enabled to make, I think it will readily be admitted, that we are capable of greatly improving our farming operations, and of thereby adding to our wealth, our comforts, and to the substantial prosperity of our country. If by means of new farming implements—the improvement of our domestic animals—and a better system of culture—the labor which now netts us fifty dollars, can be made to nett us one hundred dollars—which I consider within the range of probabilities—we may then double both our products and our profits; and, under the guidance of correct principles, double, too, our usefulness to society.

The progress of improvement in husbandry, will be graduated, in a measure, by the degree of intelligence which directs its labors. "It appears to be strange—and yet we see it to be true"—says the Rev. C. Young, "that the more ignorant a man is, the more obstinately is he wedded to his own notions and ways—the more ready to scoff at and oppose every thing that is new. Self-conceit and prejudice, the greatest foes to improvement, are the legitimate offspring of ignorance. And in proportion to the degree of ignorance, in a community, will be the hostility to improvement, and the derision, and even persecution, at which all attempts at innovation and reform will be met. The spirit of improvement is thus cowed, and even smothered. And if occasionally, a bold genius struggles into life, and exhibits his inventive powers, he hazards his peace—sometimes even his life. When Hargrave, less than a century ago, attempted to introduce the spinning-jenny, which he had invented, into the cotton manufacture, he was obliged to fly from Lancashire in England, where he lived, at the risk of his life. The first saw-mill ever erected in England was destroyed by a mob, because they thought it would take bread from the families of the sawyers." Fortunately in our day and country, acts of violence towards innovators upon old modes of farming are not to be apprehended. We can only complain of a listless indifference to improvement, and of a conceited ignorance, which rejects the useful, because it is new.

If our neighbor discovers on his farm a valuable mineral, and works it to great profit—we commend him for his good fortune. If the like mineral abounds on our own farms, and we can work it to equal advantage, what course, as prudent men, ought we to pursue? Should we not deem the man highly reprehensible, who neglected such an opportunity of adding to his wealth, by adopting the example of his fortunate neighbor? Now what are our farms but mines of wealth, if rightly improved? They are certainly so to many cultivators; and if we will follow their example in working the mine, and in husbanding the wealth which it yields, our farms will be such to us. If we lack the knowledge which precedes improvement, let us seek for it, by observation, by study, and a mutual interchange of opinions and information, with our brother farmers in associations like the one I am addressing. We shall see and hear, at these meetings, much that is new,—much that is instructing and useful, and much to stimulate us to new exertions in our business.

Again—if a man embarks in a speculating business, and prospers in it, how ready are his neighbors to become his rivals and competitors? Good farming is a speculation—with almost a certainty of gain—without the probability of loss. In agriculture, besides, competition excites no unkind feelings, as it is apt to do in other employments, or should not, for the improvements of every competitor may prove beneficial to all. What one makes does not lessen his neighbors' profits; but, on the contrary, has a tendency to better the condition of all around him. There is no monopoly in good farming.

The propensity which has too much prevailed of late years, to quit farming for a more lucrative, a more genteel, or a less laborious employment, has been a great obstacle to agricultural improvement, and has tended much to lower the respectability of our yeomanry in the public estimation. How many farmers have we seen, who were doing well upon their farms, allured by a weak ambition, into some untried business, in which they had every thing to learn—how many such, I say, have we seen bankrupted in fortune, and not unfrequently in reputation. There is a vast difference in the chance of a man's improving in the business to which he has been brought up, and his succeeding in a new one, of which he knows little or nothing. In the one case he has a capital in his experience; in the other, he enters into competition, without this capital, with those who are far his seniors in skill and in practice. A farmer may *improve* in his *old* business, at much less risk, and with less trouble, than he can *learn* a *new* one. He mistakes equally his interest and his happiness, therefore, who quits his farm, or neglects to improve it, upon the untried experiment of doing better elsewhere. There is no employment which promises a greater portion of health and independence, the main sources of our enjoyment, than that of agriculture; while the return it makes, to skill and industry, is as bountiful, probably, as is useful to ourselves, our families or our country.

The first step to improvement, is to acquire better knowledge in our business;—the second, to apply this knowledge to the management of our farms. He that is conscious he *can* improve, and resolves that he *will* improve, will most surely succeed—and the means of improving will readily present themselves to his mind. Agricultural journals will afford him a ready and cheap means of instruction. They chronicle and bring to him, periodically, at trifling expense, the improvements that are continually being made in the business by which he lives, and expects to acquire wealth for himself and his children. They convey to him all the discoveries in the science, and improvements in the art of agriculture, which are made in Europe or America, and that are calculated to improve him in his business, and advance his condition in life. They explain to him the principles upon which the new system of husbandry is more productive, more certain, and more profitable, than the old system; and they demonstrate the correctness of these principles by the successful results they give in practice. They explain to him the operation of manures—as essential to the growth and perfection of his crops, as hay, grain and pasture are to the growth and productiveness of his cattle—and enlighten him in the means of augmenting, and of applying them in the most economical manner. They bring to his knowledge every improvement and invention in the labor saving implements of the farm. They instruct him in the principles and most approved modes of draining—and of rendering salubrious and productive, those portions of his farm which have hitherto, perhaps, been a prolific source of disease and death to his family, and neighborhood—a highly useful branch of modern improvement in husbandry, which we have yet to learn. They demonstrate to him, in principle, and by numerous illustrations in practice, the utility of alternating crops, and instruct him in the economy and management of root culture. They treat of the comparative value of different breeds of farm stock, and furnish the best examples of profitable management. They teach useful lessons in gardening and orcharding, and designate the fruits, roots and garden productions most useful to the family, and most profitable for market. They abound in instructions in household economy, and show, that under judicious management, the garden and the farm may be made to produce most of the necessaries, and many of the elegancies and luxuries of life. They are in fact a sort of agricultural museum, in which all that is new—all that is useful in farming—may be found, and applied to the individual benefit of the reader. They are, in effect, a sort of universal agricultural society, which collects into a focus, and from thence diffuses over the land, a knowledge of all that is useful in the improvement of the soil. But independent of these, and other advantages I might particularize, agricultural journals are worth thrice their cost to the children of the family, in inducing in them a taste for useful knowledge, and a desire to improve their minds, their manners and their morals. The good seed, sown in the spring time of life, will produce its fifty and its hundred fold, in the summer of manhood.

Another and very important means of improvement is agricultural societies or associations. Although these have been of long standing in Europe, and have contributed largely to agricultural improvement there, more new ones have been formed in the United States, in the last five or ten years, than ever existed with us before. They afford a strong indication that the important business of husbandry is commanding, as it ought, the particular attention of the American people; and that the benefits resulting from these associations have become palpable and important. Agricultural societies tend to bring under the eye, or to the understanding, of each member, and in a great degree to the public at large, the best household and farm products, and the best agricultural practices, of the country or district in which they are established, and thus enable each individual to appropriate to his own use, the experience and the improvements of his neighbors. The example of every good farmer produces a beneficial influence upon those around him; who seeing his approved modes of management, and the advantages resulting from them, will not fail ultimately to adopt them. Hence the more good farmers there are, the greater will be the ratio of general improvement, and consequently of public benefit—for it is the earnings and products of agricultural labor, that mainly contributes to the prosperity of the other classes of society, and to augment the aggregation of the national wealth. When the harvest is short, every department of business feels the electric shock. When it is abundant, a new and happy impulse is given to every sort of business. These considerations show, that it is the interest alike of all, to patronize and encourage every effort that is made to increase the products of the soil. One of the oldest societies in our country is that of Berkshire, in Massachusetts. I have occasionally attended their exhibitions, traversed the county, and marked its improvements in husbandry, during the last twenty years; and I feel a perfect conviction in my mind, that the county has been benefitted twenty dollars for every dollar expended in premiums, in a pecuniary point of view. But it is not the rapid improvement of the soil alone which has resulted from the establishment of her agricultural society—the improvements of the mind have kept pace with, or rather preceded, the improvements in her husbandry. That county has probably the best schools in the country; and the general intelligence of her population ranks high.

Among other benefits likely to result from the establishment of agricultural societies, Mr. Anderson, in a late address, before the society, at Danville, Ky. enumerates the following.

"They will elevate the character of the farming and agricultural class of society. They will increase their general intelligence, their aggregate wealth, and give them, as they deserve to have, a control over the morals and politics of society.

"They will increase the national wealth.

"They will be not only calculated to elevate the character of agriculture, but the standard and spirit of education; for as men increase in knowledge even of a useful character, aspirations to a higher standard in every thing else, are enkindled.

"They will furnish essential aid to the legislature of a state.

"They will greatly increase live stock, in purity of blood and quality.

"They will increase labor saving modes of cultivation, as well as labor saving machines."

As intimately connected with the improvement of husbandry, which this society is specially formed to promote, permit me earnestly to recommend an early attention to the establishment of Common School Libraries. The improvement of the mind must precede the improvement of the soil. Physical power belongs to the brute, as well as to man; but the application of intellect to aid and control this power, is the peculiar prerogative of man; and it requires no argument of mine to show, that intellect is efficient and potent, in husbandry, as it is in the other business concerns of life, in proportion as it is brought under good culture;—that a well cultivated mind, like a well cultivated soil, can be rendered far more productive in usefulness, than one that has not received the advantages of culture. Common School Libraries will not only be useful in the particular business of farming, but in all the relations in life in which we or our children may be called upon to perform a part. All the gradations in society, from savage life, to the highest state of civilization and refinement, have principally been owing to the greater or less cultivation of the human intellect. Useful reading not only confers postive benefit, by the instruction and admonition which it imparts, but it often averts positive evil, by keeping us from loose or bad company, and thereby preventing the formation of idle or bad habits. The youth who finds pleasure in reading, and has the opportunity of storing his mind with useful knowledge, will seldom be driven to the haunts of vice and dissipation, to indulge his grosser appetites. And the mind too, like the soil, will grow weeds and briers, thistles and thorns—if not made, by good culture, to produce that which is comely and useful. The liberal appropriation by the legistature, for the establishment of Common School Libraries, if seconded, as I trust it will be, by the public at large, will form a new and auspicious era in our history, and contribute essentially to render us, what we ought to be—a more intelligent and virtuous—that we may longer reman a free and independent—people.

The judicious cultivation of the soil is now deemed so essential to national prosperity, that it has become the settled policy of the most enlightened governments, to take a direct and efficient interest in the improvement of its agriculture. Schools of scientific and practical agriculture, in which youth are taught the best modes of practice, and instructed in the principles upon which that practice is based, are continually multiplying under governmental patronage on the old continent. National societies have been established for rewarding those who benefit the state by their improvements and discoveries in husbandry, and for diffusing the useful information which is thus brought to a common centre—and the rewards as well as the services of those who are thus engaged in promoting the common weal, are in most cases paid from the public treasury. Prussia has wisely engrafted instruction in agriculture upon her system of common school education; and even in what we have hitherto considered the benighted regions of Prussia, and among the oppressed of Ireland, we see evidences of wisdom, and the dawn of a brighter day, in the establishment of agricultural schools. Our sister state, Massachusetts, has been foremost among us to adopt a liberal and enlightened policy toward this her primary branch of industry. She has disbursed large sums from her state treasury, annually, to sustain and encourage county agricultural societies; and when the law making these appropriations, was about to expire, by its own limitation, so well satisfied was her legislature, of its utility, that the law was renewed with great unanimity. That state has also provided for an agricultural survey of her territory, which has been two years in progress, with a view of bringing before her whole agricultural population all that is found excellent in the business of her farming population. How far New-York will profit by these examples of usefulness—or when she will begin to imitate them, will depend very much upon her farming population. What they *demand* will be granted. But little need be expected for the promotion of agricultural improvement from our public councils, while the farmers themselves generally manifest a reprehensible indifference in the matter.

In the brief remarks I have made, I have endeavored to show the practicability of improving our agriculture, and of thereby raising the character of our agricultural population; and have suggested some of the means by which the desired improvement may be brought about. I have already trespassed too far upon your patience, I fear, to go into any of the details of improved husbandry. Let it suffice to say, that they embrace a better economy, and more general application of manures—a system of thorough draining—the introduction of improved labor saving machines and implements—the improvement of farm stock—the exclusion of impure seeds—the extension of root culture—the alternation of crops where practicable—the improvement of our common roads—the introduction of system into all the departments of farm and household labor—the cultivation of *as much land as can be cultivated* WELL—and the keeping of *as much farm stock as can be profitably fed and fattened*—AND NO MORE. All those improvements *have been made*, and *are making*, elsewhere. They *can* be made here; they *will be made here*, by the intelligence, the enterprise, and the laudable competition, which this society will diffuse and call into action, if its labors are judiciously persevered in.

I am happy to recognize, gentlemen, in the formation of this association, a disposition in its members to aid in the work of agricultural inprovement. The object is a worthy one, because it aims to enlarge the means of human sustenance and the measure of human enjoyment; and by encouraging and honoring industry, tends to advance the moral character and substantial prosperity of the country. I hope you may prosper in these public spirited efforts, and that FULTON county, may become as distinguished in the annals of agricultural improvement, as the individual whose name it bears, is already renowned in the history of steam navigation.

Notices to Correspondents.

MADDER. W. R. of Gloucester county, N. J. will find the information he asks for, in regard to the cultivation of madder, at pages 35 and 141, vol. I—at pages 20 and 171, of vol. II—and at pages 72 and 189 of vol. III. It would be an unpleasant repetition, to most of our readers, to republish these directions.

LIME AND MARL. A correspondent at Washington, D. C. writes as follows:—"The application of lime and marl, in Maryland and Virginia is producing wonderful results. I have no doubt, that in a few years, all our worn out exhausted lands, will rank among the most productive in any part of the United States, by the judicious application of those two valuable calcareous manures, or rather agents in agricultural improvement. I am engaged in applying lime to a small exhausted farm near this city. So far the effects are great. So far as I shall have a full and fair experiment of the results, I will make them known in detail, through the columns of the Cultivator, if they shall be deemed worthy of insertion. I am making the experiment, whether lime applied on poor exhausted land, in very small quantities, unassisted by manure, will *alone* recover the land, except that taken from swamps, or in other words, rich rotted vegetable matters. I try the lime alone also. What is your opinion on this point?" Our opinion is, that lime must have vegetable or organic matter to work upon, to restore fertility to the soil. If our recollection is right, the soil about Washington is a tenacious red clay, so hard, when dry, as to prevent the plumules of tender plants penetrating it freely. Lime will unquestionably improve its mechanical texture; and if brought in contact with inert vegetable matter, whether already in the soil, or brought thither from swamps, it will improve its fertility, in proportion to the vegetable matter which the lime may render soluble, and thus transform into vegetable nutriment.

PEAT SWAMPS. Willard Earl, of Hubbardston, Mass. will find as ample directions as we can give, for reclaiming peat swamps, at pages 157, 174 and 190 of our last volume. The first thing is thoroughly to drain them, so that water will not stand and stagnate within the natural range of the roots of farm crops. The second requisite is, to induce a decomposition of the vegetable matter, by paring and burning, by the application of lime or unfermented manures, or by a liberal admixture of earthy matters. The third is, to till and subdue the upper stratum till it is fit to lay down in meadow. The fourth is, if it is to be kept in meadow, to give it a top-dressing, once in three or four years, with manure, compost, ashes, lime or marl. We have yet much to learn in draining. We do not go deep enough; and we have yet to learn from experience, that under-draining, except upon the main outlets, is far the most efficient and economical.

MARL. Theodore Allen, of Hyde-Park, Dutchess, writes us, that he has just opened a bed, extending over several acres, and lying within twenty rods of the Hudson, of what he believes to be *shell marl*, and has sent us a sample of it. Without having subjected it to an accurate analysis, we venture to assure Mr. Allen, that the specimen *is* shell marl, of superior quality, and that in his "several acres" he has a source of great fertility and profit.

PUMPKIN, SQUASH, &c. A correspondent inquires of us where the seven years, and mammoth pumpkins originated, what are their qualities, &c. We cannot answer either of these questions. We have grown both, but have thought so little of their quality, from their appearance, that we have not had any of them cooked. Another equally puzzling question has been asked us, viz. what is the distinction between a squash and a pumpkin?

The pumpkin, squash, water-melon, gourd, and we believe what is termed the vegetable marrow, belong to the same class, or family of plants (*Cucurbita*); and although there are but six species described by botanists as belonging to this class, there are innumerable varieties, partaking of the qualities of two or more species. The species named by Eaton, are, the egg squash, club squash, flat squash, pumpkin, water-melon and gourd. Instead of giving three species of the squash, Loudon gives three of the gourd, and one of the squash. All the varieties of pumpkins, squashes, water-melons and gourds have sprung from a mixture of these six species; and but few of the varieties held by us in the highest estimation answer the description in fruit, given in books—so remarkably have the varieties multiplied, and in many cases improved, by cross impregnation. We have apparently six varieties now growing in our garden, from seed which we planted as the apple bush squash—in consequence, we presume of the parent having been grown along side of other varieties and species. The pumpkin is cultivated in England as a curiosity; yet, says Loudon, some of the inhabitants grow it on dunghills, and "when ripe, they cut a hole in one side, and having taken out the seeds, fill the void space with sliced apples, adding a little sugar and spice, and then having baked the whole, eat it with butter." Poor souls! not to know the luxury of pumpkin-pie!

The vegetable marrow, being of recent introduction, having been first obtained but a few years since from Persia, and being withal an excellent species, we will copy its description from Sabine, and his directions for preparing it for the table.

"The fruit is of a uniform pale yellow, or light sulphur colour; when full grown it is about nine inches in length, four inches in diameter, and of an eliptic shape, the surface being rendered slightly uneven by irregular longitudinal ribs, the terminations uniting, form a projecting apex at the end of the fruit, which is very unusual in this tribe. It is useful for culinary purposes in every stage of its growth; when very young, it is good if fried with butter; when large, or about half grown, it is excellent either when plain, boiled, or stewed with rich sauce; for either of these purposes it should be cut in slices. The flesh has a peculiar tenderness and softness, from which circumstance it has, I suppose, received its name, much resembling the buttery quality of the *beurre pears*, and this property remains with it till it is full grown, when it is used for pies. It is, however, in its intermediate state of growth, that I consider it likely to be most approved. Compared with all the other kinds which I had growing, its superiority was decided. I consider the vegetable marrow without a rival."

We have grown the true vegetable marrow two seasons; and although we have not used it in the intermediate state of its growth, as recommended by Mr. Sabine, we esteem it among the best varieties of the cucurbita for boiling and for pies. It is cultivated like the common pumpkin or squash, and will ripen in a high latitude.

INDIAN CORN IN ENGLAND. We are asked by a Kanawha, Va. correspondent, if Indian corn is grown in England? It is *not* grown there as a *crop*, but occasionally as a *curiosity*. Loudon says, it *may* be cultivated in very warm, dry situations, if the dwarf red grained be adopted. Cobbett did grow and ripen some; but no attempt, we believe, has been made to profit by his lessons, farther than to raise a few hills for the table, while green.

Will ruta baga do as well on stock ground as on sod? is a question addressed to us by D. J. Bent, of Chester, Pa. We think it will, if the former is made as rich as the latter, including the fertilizing matter of the sod. A sod is beneficial in two ways: it affords the food of plants, and it tends, if left carefully turned, to mitigate the effects of drought. The decomposition of vegetable matter, excluded from the atmosphere, not only *preserves*, but *produces*, moisture. Mr. Bent also asks—will manure, applied in an unfermented state to corn, in the spring, benefit a succeeding wheat crop, as much as it will if permitted to rot in the yard, and applied after the corn is harvested? We answer *it will, and more.*

It loses less by fermentation in the soil than it does in the yard, and it is better commingled with the soil by the culture of the corn, than it would be by the mere preparation for the wheat-crop.

CORRESPONDENCE.

Plan of a Barn.

Near Brownsville, Pa. Nov. 1, 1838.

Hon. J. Buel—As the important subject of barn building has awakened the attention of the farming community, I would place at your disposal the plan of a barn I have just erected. It is the plan most usually adopted by the Germans of western Penn. The cost is about eleven hundred dollars; and for extent of accommodations, for grain and stock, for durability, for convenience and not being liable to get out of repair, it has few superiors. Bank barns have many advantages over those erected on level ground, and surrounded with sheds,—the manure is collected in front, in one place, and all other sides are kept clean; the stock is more easily fed, on account of the fodder being nearer to the place where it is wanted, and much less roofing is required for the same purpose. This barn is ninety-five feet long, forty-four in width, including an overjet of eight feet: height of main frame sixteen feet, and of the overjet twelve; that is, above the wall.

[Fig. No. 61.]

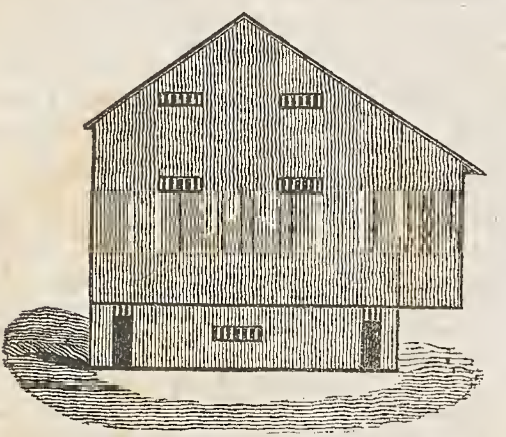


Fig. 61, represents the end view. Several lattice windows are preferred, so as to let off the rarified, moist and heated air in small bodies; for a current of this air is known to be one of the best conductors of electricity; of course then, means should be taken to prevent its passing off in one dense volume; free ventilation would seem to answer this purpose. Is not the neglect of this precaution the cause of so many barns being burned by lightning? the whole current passing out of one opening?

[Fig. No. 62.]

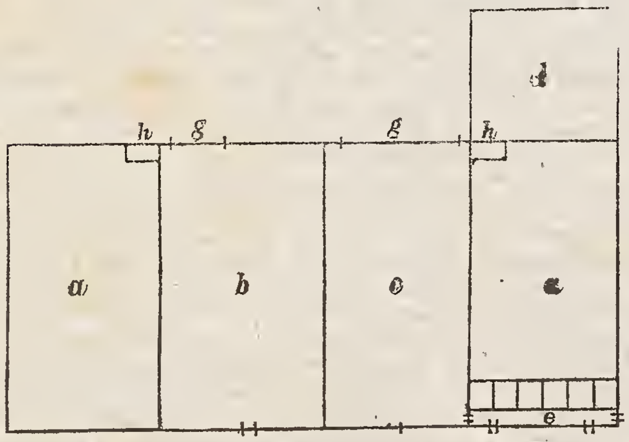
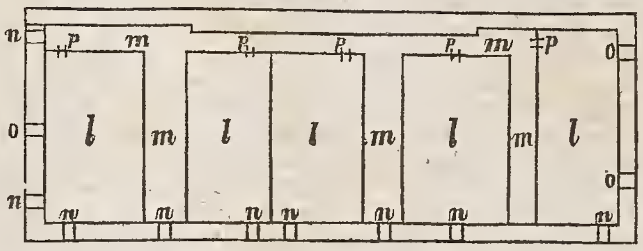


Fig. 62, represents the second story; (xa and a) represent hay or grain mows; (b) a mow with large doors (g), and strong floor, into which a wagon can drive so as to fill the mow (a); after which the mow (b) may be filled from the threshing floor (c); so that no space in the whole extent may be left unoccupied, except the threshing floor; and after the mow (b) is freed from its grain, it also serves for a threshing floor for the mow (a). The mow (a), however, is intended for hay, which even then leaves space enough for all the grain of farms of the usual size; (e) is a granary, from which grain may be let down into a wagon, from a door in the end of the barn; (d) is a building for a stationary horse power of a threshing machine, which I intend erecting; (g g) are barn doors; (h) stair and gangways to throw hay and straw into the stable below. A straw house on the lower side with racks underneath, will be found very convenient, especially where much straw is threshed at one time. Joists are placed above the threshing floor on which to store away grain.

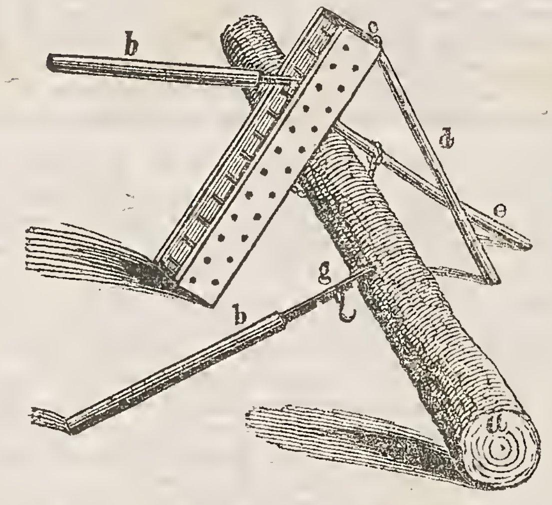
Fig. 63, is a ground plan of the basement story; (m) are passages the whole length of the building, and between the stables, from which the stock is fed; (n) passage and stable doors; (o) windows, which together with lath doors, and the space up to the sills above the doors being left open, serve to ventilate the stables sufficiently; (p) doors from passages into stables; (l) which will accommodate comfortably twelve horses, twenty-four cows or cattle, and twelve calves. The basement is mason work. I am thus minute, for in minutiæ consists convenience.

[Fig. No. 63.]



A Machine for Hoisting Logs.

[Fig. No. 64.]



I will also attempt to describe a machine for raising logs upon a wagon, with which a man and boy to move the pins, can load a log in five minutes, which it would require five men at least half an hour; (a) is the log, (b) a lever, the handle being wood, the part (g) on which the strength lies, of iron; on which iron part, is fixed a link and hook; (c) is two pieces of plank about seven feet long, eight inches broad, and one and a half thick, pinned side by side,—but wide enough apart to admit the lever and hook working easily between them,—bored with holes at regular distances on each side, so that as the lever is raised and lowered, the pins which go through the holes, and on which the lever rests, may be moved to the holes immediately above; the hook on which the weight lies, works between the two pins; (e) is a stick, one end on the ground, the other on the log; on which latter end is fastened a log chain extending under the log, and fastened on the hook of the lever; (d) is a prop to keep the machine from falling in the direction of the log. It works on much the same principle as the beam cider press. If you understand the principle, please explain it in a more intelligible manner, if it is deemed worthy of a corner of your valuable journal.

G. E. H.

Improved Wind-Mill.

Mr. J. Buel—Sir—I wish through the columns of the Cultivator, to bring to the notice of the public an important improvement in the wind-mill, made by Mr. Israel Keyes of Putney, Vermont, and patented by the United States. It is believed that by the aid of this improvement, wind power may be successfully used in all those places where water power is wanting.

The wheel used by Mr. Keyes, is a perpendicular wheel moving horizontally. There is a perpendicular shaft, with two setts of horizontal arms, to which are attached boards perpendicularly, which make the floats on which the wind operates. This wheel is enclosed in a circle of slats standing perpendicularly, and turn on a pivot at the bottom. Each slat laps on the edge of the one next to it, so that the circle is easily moved; and opens and shuts in the manner of moveable window blinds. In whatever direction the wind may blow, it operates upon one-half of the wheel, while it is turned from the other half: and when the wind is too violent, the slats are partially or wholly closed, as the case may require, by the operation of the machinery; so that the operation of the wind on the wheel, can be regulated as water is by the opening and shutting of the gate.

It is believed that this wind-mill may be successfully used for grist-mills, saw-mills, for mechanic shops, for grinding bark in tanneries, for the various purposes of farm use, as grinding provender, sawing wood, cutting straw, turning, or a churn, and for pumping water.

Mr. Keyes has erected for me a wind-mill, with a four feet wheel, to carry a pump of one and an eighth inches caliber; and the experiment has been entirely successful. It has much more power than is needed for so small a pump, in a well of common depth.

It heaves three quarts of water in a minute, and with a larger pump would probably heave two gallons in a minute.

This pump can be fitted up at a moderate expense, and cannot fail to be a valuable acquisition to those farms that are destitute of streams and living fountains.

This improved wind-mill has many advantages over those of the old construction, as will be obvious by inspection. It is cheaper built, in a more convenient form, has much less friction, more power, and is perfectly managable in a high wind.

E. D. ANDREWS.

Pittsford, Monroe co. Nov. 12, 1835.

A model of this wind-mill has been submitted to our inspection; and we are inclined to think favorably of it; though we cannot venture to give a definitive opinion of its merits till we have seen it thoroughly tried.—*Cond. Cult.*

Cultivation and Profits of Cucumbers.

Narrows, L. I. October 26, 1838.

Mr. Buel—Agreeable to promise, I will now endeavor to describe the manner in which cucumbers are cultivated on Long-Island, for the supply of the New-York markets, and will also give the produce and amount of sales from my crop of the preceding four years. Before proceeding with the matter, I would state, that the description is intended for field culture, and that our great object is, to have good fruit, and as early as it is possible to produce it, for two or three days makes a great difference in its value in the markets.

Cucumbers will grow on any good soil, but to have them early, we require a rich sandy one, of a dark colour, yellow and light coloured ones being later.—The field, if possible, requires to be protected from the south and northwest winds, and be situated near the bay or river, where there is always less danger from late frosts. The south winds with us, in May and June, retard vegetation more than any other, in consequence of their being chilly and cool, which qualities they receive from the ocean.

Ground intended for cucumbers, we prefer ploughing in August or the beginning of September of the preceding year, and sowing with rye; the pasture which this produces pays for the labor, and among its advantages are, the prevention of weeds going to seed and troubling us in the spring; the soil not blowing about in winter, especially on the knolls; neither is it so liable to blow when ploughed in the spring, in consequence of the roots of the plants, and the sustenance afforded to the crop by the decay of the rye. Previous to ploughing for the crop, there should be spread about seven two-horse loads of street or horse manure to the acre; but if the soil is poor, more will be necessary, and the ploughing should take place immediately after the spreading. The ground is then harrowed over two or three times, until it is mellow, furrowed shallow, with a plough, into hills four and a half feet asunder, manured with half a shovel full in a hill, which is flattened down with a hoe and covered about an inch thick with fine soil. Short hog manure, carted out of the pen the preceding fall, and cut over early in the spring once or twice, and made fine, is preferred for the hills; but this not being generally sufficiently abundant, we procure the manure of cows which have been fed on distillers' slops, mixed with that of horses, so as to make it sufficiently firm to handle with a fork, from New-York in the fall, which we mix with the hog manure. The manure should be cool, for fermentation in the hills is injurious to the plants.

The sooner the seed is planted after ploughing, the better: the time of planting depends upon the forwardness of the season, and it is generally commenced when single apricot blossoms are open, but some seasons earlier. About a week is occupied in putting in the first seed, and nearly the same period in planting over the first and second times. The casualties to which the seed and plants are subject, induces us to continue putting in seed almost every day for this space of time, so as to make certain work. It sometimes happens, when the weather has been unfavorable, that every hill in some fields is planted over the third, and even single hills the fourth time. I prefer spreading the first seed in the south half of the hills, the first planting over in the northwest, and the second in the northeast quarters: if it becomes necessary to plant over the third time, I put the seed in the south half, where the first seed by that time is rotten. If this plan is properly followed, the different plantings will not interfere with each other. We generally put in from thirty to forty seeds each time, and cover them with fine soil from three-quarters to an inch deep. Sprouting the seed previous to planting does not succeed well early in the season, but does sometimes when the weather is favorable in the latter part. Cucumber seed is the tenderest of the vine kind, for if, after planting at the usual depth, wet weather should follow, it is almost certain to rot; if dry, it dries out; if, when favorable to their vegetating, and the plants have advanced so as to be breaking ground, a storm should occur, they generally perish; a northeaster of three or four days' continuance destroys the plants when young, and in some instances when more than a week old; if up too early, a late frost is apt to sweep them clean. Seed to vegetate requires to be near the surface of the wet soil, not buried deep into it; our ignorance of the weather which will follow after planting, causes most of our errors; when planted in a heavy soil, it is less liable to rot and dry out than in a sandy one, but the fruit is later. If it happens that there are more plants in a hill than we require, we find it an easy matter to eradicate them with the hoe and fingers, but it is not so easy to place them in the hills when deficient.

When the first rough leaves of the plants are about the size of a twenty-five cent piece, a cultivator is run through the rows both ways, and they receive the first hoeing; the plants are also thinned out, so as not to crowd each other. In hoeing, the soil between the plants should not be disturbed; large weeds, (if any,) be pulled out; fine soil drawn around the plants up to the seed leaves, so as to cover small weeds, and the hill made flat and not concave. We are careful not to hoe while the plants are very young, for if a storm should occur shortly after the operation has been performed, the hills soak in too much water, which is injurious. Ten or twelve days after the first hoeing, the plants (if good,) are thinned to six or eight in a hill, leaving the largest ones, and if possible three or four inches apart. About eighteen days after the first hoeing, or about the time when single blossoms open, we run a one-horse plough twice through a row each way, (if the ground is hard, three times,) throwing the furrow from the hills, and then commence the second hoeing, which is performed in the same manner as the first, care being taken not to earth up higher than the seed leaves, and to scrape out the crust between the plants, if the ground is hard or covered with weeds: they are, also, if the plants are fair, thinned down to five in a hill.

When the vines extend so that single ones meet each other between the hills, to prevent injury, they are carefully laid aside by hand, or with a short stick, and the cultivator for the last time is run once through a row each way. They then receive the third and last hoeing, the ground being loosened and drawn up around the hills with the hoe, and broken between the plants with the fingers. It is customary to leave five plants in a hill, standing from four to five inches apart, but some reduce them to four: have tried no experiment to test which is the best.

Cucumber vines will yield fruit about eight weeks, and the fields are picked over at least every second and sometimes every day. In picking, a light stick with a cross-piece framed to it so as to resemble the letter T, is made use of to push the leaves aside and more readily discover the fruit.

The insects which trouble and destroy the plants, are the black worm and striped bugs: the first is apt to be numerous in ground which was occupied the preceding year with red clover; they cut off the plants at or above the surface in the night, and are generally hunted out early in the morning, when their burrowing is fresh, and they lay near the surface, until the ground is cleared of them: the striped bug or yellow fly eats the plants in the day time, and is sometimes very destructive on land where a crust is formed on the surface, which being raised up by the young plants, affords them a harbor. The best remedy is, with the fingers to catch and destroy them in the morning, when the dew is on them and they are chilled, which prevents their flying and escaping as freely as when the sun has warmed them. Sandy land, having no crust to shelter these pests, is generally exempt from their depredations.

We are acquainted with the system of rotation of crops, and it has been practised among our farmers for years, but cucumbers as well as some other vegetables, do not seem to require it. I have a piece of about half an acre, on which I have cultivated them for the last ten successive years, ploughing in the usual quantity of street manure every second year, and they have flourished as well as on the adjoining ground, which has been similarly manured, and on which the crops have been changed.

The following is the quantity planted, produce and amount of sales, for the last four years, viz.

Year.	Hills planted.	Cucumbers sold.	Am't received.
1835,	6,000,	104,965,	$823 84
1836,	6,600,	99,670,	820 96
1837,	7,370,	130,735,	532 00
1838,	7,110,	118,600,	734 87½

During each of these years, large quantities of cullings, and, when unsaleable, good ones, were fed to the hogs and cattle, of which no account was kept.

Yours, TUNIS G. BERGEN.

Plan of a Garden.

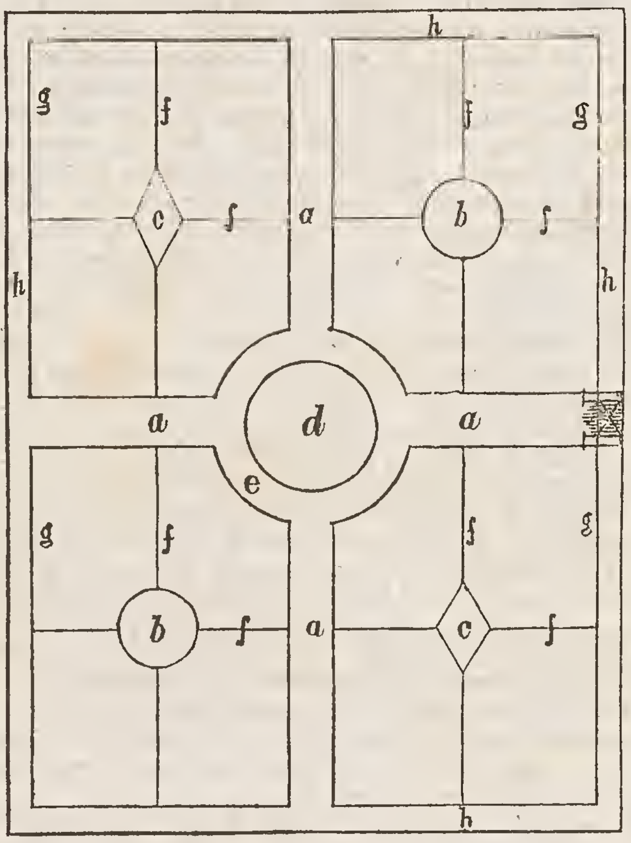
King William county, Va. Oct. 6, 1838.

JUDGE BUEL—Not liking the plan of your garden, as laid down in the last [September] Cultivator, for several reasons, I have sent you a plat of mine, which is at your service, either to be placed before your readers, or thrown under your table, as may seem in your better judgment the most advisable.

It is the usual practice in the south, among moderate estate farmers to combine the flower and vegetable gardens. The desideratum among them, then, is, to lay off a garden which will accomplish the object in the simplest, neatest style. The one in question was laid off this last spring, and has been much admired. It is 60 by 80 yards—nearly an acre. The area is divided by two main walks, eight feet wide, intersected by a circle twenty-four feet in diameter. This, you will perceive, throws the garden into four divisions; each division is divided into four squares by six feet walks, which are again intersected by circles or octagons and diamonds, each twelve feet in diameter. A walk six feet wide runs the circumference of the garden, leaving a border next the paling of four feet. The centre circle is intended for a summer house of lattice work, to be covered with vines, such as the multiflora, &c.—the smaller figures to be devoted exclusively to flora, and decorated and adorned by fixtures, according to the taste of the individuals who may bestow most attention upon them.—There are sixteen squares for vegetables; the borders I shall sow in lucerne or flowers, as is the usual case.

A VIRGINIAN.

[Fig. No. 65.]



REFERENCES.

a a a a Main walks, 8 feet wide.
b b Octagons or circles, 12 feet in diameter.
c c Diamonds, 12 feet in diameter.
d Circle, 24 feet in diameter.
e 6 feet walk around the circle.
f f f f f f f f Walks, 6 feet wide.
g g g g Walk 6 feet, the circumference of the garden.
h h h h Border, 4 feet wide.

The walks round the octagons and diamonds 5 feet wide.

Lunar Influence.

Plymouth, (Conn.) Oct. 29, 1838.

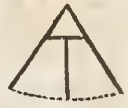
J. BUEL, Esq.—Sir—I have not been much of a star-gazer or moon-gazer, but have often heard it remarked that pork killed in the wane of the moon, would shrink away and waste in cooking. This I have always doubted, although I knew that some years my pork wasted more in cooking than others. This I attributed to some cause other than the influence of the moon, without being able to assign any cause. Last year, I fattened and butchered three hogs, all fattened together, though not all of the same litter. One was killed the first day of December last, weighing 238 lbs. and the other two the 26th of the same month, weighing 328 lbs. and 300 lbs. It will be seen that the first was killed in the new of the moon, and the two last in the old. The pork was salted in the same cask and in the same manner. The pork of the two last killed hogs wasted very much in cooking, either boiling or frying, so that it was noticed by all the family. The cook said, put ever so large a piece of pork in the pot or spider, and it would be very small when fit for the table. But it is entirely different with the pork of the hog first killed. It rather swells than shrinks in cooking. How to account for this difference, I do not know, except from the influence of the moon. The hogs last killed were early March pigs, and the other some older.

It is important to know the cause why meat sometimes wastes so much in cooking; and if the above statement of facts should give any information on the subject, or elicit any, I shall be well paid for my trouble. Very respectfully,

CALVIN BUTLER.

Ice Houses.

In the Cultivator for this month, is an article on the "Construction of Ice Houses." To those about to make them, it is an interesting one; still, it may be desirable to see descriptions of others, that they may have a choice of plans. Four years ago, I had one made, simple, cheap, and it has proved sufficient, thus: Dug a circular hole eight feet deep, the earth thrown out forming a bank of four feet high; the pit thus made, being tunnel shaped, eight feet in diameter at bottom, and thirteen feet at top of the ground; around the sides, placed white pine poles, of about thirteen feet in length, except the space for a door, close to each other, and inverted, without dressing them, save to make them of proper taper. Those of eight to ten inches thick at the buts, were put in whole; those of larger sizes split into halves, and the flat sides put to the bank; they are supported by resting on the bottom and sides of the pit; the buts were sawed to a level, and the earth thrown up on the outside to the upper ends. An octagon roof is formed by eight rafters of four by three, hemlock scantling, twelve feet long, resting on the buts of the poles, and framed into an octagon block at the top; eight intermediate shorter rafters of eight feet long, also resting on the poles in a line with the long ones, supported at top by a cross-piece framed to the adjoining long ones, thus: Used common oak lath, two feet apart, to nail the boards upon; covered with pine boards, tongued and grooved, the angles breaking on the long rafters. Door upright, four feet wide, five feet high, from ground level, and a cut out of the roof to allow this height. Jambs, to support the bank on each side, made of plank, nailed to posts set in the ground, and flaring to six feet. About forty wagon loads fills my house, where it keeps well. I use straw to about the thickness of a sheaf at the bottom, sides and top of the ice. What ice melts is mostly at the sides; the water is carried off the underside of the poles, and from the shape of the pit, as the ice settles it leaves no vacancy at the sides. At first, I put on a thatched straw roof; it proved a harbor for rats, and in one season they destroyed so much of it, that I had to substitute boards. I have shaded my ice house by an arbor of Isabella Grape vines, which gives us much fruit, and greatly improves the appearance of it, besides breaking the rays of the sun.



ROB'T WHITE, Jun.
Rumson Neck, Shrewsbury, N. J. 10*th mo.* 1838.

Millers' Tolls Again.

Rahway, Oct. 21, 1838.

Mr. J. BUEL—Dear Sir—On the 16th of October, I had two bushels of wheat, weighing 120 lbs. ground and bolted by Mr. John Florence, at his mills, under my inspection. When I called at the mill, Mr. F. was grinding rye, which he finished, and then put about one peck of corn in to clean the stones. When this was all ground out, he weighed my wheat, and put it in the hopper; the following is the weight of flour and bran, which it made, viz. 118¾ lbs. which deduct from the weight of the grain, leaves a loss of 1¼ lbs. in two bushels, or 120 lbs. of wheat, which of course, will make a loss of 10 oz on one bushel. I do not believe, the average loss in grinding 20, would exceed 7 oz. Now the mystery is, how to account for this loss. I will account for a part of it, in two ways, viz. first, that the dampness of the grain is absorbed by the heat, caused by the friction of grinding, [which dampness, or water, Blair says, is 900 times heavier than air.] Of this fact, any person may convince himself; by putting his hand up into the top part of the leader, that conveys the flour from the stones, he will find it wet, and pasted with damp flour. And in the second place, the flour coming from the stones hot, and perfectly dry, into the damp atmosphere, the finest and dryest of it will rise into the air; there remain until impregnated with its dampness, then settle in every part of the mill. I consider it much more philosophical, to attribute this loss of weight, to the dampness, or water, contained in the grain, than to suppose, as Mr. David Walton has, that it is all fixed air. He appears rather dissatisfied with my requiring the proof for the quantity of air he wishes to make exist in a bushel, or 60 lbs. of wheat, and wants to know, what loose air has to do with the just or unjust tolling of grain? I will reply, that it has nothing to do with the miller's toll; and if he will put a pair of artificial optics astride his nose, and look more attentively at my former communication, he will there see asserted, that if he confined a bushel of loose air in a bushel of grain, it would only add 1 oz. 9 dwt. to its weight: this is the point I am contesting. I wish him to prove that there is more air in any species of grain than the open portions of said grain will contain of loose air. The only way he can make it appear, is that it is condensed; which I will not admit without plain proof. I say it is confined, if there should any appear in the grain, but do not believe it to be condensed. There might be some probability of air being condensed in grain, provided it grew to the size of a pumpkin, and as hollow, and then diminished until it attained the size of wheat; but as wheat forms in a very small milky substance, and continues to expand until it ripens; I say, if it contains air at its formation, it has more room as the grain grows. I apprehend he will be disappointed if he expects to convert nine-tenths of the agricultural community to the belief, that the wheat they raise is even one hundredth part air. It is an established fact in philosophy, that air fills all space that is not occupied by any other matter, and one of its first principles is, that no two things can occupy the same place, at the same time. Now, this wise man has made a discovery that no philosopher has done before him, which is, that all solid bodies contain fixed air. I will quote, for his information, Blair's definition of solidity, viz. "Solidity is that property which every substance possesses, of not permitting any other substance to occupy the same place at the same time." I cannot favor him with the grinding of my wheat, as long as he makes a deduction of from one to five pounds per bushel for fixed air. Yours most respectfully,

WILLIAM A. STONE.

The Combined Effect of Heat and Water on the Temperature of the Atmosphere.

It is a law in the science of heat, "that all bodies, in passing from a rare to a dense state, emit caloric." It is found, also, that when any great change takes place in a body, as its passing from a solid to a liquid, from a liquid to a vapor, or *vice-versa*—a great quantity of caloric is either absorbed or emitted, according to its change; whether from a dense to a rare state, or the contrary, which previously remained latent and unappreciable. It is found by experiment, that water, in freezing, gives out 140° of latent heat, and the ice remains at the same temperature immediately after, as the water was immediately before freezing, viz. 32°. Ice in thawing, also, absorbs the same quantity to convert it into a liquid.

The quantity of water, therefore, on the globe, performs a most important office in equalizing its temperature. When the atmosphere is cooled to a temperature below 32°—the freezing point of water—water will begin to freeze, and in freezing, it emits caloric enough for every pound of ice to raise another pound of water 140°, or to make it so hot that we could with difficulty bear our hand in it. Not that it could be made actually to heat a pound of water to this temperature, because its heat could not all be applied to it: but it modifies the temperature of the atmosphere, when below 32°, just as much for every pound of water frozen as a pound of water would do, if heated 172°, and left to cool itself by radiation in the atmosphere, down to the freezing point.

Were it not, therefore, for the vast quantity of water on the earth, we might be scorched by the sultry suns of summer, or fatally chilled by the piercing blasts of winter. Our polar regions during the semi-annual night would be wide wastes of dreary desolation.—Vegetation would be totally destroyed, and all organic life, of whatever description, wholly laid waste. The return of day would bring with it the opposite extreme. The constant rays of the sun would operate without any thing on which to spend their force. As a consequence, the temperature of the earth would be very highly raised—probably above what organized life could possibly bear. As it is, water operates as a check to either excessive heat or cold, by receiving caloric and giving it out as nature requires.

Thus water forms a vast repository, (if I may so speak,) for this most important principle in nature, heat: without which, our globe would be but a mass of totally dead matter. When the sun retires to the southern hemisphere, and the temperature of our climate is reduced by the earth's radiation, so that vegetation is stopped, nature draws on her deposites in our oceans and rivers, by consolidating water to ice, so that the temperature of our atmosphere is prevented from becoming so much below the freezing point of water as it would were there no water, or were that water incapable of being frozen. When again the sun returns to vivify our hemisphere, the same quantity of heat is again returned to the water, by thawing the ice, and thus the deposite is made good.

As summer advances, and the rays of the sun might produce so much heat as to be deleterious to organic life, (as undoubtedly would be the case, were there nothing to counteract it,) water steps in again and undergoes another change. By this, its effects are still greater than in the preceding. In the transformation of water to vapor, about 1000° of heat are absorbed, and that vapor may still be no hotter than the water from which it was formed. That is, a pound of vapor contains about five times as much heat as a pound of water, at its usual temperature in summer, when both are apparently at the same temperature, and the thermometer would be alike affected by each. Evaporation is that process, of which heat is the actuating principle, that keeps up the constant circulation of the waters of the earth—that causes a continual flow of our rivers, which, continually discharging their contents into the ocean, never fill it; and that waters our fields, with refreshing showers to supply the wants of the vegetable and animal kingdoms. In a warm summer's day, vast quantities of water are vaporized. The Mediterranean sea, notwithstanding it receives the waters of numerous large rivers, still receives a constant supply from the main ocean at the straits of Gibralter, to keep up its continual evaporation.

There is no natural phenomenon, if we will study it and trace it to its causes, in which we cannot discover, in some degree, finite as are our powers, the wisdom of the Great Architect of Nature. This property of equalizing the temperature of our atmosphere, is not the only particular, in which this wisdom may be discovered in water. Were it not for its property of containing latent heat, all at once, on the approach of winter, our rivers, lakes and oceans would become so many frozen and solid masses. Not a liquid drop of water could be found when the atmosphere was below 32° Fahrenheit. Again, on the return of spring, these masses of ice would assume their liquidity in as short a time as they were before congealed. Snows from our mountains and hills would, almost instantly, as soon as the atmosphere became warmer than 32°, tumble in torrents from their sides, which would deluge every lower country and sweep every thing within their reach. As it is, when water is freezing, it is done very gradually; for there is a great quantity of heat to be radiated, even after it is so much cooled as to be cold as ice: and when the ice thaws, it has, not only to be heated, so that it is as warm as water is, before it will freeze, but it must receive 140° additional heat which remains latent in, or combined with the water, before it can be liquidated; and then it thaws as gradually as it freezes; and immediately after it is thawed, a thermometer placed in the water will not rise above what it was in the ice.

Another striking property of water, in which important consequences to us are involved, is, its being, when at a certain temperature, expanded by *cold*, in opposition to the general law of heat—water being, (I believe,) the only exception to that law. Water when cooled below 40° Fahrenheit, ceases to contract, in conformity to the general law, and expands as it is cooled below this point. Were it not for *this* property, in spite of its capacity for heat, it is probably that all the water in temperate climates, where we have a tolerable long winter, would be congealed in solid masses, so that all the heat of a summer's sun would not be sufficient to thaw it.

"Ice is the natural state of water;" and with equal propriety we might say, that a solid is the natural state of every substance. Without heat, the great vivifying principle in nature, and as it has been styled "the life and soul of the universe," the most volatile substances would condense to a degree of which we can form no conception. It is perhaps not impossible, extravagant as it may appear, that the hypothesis of Newton, *that our world might be compressed into the compass of a cubic inch*, would be realized by the total absence of heat alone. It is heat that keeps the gases in their gaseous state, that makes water liquid, and keeps our atmosphere from becoming solid, as really as it is heat by which we can reduce the metals to liquids, and make water assume the form of air. Philosophers have never yet been able to produce a substance totally void of heat, and it is reasonable to infer, that they never *can;* so that it is not possible to conceive the effects which *cold*, strictly speaking, would produce.

What the matter, or substance of heat is, does not come within the scope of our inquiry. It is a problem which has never yet been satisfactorily solved. We can study its phenomena and observe its effects; but we must remain, for the present at least, in the dark as to what *heat is*. It is known to possess vast expansive power. Certainly we can no longer question this power, when we are assured that it is the only force which can compete successfully with attraction. It is heat that keeps our globe distended to its present dimensions; and heat that drives our steam-boats and rail-road cars. It is heat that makes such a strong and delightful contrast between the gloomy desolation of winter, and the blithesomeness and verdure of spring and summer. It is heat by which we are enabled to overcome the strong cohesive attraction in the metals, and reduce them to liquids and dispel them in vapor. And, indeed, it is probable that, by a sufficient quantity of heat, every substance, even the most dense in nature, might be made to undergo the same successive changes which would result in their conversion into "thin air."

From the foregoing we learn the following facts for practical application.

1. The man who burns green wood, does it at a great loss. For, as green wood contains about one-third its weight of sap and water, enough heat must be employed to convert these liquids into steam and dispel them. Now all steam contains about 1000° heat, which is not sensible, and consequently cannot be of any use in warming the apartment.

2. The man who would heat his water hotter, after it boils in an open vessel, is foolishly wasting fuel. For all surplus heat, over enough to make it boil, is rendered latent in the vapor which is dispelled.

3. We learn also, why those towns adjacent to the sea and islands possess a greater uniformity of temperature than those places farther inland, and more remote from any large collection of water.

4. The above theory is practically acted upon, when gardeners, (as they sometimes do,) to preserve fruit trees from the effects of frost, connect them with straw ropes, having their ends immersed in a tub of water: and also by sprinkling vegetables with water in the evening, when there is a prospect of frost.

5. Substances which freeze at a temperature below 32°, as potatoes, apples, &c. may be prevented from freezing, by keeping them with water near them, in a confined situation. As long as any water remains uncongealed, such substances are safe. P.

Albany, Nov. 1838.

Remedy for Sprains, Bruises, &c.

As it frequently happens that severe swellings occur from bruises, sprains, &c., I take the liberty of sending you a recipe which has, in various instances within my own sphere of observation, produced the most rapid and extraordinary relief. It was tried a few days ago, upon the foot of a gentleman who was suffering agony from a violent sprain and afforded instantaneous relief. I have used it with great success in dispelling fistulous swellings upon horses. It has never with me failed to reduce the swelling, unless pus had formed. Its simplicity has caused it to be rejected by some, but as it can do no harm, and as the materials are at hand, it can at least be tried. It is a mixture of one pint of soft soap; a pint of good vinegar; a handful of common salt, and a table spoonful of powdered nitre; put them into a common white basin and bathe the part affected. I have never used it where the skin is abraded, as most probably violent pain would ensue. If, upon trial, you deem it worthy of publication, I shall be pleased to see it in the pages of the widely circulating Cultivator.

T. F. NELSON.

Virginia, Oct. 26, 1838.

A Looking-Glass.

J. Buel, Esq.—Dear Sir—When I was a boy, I can well remember how I used to be induced to wash my smutty face, by having a looking-glass held before my eyes. For the same purpose, I have extracted the following picture of "a farmer," from the writings of that most eccentric and excellent writer, "Samuel Slick," in the hopes that if any of your readers should happen to see any part of himself therein, that he will improve by the view. Here it is.

"* * * That critter, when he built that wrack of a house, (they call 'em a half house here,) intended to add as much more to it some of these days, and accordingly put his chimbley outside, to sarve the new part as well as the old. He has been too "busy" ever since, you see, to remove the banking put there the first fall, to keep the frost out of the cellar, and consequently it has rotted the sills off, and the house has fell away from the chimbley, and he has had to prop it up with that great stick of timber, to keep it from coming down on its knees altogether. All the winders are boarded up, but one, and that might as well be, for little light can penetrate them old hats and red flannel petticoats. Look at the barn; its broken back roof has let the gable eends fall in, where they stand staring at each other, as if they would like to come closer together (and no doubt they soon will,) to consult what was best to be done to gain their *standing* in the world. Now look at the stock; there's your "improved short horns." Them dirty looking, half starved geese, and them draggle-tailed fowls that are so poor the foxes would be ashamed to steal them—that little lantern jawed, long leg'd, rabbit ear'd runt of a pig, that's so weak it cant curl its tail up—that old cow frame standing there with her eyes shut, and looking for all the world as tho' she's contemplating her latter eend—(and with good reason too,) and that other reddish yellow, long wooled varmint, with his hocks higher than his belly, that looks as if he had come to her funeral, and which by way of distinction, his owner calls a horse—is all "the stock," I guess, that this *farmer* supports upon a hundred acres of as good natural soil as ever laid out door.—Now there's a specimen of "Native Stock." I reckoon he'l imigrate to a warmer climate soon, for you see while he was waiting to finish that thing you see the hen's roosting on, that he calls a sled, he's had to burn up all the fence round the house, but there's no danger of cattle breaking into his fields, and his old muley has larnt how to sneak round among the neighbors fields o' nights, looking for an open gate or bars, to snatch a mouthful now and then. For if you was to mow that meadow with a razor and rake it with a fine tooth comb, you could'nt get enough to winter a grasshopper. 'Spose we drive up to the door and have a word of chat with Nick Bradshaw, and see if he is as promising as outside appearances indicate.

Observing us from the only light of glass remaining in the window, Nick *lifted the door* and laying it aside, emerged from his kitchen parlor and smoke house, to reconnoitre. He was a tall, well built, athletic man, of great personal strength and surprising activity, who looked like a careless good natured fellow, fond of talking, and from the appearance of the little old black pipe which stuck in one corner of his mouth, equally so of smoking; and as he appeared to fancy us to be candidates, no doubt he was already enjoying in prospective the comforts of a neighboring tap room. Jist look at em—Happy critter—his hat crown has lost the top out, and the rim hangs like the bail of a bucket. His trowsers and jacket show clearly that he has had clothes of other colours in other days. The untan'd mocasin on one foot, which contrasts with the old shoe on the other, shows him a friend to domestic manufactures; and his beard is no bad match for the wooly horse yonder. See the waggish independent sort of a look the critter has, with his hat one side and hands in his breeches pockets, contemplating the beauties of his farm. You may talk about patience and fortitude, philosophy and christian resignation, and all that sort of thing till your tired, but—ah, here he comes. 'Morning Mr. Bradshaw—how's all home to day? Right comfortable, (mark that—comfort in such a place,) I give thanks—come, light and come in. I'm sorry can't feed your hoss—but the fact is, tan't bin no use to try to raise no crops, late years, for body don't git half paid for their labor, these hard times. I raised a nice bunch of potatoes last year, and as I could'nt get nothing worth while for 'em in the fall, I tho't I'de keep 'em till spring. But as frost set in, while I was down town 'lection time, the boys did'nt fix up the old cellar door, and this infarnal cold winter froze 'em all. It's them what you smell now, and I've just been telling the old woman that we must turn too and carry them out of the cellar, 'fore long they'll make some of us sick like enough—for there's no telling what may happen to a body late years. And if the next legislator don't do something for us, the Lord knows but the whole country will starve, for it seems as tho' the land now a days won't raise nothing. It's actually *run out*. Why, I should think by the look of things round your neighbor Horton's, that his land produced pretty well. Why, yes—and it's a miricle too, how he gets it—for every body round here said, when he took up that tract, it was the poorest in the town.—There are some folks that thinks he has dealings with the "black art," for't does seem as tho' the more he work'd his land, the better it got.

Now, here was a mystery—but an easy explanation of Mr. Slick soon solved the matter, at least to my mind. The fact is, says Mr. Slick, a great deal of this country is *run out*. And if it warnt for the lime, marsh-mud, sea weed, salt sand, and what not, they've got here in such quantities, and a few Horton's to apply it, the whole country would *run out* and dwindle away to just such great, good natured, good-for-nothing, do-nothing fellows as this Nick Bradshaw, and his wooly horse, and wooless sheep, and cropless farm, and comfortless house, if indeed such a great wind rack of loose lumber, is worthy the name of a house.

Now, by way of contrast to all this, do you see that neat little cottage looking house on yonder hummock, away to the right there, where you see those beautiful shade trees. The house is small, but it is a *whole* house. That's what I call about right—flanked on both sides by an orchard of best grafted fruit—a tidy flower garden in front, that the galls see to, and a most grand sarce garden jist over there, where it takes the wash of the buildings, nicely sheltered by that bunch of shrubbery. Then see them everlasting big barns—and by gosh, there goes fourteen dairy cows—as sleek as moles. Them flowers, honeysuckles and rose bushes, shows what sort of a family lives there, jist as plain as straws show which way the wind blows.

Them galls, an't 'tarnally racing round to quiltin and husking frolics, their feet exposed in thin slips to the mud, and their honor to a thinner protection. No, no—take my word for 't—when you see galls busy about such things to home, they are what our old minister used to call "right minded." Such things keep them busy, and when folks are busy about their own business, they've no time to get into mischief.—It keeps them healthy, too, and as cheerful as larks. I've a mind w'll 'light here, and view this citizen's improvements, and we shall be welcomed to a neat substantial breakfast, that would be worthy to be taken as a pattern by any farmer's wife in America.

We were met at the door by Mr. Horton who greeted my friend Slick with the warm salutation of an old acquaintance, and expressed the satisfaction natural to one habitually hospitable, for the honor of my visit. He was a plain, healthy, intelligent looking man, about fifty, dressed as a farmer should be, with the stamp of "HOMESPUN," legible upon every garment, not forgetting a very handsome silk handkerchief, the work throughout of his oldest daughter. The room into which we were ushered, bore the same stamp of neatness and comfort that the outside appearance indicated. A substantial homemade carpet covered the floor, and a well filled book-case and writing desk, were in the right place, among the contents of which, I observed several Agricultural periodicals. I was particularly struck with the scrupulously neat and appropriate attire of the wife and two intelligent, interesting daughters, that were busily engaged in the morning operations of the dairy. After partaking of an excellent substantial breakfast, Mr. Horton invited us to walk over his farm, which, tho' small, was every part in such a fine state of cultivation, that he did not even express a fear of "starving, unless the legislature did something, to keep the land from running out."

We bade adieu to this happy family, and proceeded on our journey fully impressed with the contrast between a good and bad farmer, and for my own part, perfectly satisfied with the manner that Mr. Slick had taken to impress it indelibly upon my own mind.

Mr. Slick seemed wrapped in contemplation of the scenes of the morning for a long time. At length he broke forth in one of his happy strains. "The bane of this country, 'Squire, and indeed of all America, is having TOO MUCH LAND—they *run over* more ground than they can cultivate—and crop the land year after year, without manure, till it is no wonder that "*it's run out.*" A very large portion of land in America has been "run out," by repeated grain crops, and bad husbandry, until a great portion of this great country is in a fair way to be ruined. The two Carolinas and Varginny are covered with places that are "run out," and are given up as ruined, and there are a plagey site too many such places all over New-England, and a great many other states. We hav'nt the surplus of wheat that we used to have, in the United States, and it'll never be so plenty while there are so many Nick Bradshaw's in the country.

The fact is, 'Squire, edecation is ducedly neglected. True, we have a site of schools and colleges, but they an't the right kind. That same Nick Bradshaw has been clean through one on 'em, and 'twas there that he larnt that infarnal lazy habit of drinking and smoking, that has been the ruin of him ever since. I would'nt give an old fashioned swing tail clock, to have my son go to college where he could'nt work enough to arn his own living, and larn how to work it right tu.

It actilly frightens me, when I think how the land is worked and skinned, till they take the gizard out on't, when it might be growing better every day.—Thousands of acres every year are turned into barrens, while an everlastin stream of our folks are streaking it off "to the new country," where about half on 'em after wading about among the tadpoles, to catch cat fish enough to live on a year or two, actilly shake themselves to death with that everlasting cuss of all new countrys, the fever and agur. It's a melancholly fact, 'Squire, tho' our people don't seem to be sensible of it, and you nor I may not live to see it, but if this awful robbin' of posterity goes on for another hundred years, as it has for the last, among the farmers, we'll be a nation of paupers. Talk about the legislature doing something, I'll tell you what I'd have them do. Paint a great parcel of guide boards. and nail 'em up over every legislature, church, and school-house door in America, with these words on em in great letters. "THE BEST LAND IN AMERICA, BY CONSTANT CROPPING, WITHOUT MANURE, WILL RUN OUT." And I'd have 'em, also, provide means to larn every child how to read it, cause it's no use to try to larn the old ones—they're tu sot in their ways.—They are on the constant stretch with the land they have, and all the time trying to git more, without improving any on't. Yes, yes, yes, *too much land* is the ruin of us all.

Although you will find a thousand more good things among the writings of "The Clockmaker," I hope you will not look for a *literal* copy of the foregoing. And if ever this meets the eye of the writer of the "Sayings and doings of Samuel Slick," I beg him to excuse me for the liberty I have taken with his own language. I remain your agricultural friend,

SOLON ROBINSON.

Lake C. H. Ia. Oct. 12, 1838.

Experiment in Planting Potatoes.

Editor Cultivator.—Dear Sir—I have made a small experiment on potatoes this season, that may be useful. I selected a bushel of very small ones, and planted them in seven drilled rows, eleven rods long, the ground in fine order, ridged, and well cultivated during the growth.

Another bushel of largest size, I planted, one half in one row, whole, along side of the others, then cut the other half into three or four pieces each, and planted in two rows; the land and cultivation all the same.

The extreme drought that we have suffered, renders it unnecessary to speak of the amount of the yield, except comparatively.

The two rows of cut seed produced three baskets full—the one row of uncut produced two and a half baskets full, and the seven rows of small seed produced fourteen baskets full. But mark, like the seed, was the crop. The vines of the small seed were ever small spindling vines, and the tubers were likewise.—The vines of the uncut showed the rankest growth, but the difference in the general size of the tubers in the cut or uncut rows, was not much in favor of the uncut. Call the basket a bushel, and the result is easier stated. One bushel of small seed, produced fourteen bushels of small potatoes—half a bushel of large seed, planted upon one-seventh quantity of ground, produced two an half bushels of large ones—and half a bushel of large seed, cut, planted upon two-sevenths of the quantity of ground, produced three bushels of large ones.

The seed, when I planted it, was worth 75 cents a bushel—the crop, when dug, was worth 37½ to 50 cents a bushel—the cost of seed in each row of small seed, 10½ cents—the worth of the product 75—just seven fold in money and 14 in measure. The cost of the uncut seed 37½ cents to one row—the worth of the product $1.25, being worth 12½ cents more per bushel than the small ones, making three and one-third fold in money, and five in measure. The cut seed cost 18¾ cents to the row, and the product worth 75 cents, making four fold in money, and six-fold in measure.

If the experiment is a fair criterion to base an opinion upon, the result shows to my mind, the following data.

If seed is high, ground plenty, and the crop wanted for stock, plant small seed.

If seed is plenty, ground scarce, and the crop wanted for family use, and future seed, plant large seed, without cutting.

If seed is scarce, ground plenty, and the crop wanted for family use, and future seed, plant large seed, and cut them. Am I right in my conclusions?

These rows as above stated, 11 rods long, are at the rate of 78 to the acre, 3 feet apart. The large uncut potatoes were planted at the rate of 39 bushels to the acre; the product 195. The large cut, were planted at the rate of 19½ bushels to the acre; the product 117. The small ones were planted at the rate of 11 bushels to the acre; the product 156. For my own part, I shall in future plant large potatoes whole. I should like yours, and your correspondents' opinions and experiments. Your friend,

SOLON ROBINSON.

Lake C. H. Ia. Oct. 15, 1838.

Remarks.—The Conductor will at present only remark, that the choice between cut and uncut potatoes, should depend somewhat, he thinks, upon the kind of potato planted. Some kinds, having but few eyes, may advantageously be planted whole; while other kinds, having many eyes, as the Rohan, forty-fold, &c. are best planted in sets, or pieces. We have counted 47 eyes in a Rohan, all of which it is presumed, would grow, and give 47 stalks to a hill. It will at once be perceived, that instead of producing in size like the seed, the progeny must necessarily be small, both for want of food and want of room. In this case, we venture to say, if the tuber was cut into 20 sets, and each planted separate, the value of the product would be twenty fold greater than if the whole potato was planted in a single hill. We have chosen this strong case, the better to illustrate the distinction we would make. Small seed almost invariably produces small stalks, and small stalks are a pretty sure indication of small tubers.

EXTRACTS.

Science of Gardening.—*Continued.*

[*From the Alphabet of Gardening.*]

It does not appear to me to be at all necessary for understanding the scientific principles of gardening, to go minutely into all the points respecting the interior structure of plants, and the functions attributed to the several tissues, and vessels, inasmuch as those best skilled in such inquires are by no means agreed upon many particulars. The attention will therefore be more usefully directed to the points which have been best ascertained and least disputed.

RISE OF THE SAP.

The fluids taken up from the soil by the spongelets at the tips of the root fibres, are carried up into the main root in a manner not yet well understood, whether it be by minute tubes, or by oozing among the cells, as water is diffused through blotting paper or lump sugar. These fluids, as soon as they enter a plant, whatever may be the manner in which this is effected, take the name of sap, the rise of which into the stem is demonstrated by the ingenious experiment of watering with very thin coloured fluids, some of which are taken up, though the ordinary sap is for the most part without colour, and transparent like water. The yellow juice of celandine, and the milky juice of spurge are not sap.

In animals, the nutritive portion of the digested food which is taken up, as we have already seen, on the inner surface of the intestines, by the mouths of innumerable small tubes, is thence carried by the union of these into one[*] of considerable size, which conveys the whole into a vein,[†] where it is mixed with the blood. It is thence carried to the heart, by whose motion or beating it is thrown into a large vein,[‡] and carried to the lungs, where it is distributed into innumerable small tubes and exposed through their very thin membranes to the fresh air taken in by breathing. Here the blood takes from the air a portion of its oxygen, and at the same time parts with a quantity of carbonic acid gas, which is carried off by the returning breath: hence deteriorated by the loss of oxygen, and by having become loaded with carbonic acid. It is this deterioration, which renders it indispensable for all animals to breathe fresh air, as confined air is soon rendered poisonous and becomes fatal. The blood thus freed from superabundant carbonic acid, and united with a portion of oxygen, is collected by innumerable minute arteries which unite into one,[§] and carry it back to the heart, to be thence distributed to every part of the body, for the purpose of supplying fresh materials for the growth or repair of the several parts.

These things I have stated more at length, in order to point out the very different processes that take place in plants, which have nothing like the animal heart to impel the sap into circulation, for the pith in the centre of trees, though popularly termed the *heart*, performs no such office.

USE OF LEAVES.

The leaves, however, have been proved, by numerous experiments, to be in some respects similar in their functions to the lungs of animals, though very unlike if considered as organs. The sap, for instance, is spread out in a leaf, into small portions, as is the blood in the animal lungs; and for the similar purpose of exposing it to the action of the air.

It is important to remark that the air acts on the blood in the animal lungs always in the dark, whereas in acting upon the leaves of plants, it is by turns in the dark, and by turns in the light—and the results under these two circumstances are very different.

In the dark, leaves, like the lungs of animals, take in oxygen from the air and part with a portion of the carbonic acid gas contained in the sap; from which it is evident that they obtain a greater portion of this important material than is supplied by the water or the atmospheric air mixed with it, taken in by the roots from the soil.

It follows, that the air of a green-house, or any room or confined place where plants are kept, must be unwholesome during the night, from the air in such cases being deprived of its oxygen, and also loaded with carbonic acid gas. Consequently, flowers ought not to be kept at night in bed-rooms, though during sun-light they purify the air.

In the light, the sap which is spread over the upper surface of a leaf immediately under the thin, colourless, and transparent skin,[||] parts with a portion of its water in the form of vapor, and also with the oxygen contained in the carbonic acid gas, (which is composed of oxygen and carbon,) and as the oxygen goes off the carbon remains, while the sap, previously little less fluid than water, is converted into a sort of pulp,[¶] a considerable proportion of which consists of carbon. The use of this pulp, as we shall see anon, is, like the animal blood, to supply fresh materials, for the growth of the plant; and as the blood, after it has been acted on by the air in the lungs, passes from the veins to the arteries, so the pulp of plants is plausibly conjectured, but not proved, to pass from the upper to the under side of the leaf. The tubes or cells in which this pulp is lodged being of a yellow colour, and the carbon, according to Sennebier, of a dark blue, produce between them the green colour of the leaves and the younger bark, and hence the darkness of the green becomes a sort of test to determine the quantity of carbon separated from the sap, and also in some measure of tenderness and strength; plants being usually vigorous, hardy and tough, in proportion to their carbon, or, if Sennebier is right, in proportion to the darkness of their green. The term vigorous appears to be misapplied to plants of a pale colour, which grow too large and become dropsical.

It is, at all events, certain, that blanched plants are tender; that bulbs placed so deep as to blanch a large portion of their leaves before reaching the surface, are too weak, as I have experienced, to flower well; and that young leaves in the spring, before they acquire their full green, are readily injured by frosts and cold winds.

In accordance with these views, it may be stated that plants are of darker green in Italy, where the sun is seldomer overclouded, than in England; and though the grass has certainly a good colour in "green Erin," it is not, I think, to be compared with the beautiful green meadows in the Canton of Berne in Switzerland, where the sun-light is more intense from the general elevation of the country. In American forests, when the young spring leaves appear, they sometimes continue pale yellow for several weeks, from the haziness of the sky, but no sooner does the haze clear away, and the sun shine out, than the green deepens almost visibly. "The colour of the forest," says an eye-witness, "absolutely changed so fast, that we could perceive its progress; by the middle of the afternoon, the whole of these extensive forests, many miles in length, presented their usual summer dress."

It is a very curious fact connected with this subject, that, as it is on the upper surface of the leaf only where the sap is changed into pulp by the action of air and light, the leaf cannot be reversed, so as to place its upper surface undermost, and away from the direct light of the sky, without injury. When Bonnet accordingly placed leaves with their upper surfaces upon water, they withered almost as rapidly as in dry air.

Some practical gardeners, such as Lyon and Hayward, are disposed to question this circulation of the sap, but it has been proved beyond all doubt by experiment. Dr. Darwin plunged plants of spurge in water tinged red, and saw it rise through the leaf-stalk, and after being decomposed by the air and light, saw it return white from the edges of the leaf. T. A. Knight traced the returning pulp back into the leaf-stalk, and thence into the inner bark. He found also that if the leaves be stript from the upper part of a branch, the bark will wither as far as it is stript; and if a ring of the bark be cut out above and below a leaf, the wood in the part above the leaf does not grow.

It is therefore fair to conclude, that all the increase in growth arises from the leaves, that is from the pulp, prepared in the leaves by light and air, in the same way as all the increase in the growth of animals arises from the blood prepared in the lungs by the air, without light.

The doctrine held in some recent works of high pretensions, that the water given off by a plant is not produced "exclusively by the action of light and air," but "is *due*[*] to evaporation, or prespiration," which sometimes causes water equal in weight to that of the plant to be perspired in twenty-four hours, is quite erroneous. It is altogether owing to light or air.

The high importance of the leaves becomes thus manifest, and nothing will more enfeeble a plant than taking off its leaves in the growing season; though they are no longer necessary during the cessation of growth in the winter. Their fall previous to winter is not caused by cold; for some trees drop their leaves while the weather is comparatively warm, but in consequence of the vessels at the root of the leaf-stalk becoming gradually rigid and obstructed, so as to prevent the rise of the sap, or, at least, the return of the pulp. When a branch is in any way killed during the summer, its leaves do not fall, so that the killing of a leaf will not make it fall.

The slower growth of evergreens, and the difference of their pulp, as well as of the texture of their skin, render their leaves less subject to a general fall, which takes place only partially and by degrees. It is probably on account of the skin of the leaves becoming thicker and firmer from exposure to brighter sunshine, that our oak and other similar trees become evergreens in warm climates, as St. Helena.

DESCENT OF THE PULP.

That the pulp formed from the sap in the leaf, passes back through the leaf-stalk into the bark, has just been proved; but the best inquirers are not agreed upon the manner in which it is afterwards distributed so as to nourish all parts of the plant. It is sufficient to know the unquestionable fact that it does so. A portion of it certainly passes down through the bark to the very root, where it in all probability throws out, as would appear from the experiments of Brugmans and Mirbel, such refuse materials as could not be used, and something of this kind may be seen adhereing to the root fibres of hyacinths growing in water-glasses.

A portion of it, in its descent, must also pass off into the stem, probably, by what may be termed pulp-cells, or by rays or plates, popularly termed the silver grain.[*] The pulp-cells have been supposed to be designed as reservoirs for spare nutrient matter, somewhat like the fat of animals, which is similarly stored up.

SEASONS OF GROWTH AND ITS CESSATION.

Too little attention has been paid in books of science to the different circumstances of plants, during the several seasons of the year; and not a few errors have thence been the consequence. It is commonly stated, for example, that "the sap rises in spring and descends again in autumn," whereas we have seen that the sap does not descend at all, at least in the state of sap, and it is very clear that in proportion as the pulp-vessels in the leaf-stalks become obstructed with woody or carbonaceous matter towards the autumn, a circumstance indicated by the leaves becoming tinged with yellow, the quantity of descending pulp must be diminished, and the rise of the sap, from the same cause, must be interrupted.

The facts then, so far as at present ascertained, appear to be, that, from this obstruction in the sap and pulp-vessels of the leaf-stalk, the sap rises in gradually diminished quantities, till, at length, when the leaves fall, it almost ceases. I say "almost," for that it does not altogether cease to rise is proved by the buds and bark continuing alive and fresh, though they would infallibly wither and die, if the supply of sap, admitted to be very small, but indispensable to their healthy state, were cut off by removing the roots.

Certain animals which cease to eat on the setting in of winter, such as the squirrel, the bat, the snake, the frog, the snail, and numerous species of insects, continue to live in a sluggish and nearly motionless, state, very different from sleep, in the circumstances, particularly, of the very slow and scarcely observable circulation of the blood, and of breathing, whose rapidity is not very greatly affected during ordinary sleep.

The terms *dormancy* and *dormant*, therefore, are inaccurate, when applied to this state, which is better designated by torpidity and torpid. Such animals are found previous to winter to become unusually fat, as indeed is the case, at this season, with most other animals, owing in part to the loss of substance becoming less, as perspiration diminishes with the increase of the cold.

Now plants, in winter, seem to be in circumstances very similar to those of torpid animals, the circulation of the sap, like that of the blood, and the changes effected by air and light, like the process of breathing, being scarcely, if at all, observable. With respect also to the increase of fat, it is said by T. A. Knight, De Candolle, and others, that a larger proportion than usual of nutrient pulp accumulates in the root, and in the pulp-wood.[†] That this is the case with the buds of trees, with the bulbs of bulbous plants, and with the crown[‡] of the root of most perennial plants, and with the tubers of potatoes and dahlias, I think there can be no question.

In this state of torpidity, then, the greater number of plants continue during the winter; but the torpidity is more or less in degree according to the mildness or severity of the weather. I gathered a wild rose,[§] fully blown, in Musselburgh Haugh, in Dec. 1818; and if the branch of a vine whose root is planted in the open air, be introduced in winter into a green-house, it will push out leaves, while the branches without remain torpid. That it does not derive its nourishment from the air of the green-house, was proved by De Candolle, who found that the roots of a vine thus forced into leaf, exhausted the water of a bottle in which he placed them, while those of an adjacent vine not thus forced into leaf, took up very little, if any, water from a bottle.

As animals, revived from their winter torpidity by unusually warm weather, are more apt to be injured by the recurrence of severe cold than if they had continued torpid, a circumstance but too frequently witnessed in the case of hive-bees, so plants prematurely roused from their natural winter torpidity by warmth, to expand their buds, are almost certain to suffer by it, should severe weather afterwards ensue.

It is important to remark here, that, like the leaves, the smaller root fibres shrivel and fall off, or become detached from the main root, a circumstance, which has not hitherto received the attention which it well merits, both in a scientific and in a practical point of view. The fact is very obvious in the potato, the ranunculis and anemone, the dahlia, the carmyle,[||] and in all bulbs.

"The soil," says De Candolle, "is warmer than the air at mid winter;" (being always about eight degrees above freezing;) "this warmth rouses into life the trunks and roots then full of the nutrient pulp collected in the preceding summer; while, from this cause, new root fibres shoot out towards the end of winter. These, having all the freshness and activity of youth, display their energy by pumping up the moisture from the soil. The awakening of vegetation then arises from two causes,—the activity of the new root fibres which push the sap they have taken in onwards from behind; and the activity of the bark which draws it upwards. When it arrives at the leaf-buds it causes them to expand; but acts first on those at the summit of the branches, either because it can rise more easily in a perpendicular direction, or rather because the wood and bark of the upper branches is younger, and therefore more energetic."

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[*] Technically, *Thoracic Duct.*
[†] Technically, *Subclavian Vein.*
[‡] Technically, *Pulmonary Vein.*
[§] Technically, *Pulmonary Artery.*
[||] Technically, *Cuticle;* in Latin, *Cuticula.*
[¶] In Latin, *Cambium*, formerly *Parenchyma.*

[*] *Due*, Anglo-French for "owing,"

[*] In Latin, *Rudii* or *Laminæ medullares.*
[†] In Latin, *Alburnum*,
[‡] In Latin, *Corona*, or *Torqua.*
[§] In Latin, *Rosa spinosissima.*
[||] In Latin, *Orobus tuberosus.*

That these are not the only causes, it is proved by plants often expanding their buds in spring, when the cold is greater than in autumn, and bulbs and the tubers of the potato cannot be kept from shooting except in considerable cold. It may therefore be inferred that plants are endowed with, or acquire periodical tendencies, in the same way as we ourselves go to sleep and waken again at the periods to which we have become accustomed. This is farther proved by plants taken to climates differing from those where they have been produced. English apple trees, for example, when first taken to Canada, bloomed much too early, and had all their blossoms nipt with the spring frosts, till, after being inured to the climate they learned to bloom later; which our almond trees in England, brought from the warm banks of the Jordan, have never yet sufficiently learned, and hence those fine trees, whose spring blossoms are so delightful, are rarely fruitful.

Bulbs become torpid about the close of spring, and re-awaken into life in the autumn, continuing to grow during the winter.

It is worth remarking, that when the buds of a plant have been once awakened into expansion, and new root fibres have begun to form, they will go on even at a lower heat than would have served to rouse them at first, as was experimentally proved by Mirbel and Chevreul.

It is evident from the preceding facts and inferences, that the strength which a plant will show in the spring, and consequently its successful growth in the succeeding summer, will depend much on the store of nutrient matter which it has been able to prepare and store up, in the buds, the pulp-wood, the root, and more particularly in the crown of the root; an important consideration in pruning and forcing, as well as in most of the processes of gardening.

The Offices of Roots and Leaves.

[*From Madden's Chemical Reports.*]

Plants may be said to consist of two great parts, the root and the stem, with their various appendages. But since we are in this place merely to consider one function of vegetable life, namely, the function of *absorption*, or the manner in which plants bring matter, external to themselves, within the range of their vital actions, we may confine our researches almost entirely to the *roots* and *leaves*,—these being beyond doubt, the parts by which extraneous matter is first received into the plant; and, in the first place, let us examine the functions of the root.

The term *root* is generally considered to include all that part of the plant which is beneath the surface of the soil. This, however, is not strictly correct; for many plants possess what botanists call a *rhizoma*, or underground stem. The true root is that part of the plant which, from the instant of its bursting the coverings of the seed, begins to direct its course downwards (or towards the earth's axis,) "with a tendency so powerful, that no known force is sufficient to overcome it." Moreover, it differs from the stem in many of its characters; thus, it does not divide itself into smaller fibres in the regular manner, in which stems generally give off their branches. Again, it never produces leaves or scales; and another important distinction is, "that it never becomes green (at least in tissue) when exposed to the action of air and light, while all the other parts of vegetables, when thus exposed, assume that colour." The root is divided into the body and fibres, the latter of which will alone claim our attention. These fibres are furnished at their extremities with a remarkable structure, which, from its resemblance to a sponge, has been termed *spongiole*. It consists of an extremely loose texture, and is most probably merely "the newly formed" internal "tissue" of the root itself, deprived of its more dense covering, or *cuticle*, as it is termed. This opinion is very much strengthened by the well-established fact, that roots grow by their extremities only. In this manner the spongiole is always being renewed; and, what is of still more consequence, is never *long in one place*. On this account it is that plants which live many years (if not growing too near others of the same kind) are not liable to die from having exhausted the soil; or, in other words, are not liable to be starved to death; for it is evident that, by the constant *change of position* of the spongiole, which is the only part of the root by which nourishment is received into the plant, there must be a constant supply of food, so long as the soil around it contains any organic matter in a fit state for absorption. It has been shown, by innumerable experiments, that the spongioles, or absorbent extremities of the roots, cannot take up any thing but fluids; or, at all events, if they can absorb solids, they must be in such a minute state of division, that they would remain suspended in water, even for a considerable time, which is a fineness of particles far greater than will probably ever be attained by any *mechanical* means.

It has likewise been proved, that plants are capable of choosing to a *certain* degree, their food; or, in other words, of selecting those substances which are best adapted for their peculiar nature, and rejecting what would be injurious. This power, however, appears to be limited, as it is perfectly possible to destroy a plant by giving it poison by the roots. The root, moreover, has the power of *excretion*, or returning to the earth such matters as are either useless or injurious. From this last property of roots, we may draw two valuable conclusions; *first*, That in order to poison a plant, the substance used must be capable of acting rapidly, or it will most probably be rejected before it has had time to produce its effect; and *secondly*, that since plants reject substances *useless* and *injurious* to them, the soil where they grow may in time become so impregnated with such substances as to render it incapable of supporting the *same species* of plant any longer; or at least until such time as the rejected matter shall have been decomposed. This point will be enlarged upon when we come to treat of the rotation of crops. The next purpose which the roots of all land, and the majority of aquatic plants, serve, is obviously to fix it firmly in its place. On this account, we find, in *many cases*, that a certain proportion exists between the size of the stem and the root. This, however, is subject to exceptions. But, on the other hand, in all cases an obvious relation may be perceived between the *form* of the root and the kind of soil in which the plant grows. Thus, if two specimens of the same plant—some of the grasses, for example—be found growing, the one in clayey, the other in a sandy soil, it will be seen, on examination, that the root of the one growing in the sand is much more minutely subdivided, and contains many more small fibres, than the one which grew in clay; and the reason of this is obvious: We have already seen that the spongioles are the only absorbent parts of the root; that they exist only at the extremites of the smallest fibres; and, moreover, that they can take up nothing but what is presented to them in the form of solution.—Now, in the clayey soil, from its retentive nature, the soluble parts are not allowed to drain away; and hence the plant is supplied with food near at hand, and, consequently, a few short fibres are sufficient. On the other hand, plants growing in sand are frequently deprived of all fluid near them, by the sinking of the soluble matters through the loosely aggregated soil; in which case the plant would inevitably perish from starvation, were it not for the wise law of Nature, which provides against such calamities, by endowing the roots of plants, placed under such circumstances, with the power of shooting forth innumerable minute fibres in all directions, in order that advantage may be taken of every drop of moisture which falls in their neighborhood. Nor is it merely in the number of minute fibres that the roots of plants growing in sand differ from those which inhabit the stiffer soils. The form of the *body* of the root is distinct; thus, nearly all bulbous, and other large succulent roots—as the turnip, for example—require sandy soil; and moreover, some plants—as that species of grass named *Phleum pratense*, (meadow cat's tail, or timothy-grass)—change the form of the root, according to the soil they inhabit; thus, in stiff clays, the plant just mentioned has a fibrous root, whereas in sand it becomes bulbous, and assumes all the characters of *Phleum nodosum*. The explanation here is as evident as in the former case. The bulbs of the roots act as reservoirs of food for the plant; thus, in very dry seasons, these bulbs shrivel up, their fluids being all needed by the rest of the plant and hence withdrawn. So beautifully do we perceive in this, as in all other cases, that design and adaptation of means to specific purposes, which must impress even the most sceptical with the absolute existence of a *Great First Cause*. So much for the root and its functions.

Important and complicated as these may appear, the leaf performs offices of a much more obscure nature. In the words of the justly celebrated Lindley, "Leaves are at once organs and respiration, digestion, and nutrition. They elaborate the crude sap impelled into them from the stem, parting with its water, adding to it *carbon*, and exposing the whole to the action of air." To describe fully in this place these numerous operations, would not only occupy far too much space, but would, to a certain degree, be foreign to our subject, as all we wish to examine at present is, how the nutritious matter gets into the plant, putting completely out of the sight the question as to what becomes of it after it is absorbed. From the sentence above quoted, we find that *carbon* is added to the sap by the leaves. By this is not meant, however, that it is without that substance until it reaches these organs, but merely that an extra quantity of this element is hereby added to it. How, therefore, is this accomplished? We have already repeatedly stated, that carbon always exists in the atmosphere in the form of *carbonic acid gas*. Now, it has been ascertained that the leaves, while exposed during the *day* to the sun's rays, have the power of absorbing this carbonic acid, and afterwards decomposing it, the *carbon* being retained, and the *oxygen* given out again in the form of gas. During the *night*, however, or in the shade, no such change takes place. Carbonic acid, indeed, may be absorbed, probably in the form of a solution in water, as it is well ascertained that leaves take up moisture during the night; but it does not appear to undergo any decomposition: part of it, in fact, is given out in an undecomposed state; and as oxygen is removed from the air, at the same time that this evolution of gas is going on, it is supposed that plants have the power during the *night*, of absorbing oxygen, which dissolves part of their *carbon*, and re-escapes in the form of *carbonic acid*. Thus, we see that, during the night, the exact reverse is taking place to what was effected while the leaves were exposed to the rays of the sun. In the latter case, carbonic acid being absorbed, the carbon is retained, and the oxygen evolved; whereas in the former oxygen is absorbed, and carbonic acid given out. What is the ultimate effect of these complicated and apparently inconsistent changes, it is hard to say.—The fact, however, remains unalterable; and from it we may draw at least two very valuable conclusions: *First*, From what we have said with reference to the formation of *carbonic acid gas* during the burning of vegetable matter, and since it is well known to all that this gas is likewise contained in great abundance in the breath of all animals, it is clear that, unless there were some process in constant operation of removing it from the air, our atmosphere would soon become so contaminated with this noxious gas (choke-damp,) that it would be incapable of supporting life. Now, it has been conjectured that this constant absorption of carbonic acid by plants during the day, and the evolution of oxygen (the constituent of air most essential to life,) has the effect of preserving the healthy condition of the atmosphere. *Secondly*—But, on the other hand, it is equally important to remember that the reverse takes place during night; plants at that period *vitiating* the air; which accounts for it not being healthy to sleep in apartments where a great number of plants are growing. But to return from this digression. From the facts above stated, we find that the leaves absorb carbonic acid and water; and, for the present, we shall rest content with this, and proceed at once to consider of what the food of plants really consists,—now that we are so far acquainted with that important function exercised by plants—namely, absorption—by means of which they receive their nourishment. And, in the first place, we may very briefly show the analogy which exists in this particular between plants and animals; by doing which we shall be enabled to render the sequel much more intelligible. It is well known to all who are conversant with the functions of living animals, that after the food is received into the stomach it undergoes certain changes; one of the most important of which is its being rendered *soluble*, and afterwards is *absorbed* by a special set of vessels called *lacteals*, and is then carried to the lungs to be converted into blood. Now, the analogy is perfect, if we take into consideration that plants have no stomach, and, therefore all the preparation which takes place in the stomach of animals, has to be performed in the *soil*. Hence Greisenthwaite, a most ingenious writer on this subject, says, "The soil may be regarded as the stomach, the common receptacle of the food of plants, in which manure is coverted into substances that are soluble; and afterwards those soluble substances are absorbed by the capillary tendrils of the roots, in a manner exactly similar to that already observed of the *lacteals* of animals." A moment's reflection will at once, therefore, clear up all difficulties; for we perceive that the *spongioles* of the root act exactly as the *lacteals* of animals,—namely, they absorb the soluble matters prepared in the stomach (soil,) and carry it to the leaves to be converted into *perfect sap*, which process likewise corresponds exactly to the conversion of the matter absorbed by the lacteals into perfect blood.

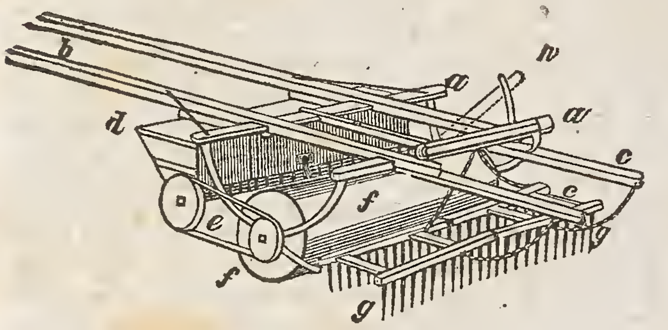
Description of a Grass Seed-Sowing Machine.

By Mr. Dudgeon, Broomhouse, East-Lothian.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

This machine, of which a model was lodged by Mr. Dudgeon about twelve months ago in the Society's Museum, is an amplification of the common broadcast sowing-machine, so frequently used for sowing grass-seeds, as well as for its ligitimate purpose—the sowing of the different kinds of grain. Mr. Dudgeon seems to have devoted his attention to the construction of a machine, adapted to perform the processes of sowing, then rolling, and, lastly, harrowing at one operation; and he has been the first to bring such a method before the Highland and Agricultural Society. The machine, at full size, has been certified to perform these combined operations in a satisfactory manner.

[Fig. No. 66.]



In the annexed cut, this compound machine is exhibited in perspective, wherein the combination of the harrow and the roller are detailed along with the sowing apparatus, and may be shortly described as follows;—*a a* are the fore and hind bars of the top frame set at the distance of 2 feet apart, their length being about 7 feet 4 inches. To these are bolted down the horse-shafts *b* of the ordinary length, but having in addition, the extension bars *c c* bolted to the end of the shafts. The seed-chest *d*, 6½ feet in length, is appended to the lower side of the horse-shafts, immediately in front of the fore-bar, and may be fitted up in all respects similar to the common broadcast seed-chest, the spindle which carries the small discharging toothed wheels being put in motion by a belt or a chain passing over a pulley *e*, 12 inches in diameter, on the projecting end of the spindle; the belt or chain receiving its motion from another pulley of 9 inches diameter, placed on the axle of the roller, now to be described. The roller *f f* which is also 6½ feet in length, is about 18 inches in diameter, though this is not imperative, nor is the material of which it is made of any essential importance. The roller is supported by its journals in two simicircular bars of malleable iron, or they may be cast of iron, bolted to the extremities of the fore and hind bars *a a*. From the simicircular bars proceed also two stays for the further support of the seed-chest. The harrow *g g* is suspended immediately behind the roller; it consists of two frames, each 3½ feet in length, and 1 foot in width. These are jointed end to end, forming a harrow 7 feet in length, having only two rows of tines. The tines are set at 2½ inches distant, and, as the tines of the one row alternate with those of the other, they will make a rut at every 1¼ inch. The direct suspension of the harrow is effected by means of chains from the movable bar *h*; this being jointed at the one end is capable of being raised from the horizontal position to the position *h*, or to any intermediate point, and retained there by a pin passed through a quadrant over which the bar moves; by this means the harrow is regulated as to depth, while by means of a link from the simicircular bars, and by the chain from the extremity of the extension bars *c c*, it is duly stayed in a proper position, while it has sufficient freedom of swing to insure its useful effect. The joint at the middle of the harrow allows it to accommodate itself to the rounding of the ridges when required. The lever seen in the middle of the top frame is, through its connection with another lever on the back of the seed-chest, used for opening and shutting the orifices, and for regulating the discharge of the seed, by moving a long slide plate in the usual manner.

It may be remarked of this machine, that the particular succession here shown, that is to say *sowing*, *rolling*, *harrowing*, is not considered essential to its success; and that any other, as *rolling*, *sowing*, *harrowing*, may, under different circumstances of soil and management, be found equally successful.

Prevention of Mildew or Rust.

The following account of a successful experiment, in destroying mildew in wheat, is from the Rev. Mr. Cartwright, and is copied from the Edinburgh Quarterly, and from a paper on the diseases of cultivated plants, by G. W. Johnson, Esq. Although the application demands some labor, that labor is not to be put in competition with the value of the wheat crop. We have confidence in the authority and in the efficacy of the antidote; and recommend the prescription to our farmers for trial.

"I and a neighbor of mine have applied it as a remedy for the mildew in wheat, with the most unequivocal success. I first made the discovery about two years ago. My experiments at that time were upon a very limited scale. They have this year only extended over an acre and a half, but under circumstances that leave not a shadow of a doubt of salt being an absolute specific for mildew, in the most aggravated stages of the disorder. Of this I will state to you a convincing proof. In the year 1818, I found a few ears of wheat, which I conceived to be a new and improved variety. From these ears I raised as much wheat as last year planted a piece of land 4 feet wide, and 100 yards in length. The produce I had promised Mr. Coke, and to augment that produce, I had the ground, previously to planting, highly manured; and as soon as the wheat came up, I gave it a good dressing with soot, and this dressing was repeated once or twice. In consequence of this superabundant dressing, the wheat, as might indeed have been expected, was as rank as the wheat you may observe growing accidentally upon a dunghill, which never fails to rot upon the ground, without bringing a single grain to maturity.

"The mildew made its appearance on this particular part of my field, while the straw was quite green, and the grain in a milky state. Notwithstanding the danger that might be apprehended to the wheat itself, from its being thus succulent, I ventured to give it a dressing with salt and water. As a heavy shower of rain fell a few hours afterwards, the dressing was repeated the next morning.

"The proportion of salt to the water, one pound in a gallon, laid on with a plasterer's brush, the operator bearing a pail of the mixture in one hand, and the brush in the other, making his casts as when sowing corn; or else with a common watering-pot, which, being swung with great force, throws the water very rapidly. Two men will get over about four acres a-day, the one to spread, the other to supply the mixture.

"The result was, that the mildew was completely subdued, and the wheat went forward to maturity, and although the sample was not so bold as it might have been, it was sound and marketable. In other parts of the field, where the mildew shewed itself, not under the aggravated circumstances described above, but as it usually appears, the wheat was not in the least injured by it, after the salt and water were applied; it was indeed as fine a sample as could be grown. Both mine and my neighbor's wheat were examined by many practical farmers, who are so decidedly convinced of the efficacy of my remedy, that they intend never to be without a reserve of salt, ready to meet the enemy the moment he appears.

"The effect of the salt upon the mildew, to those who do not consider the manner of its operation, is truly astonishing; I believe it to be instant death to the fungus; this, however, is certain, in less than forty-eight hours the straw nearly recovers its original colour and brightness. The certainty and celerity of its operation, I account for thus: The mildew, it is now well ascertained, is a parasitical plant, of the fungus tribe, the principal constituent of which is water; when salt, therefore, is applied to them, the aqueous particles are immediately absorbed, and their vitality destroyed. The action of salt upon mushrooms, as in making mushroom catsup, confirms this theory."

Mr. Johnson adds—"I can afford decided testimony to the efficacy of the cure recommended by Mr. Cartwright; but I would add these precautions. The safest quantity of salt per gallon is eight ounces, and then the application may be rendered more effectual by frequent repetition, without any danger of injury to the plants. If the application is not made during a clouded day, it is best to defer it until the evening.

"Some have recommended a rope, held at its extremities by two men, to be drawn up and down each ridge of the infected crop, to remove the fungus; and there is no doubt that this treatment is partially effectual, for the parasite is removed wherever it comes in contact with the rope, but the points of contact necessarily are limited."

Nothing is Annihilated.

The researches of chemists have shown, that what the vulgar call corruption, destruction, &c. is nothing but a change of arrangement of the same ingredient elements, the disposition of the same materials into other forms, without the loss or destruction of a single atom; and thus any doubts of the permanence of natural laws are discountenanced, and the whole weight of *appearances* thrown into the opposite scale. One of the most obvious cases of apparent destruction is, when any thing is ground to dust and scattered to the winds. But it is one thing to grind a fabric to powder, and another to annihilate its materials: scattered as they may be, they must fall somewhere, and continue, if only ingredients of the soil, to perform their humble though useful part in the economy of nature. The destruction produced by fire is more striking; in many cases, as in the burning of a piece of charcoal, or a taper, there is no smoke, nothing visibly dissipated and carried away; the burning body wastes and disappears, while nothing *seems* to be produced but warmth and light, which we are not in the habit of considering as substances; and when all has disappeared, except perhaps some trifling ashes, we naturally enough suppose it is gone, lost, destroyed. But when the question is examined more exactly, we detect, in the stream of invisible air which ascends from the glowing coal, or flaming wax, the *whole* ponderable matter, only united in a new combination with the air, and dissolved in it. Yet, so far from being thereby destroyed, it is only become again what it was before it existed in the form of charcoal or wax, an active agent in the business of the world, and a main support of vegetable and animal life, and is still susceptible of running again and again the same round, as circumstances may determine; so that, for aught we see to the contrary, the same identical atom may be concealed for thousands of centuries in a lime stone rock; may at length be quarried, set free in the lime-kiln, mix with the air, be absorbed by it from plants, and, in succession, become a part of the frame of mryiads of living beings, till some concurrence of events consigns it once more to a long repose, which, however, no way unfits it from again resuming its former activity.—*Herschel on the Study of Natural Philosophy.*

Young Men's Department.

"What is Education?"

We commend to every young reader, who aspires to the good things of life—as wealth, reputation and happiness—the following extract, which we make from an article on education, in the North American Review. It is worthy a careful perusal,—of a re-perusal—and of being treasured up in the memory. It exhibits the true foundation, if not the only one, upon which any young man can expect to rear a superstructure of substantial usefulness.

"What is education, such education as deserves the name? Not the getting by rote set forms of words which may be altogether barren of profitable fruit; no, nor barely storing the memory with the information of facts, however extensive and useful.—An abundant stock of these, judiciously laid in, may doubtless prove of wonderful advantage in the after occasions of life. But education truly and faithfully accomplished, is the full and well-proportioned development of all a man's physical, intellectual, and moral capacities; such as sends him into the conflict of his earthly probation, a sound mind in a sound body, to fulfil the dictates of a sound heart. Training, aptly administered to this end, fosters and confirms all virtuous dispositions, checks and finally eradicates all unworthy propensities. The scholar learns to scorn ignoble objects of pursuit, and wisely bends his undivided energies, with an ingenuous ardor, to effect the liberal purposes of a comprehensive benevolence. He places his supreme happiness in the solid satisfaction of duty well performed. He knows how to choose the right; and, having made his election, his understanding and all his corporeal faculties, operate in their several functions in due subordination to realize his will. He is nerved for the fight, he can breast himself manfully against every assault, he will triumph victoriously over all opposition, for he feels himself strengthened to every good word and work, both in the inner and outer man. 'I call, therefore, a complete and generous education,' says Milton, 'that which fits a man to perform justly, skilfully, and magnanimously, all the offices both private and public, of peace and war.'

"Under such instruction he will grow up to understand and realize his position in the universe, and his relations to his fellow creatures, and what it is incumbent on him to be and to do, by virtue of their mutual dependencies. Society has done much for him. It has raised him above the level of the brutes, and he owes to society a return,—a large return,—vastly more than he can ever pay, though he were a Bacon or a Newton, a Lafayette or a Washington; but his inability to repay all does not release and cancel the debt of gratitude.

"There is an indefeasible obligation upon every man to do something for the world he lives in. He should ever bear it on his conscience to discharge this duty. With the blessing of God, he should say to himself, 'The world shall be somewhat better that I have lived in it.' He who does not say this, in sincerity and truth, is no nobler than the beasts that perish. Morally he is beneath them; for they act up to their light, and feel no responsibility for which they are not ready to give an account, while he lives in the daily sense that his part in the world's work is unperformed. While he yields no fruit, he only cumbers God's vineyard; and, when he is cut down, but few will mourn over him.

"Far otherwise is it with him in whose daily meditations philanthropy is ever present as a governing principle. Who are the truly useful? To whom is the world indebted for those magnificent benefactions, which have blessed millions and generations,—improvements in government, advancement in religion, and in civilization? To whom are mankind indebted for the noiseless but resistless progress of good principles, whereby greater changes are effected in the condition of the whole human family, than have grown out of the efforts of the mightiest conquerors, or than have followed the most renowned revolutions of empire? To those whose moral education has fixed in their hearts permanent and actuating principles of conduct. There have been men of erudition, whose memories were libraries for the singular benefit of their associates, but whose learning died with them. There have been men of forecast and sagacity unsurpassed,—our own times have witnessed some of them,—who, having no rule of action except their own immediate advantage, have been governed by circumstances, instead of subjecting circumstances to their own control. But those who are widely and lastingly useful, are the men upon the stability of whose moral character reliance can be safely reposed. With such the sense of duty is habitual; and, therefore, even if they cannot boast of uncommon talents, extensive acquirements, or a broad field of action, still, as all their acts have the same tendency, their influence is always in the same direction: and, operating silently and unseen, is the cause of meliorations in the moral tone of society, perceived after a few years by all, but understood while they are going on only by a few reflecting observers. With such, the performance of duty is pleasant, because all their desires are trained to accordance with the moral sense; and they, therefore, do good naturally, and as of course, with less effort and internal struggle than the bad experience when they do evil.

"It has sometimes been strangely questioned, whether a popular sound morality might not be the natural offspring of ignorance and delusion, and whether a refined education did not weaken in the soul the sanctions of religion, and relax those bonds which hold together the compact of society. But were it not blasphemy against the God of truth to doubt, that the illumination of the intellect with the radiance of wisdom infuses into the heart the love of virtue? Goodness is the imprint which the sense of truth stamps indelibly upon the character. All noble thoughts are types of noble action. From the contemplation, to the imitation of ideal excellence, the transition is natural and easy. The divine light of moral science sheds a clear distinctness over our true interests, and shows the path of duty marked in a bold outline. Before its purifying beams, all evil thoughts and low desires vanish as the noonday splendor dissipates the mists of the valley. The well-educated man stands before the world the image of his Maker, having attained as nearly as may be to the perfection of his moral nature. He exhibits not merely a speculative but an active virtue, and all beholders are constrained to confess that wisdom is justified of her children.

"If indeed the security of the public morality reposed on the public ignorance, if delusion were the palladium of our well-being, miserable would be the condition of humanity; for ignorance is of the earth, earthy, and must soon pass away. But the progress and prosperity of our race rest on no temporary and precarious reliance. When delusion has died of old age, truth will still flourish in eternal vigor. She renews her youth like the eagle. When to mortal eyes she appears vanishing for ever, behold, like the young sun rejoicing in his course, she rises again. She is not of created things, and is therefore exempt from their destiny. God's well-beloved daughter knows neither age nor decay. Before the work of creation began, she was with the Father of all things; and, when Time shall have ceased to be, she will stand before his throne, and still bask in the living light of the ineffable presence.

"It is not merely poetry, but the ultimate result of all moral argument, that, 'true self-love, and social, are the same.' 'This is the foundation of all human wisdom,' says Le Père Buffier, 'the source from which all virtues, purely natural, flow, the general principle of all morals, and of all human society, that while I live with other men, who equally with myself desire to be happy, I must try to discover the means of increasing my own happiness, by augmenting that of others.' Cicero regarded it as the basis of ethics, 'ut eadem sit utilitas uniuscujusque et universorum.' A higher authority than Cicero has established a whole code of duty upon the maxim, 'Do ye therefore unto others as ye would that others should do unto you.'

"It is impossible therefore that the study even of temporary interests should derogate from the just influence of moral principles, at least while conducted on broad and comprehensive views; since there is no contrariety between them, but rather a strict conformity, the more evident as those interests are better understood.

"But it is not to be forgotten, that the cultivation of the intellect is but a part, and not the most important part of a good and perfect education. The preeminent worth of moral cultivation should be strongly impressed on every parent and teacher. With a little care, many salutary precepts may be instilled into the minds of youth, such as shall deserve to be treasured up among the guiding maxims of their lives, and meditated upon as the fundamental principles of practical wisdom. These, being firmly rooted in their memories, will help them to form solid and substantial characters, which in after life will stand the test of every trial. Correct habits must be acquired, the sovereignty of conscience over the whole man must be established, the power of self-reliance must be gained, and the sentiment of independence nourished. Imbued with virtuous principles, and having learned to prize above all price, and to preserve at every hazard, the testimony of an approving conscience, the youth goes into the world armed at all points. To gird him with this panoply should be the endeavor of his moral education.

"Almost the best defence, at least one of the strongest safeguards of morality, is the feeling of independence. If the world thinks that to be right which you think to be wrong, follow your own opinion, and preserve your self-respect. Consider that you would rather be honorable and despised, than be honored and despicable. If the world holds you in light esteem because it misundertands your character, every mark of disrespect which it bestows upon you is a certificate of the beauty and excellence of those virtues in which it erroneously supposes you to be deficient. But if the world, while it knows your character, disesteems you, because the principles that regulate your conduct are above the received standard of morality, and it is incapable of appreciating them, retire within your own bosom and enjoy that serene consciousness of rectitude, which can sustain undisturbed the hoarse clamor of popular invective. He who has the fortitude and the constancy to do this, and to go on steadily in the path of duty visible to his eyes alone, experiences not merely that tranquil satisfaction which a sense of obligation fulfilled brings always with it, but a loftier, nobler, prouder pleasure, even the most exalted of which our nature is susceptible here on earth, that unalloyed felicity which is the perogative of integrity invincible amid allurement or peril. The stern and solemn joy which bore the martyrs triumphant and exulting through their trials, which supported them and gave them the victory over shame and anguish and death itself, is the due reward of original and peculiar virtue, of virtue manifested in spite of temptation,—in spite of what is still harder to be resisted, ridicule, opprobrium, and scorn.

"He who is educated as all the youth of a Republic should be, his virtuous dispositions corroborated into fixed habits, his knowledge of his own powers and capacities perfected into a modest but confident self-reliance, his heart steeled with the inflexible determination to guard and preserve unviolated the sanctity of his own self-approval, while an enlightened conscience with a distinct and unequivocal bidding calls him onward and upward in the path of a purer morality, though the blandishments of fashionable example draw him backward and downward with the witchery of sympathy, will never yield to the seduction, nor be disobedient to the dictates of that monitor whose precepts are not set at nought without punishment. He will not follow the multitude to do evil against light and conviction. The mean and cowardly abandonment of principle for precedent, the despicable dereliction of that course, straight though solitary, in which the very instinct of a noble spirit urges him on, never suggests itself to his contemplation as within the range of possible alternatives. He will not sacrifice that pure delight which neither the smiles of the world can give, nor their frowns take away. He will not surrender himself an unwilling and a miserable slave to the tyranny of custom, a servitude which becomes every day more and more intolerable, which exacts compliances still more and more degrading, which never loosens its hold till it has reduced the spirit, created to be free, to a grovelling dependence on the decisions and caprices of others.

"With youth so educated, we should have none of that dissipation, without relish, endured, under a secret disgust, for fashion's sake; none of that servility of manners, the corruption engendered in the dotage of feudalism, preposterously imported into the wholesome simplicity of a vigorous republic; no prevarication in business, no equivocation in professions, no cant in criticism, no shuffling in politics, no temporizing in morals, no hypocrisy in religion. We should live in an honest and straight-forward world. Far distant though the dawning of this millennium may be, it is none the less desirable to hasten it onward; and though it were taken for certain, that neither we nor our children should ever enjoy the full fruition of so blessed a state, we should none the less strive for the nearest approach that we can attain to it."

"Wealth is not only fleeting; it is neither the sole, nor the best foundation on which to rest our hopes of happiness, even while it lasts. Respectability of character is of far higher value, and much less likely to be lost through the caprices of fortune. It would be a waste of words to show, that an unspotted moral life must confer respectability, and that respect derived from whatever qualities, without this, must be short-lived and of little worth. Equally self-evident is it, that those who live in the constant practice of moral duty, though wealth and respect should both desert them, have internal resources for consolation of which they cannot be deprived. He who possesses a conscience void of offence is passing rich, whether he has much or little of this world's goods. He who is not afraid to be alone with is Maker, is independent of the smiles or frowns of the world. The sunshine of prosperity, the tempest of adversity, neither seduce nor terrify his steadfast soul. The basis on which his happiness is fixed, the immovable, imperturbable basis of a good conscience, he owes to a good moral education."

Chemical Catechism—Chapter VI.

[*From Parkes's Chemical Catechism.*]

OF ALKALIES.

What is the nature[*] *of an alkali?*

The alkalies have an acrid and peculiar taste; they change the blue juices of vegetables to a green, and the yellow to a brown; and have the property of rendering oils miscible with water. They are incombustible, but may be rendered volatile by great heat. They are soluble in water; form various salts by combination with acids[†]; and act as powerful caustics when applied to the flesh of animals.[‡]

How many alkalies are there?

There are three alkalies; two of which have been called *fixed* alkalies, the other the *volatile* alkali.

Which are the fixed alkalies?

The fixed alkalies are potash[§] and soda.[‖]

Why have they been called fixed *alkalies?*

Because they will endure great heat without being volatilized; and yet in a very high temperature, they are dissipated in vapor.

What substances enter into the composition of these alkalies?

Till lately the fixed alkalies were considered to be *simple* substances, no one having been able to decompose them; but they are now found to be *compound* bodies.

Have we any historical account of the discovery of these substances?

Potash was known to the ancient Gauls and Germans; and soda was familiar to the Greeks and Hebrews. This latter substance was known to these ancients by the name of *nitrum.*[¶]

What is the origin of potash?

Potash is chiefly procured by lixiviation from the ashes of burnt wood, and other vegetable substances; but as it exists in minerals and earths, there is reason to believe that plants receive it from the earth, during vegetation: hence it may be proper to discard the word *vegetable* entirely, when speaking of this substance.

What is the origin of soda?

Soda is generally procured from the ashes of *marine* plants;[**] but its great depository is the ocean, soda being the base of sea-salt, or muriate of soda.

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[*] To a person who has not had an opportunity of examining an alkali, no written description that can be given will convey any correct idea of the taste or properties of this class of bodies: let the pupil, therefore, procure a specimen of each kind, before he enters upon this chapter. The juice of the gooseberry and the lemon, and many other vegetable substances, will remind him of the general properties of the acids: but having met with nothing analogous to the alkalies, it will be necessary for him to *taste* and examine one of these bodies in order to acquire any thing like a just idea of their nature. Let him form potash or soda into a neutral salt, by saturating it with one of the acids, and he will perceive still more of the nature of these bodies.

[†] Potash becomes comparatively mild by its union with carbonic acid; and the most caustic soda, if united to corrosive muriatic acid, forms muriate of soda, our mild tea-table salt.

[‡] If a piece of animal flesh be put into a strong solution of potash or soda, it will immediately be acted upon by the alkali, and soon be entirely dissolved.

The alkalies have a great affinity for water: it is therefore probable that their causticity is owing to this circumstance, water being so abundant in animal bodies. If the alkalies be dissolved in a large portion of water, their caustic qualities are diminished, though not in any measure destroyed thereby.

[§] This alkali was formerly procured by burning vegetables in large iron pots; hence it acquired the name of *pot*-ash.

[‖] Soda acquired its name from the plant *salsola soda,* which grows on the Spanish coast, and is burnt for its preparation.

[¶] This substance is found native in Egypt, and is there called *natron;* a name not much unlike that which it bore among the Jews and Greeks.

[**] The *salsola soda,* which grows among the cliffs on the sea-coast, is said to be endowed with the property of decomposing sea-salt, and that by some process of vegetation it separates the muriatic acid and absorbs the soda. Hence it acquired the name of *saltwort.* This plant is collected by the Spaniards with great care, and burnt for the manufacture of BARILLA, which is a considerable article of commerce. Thus Nature has providentially furnished the inhabitant of the otherwise barren coast with a source of employment, and has enabled him to supply the interior with an article of indispensable necessity, for ages before the science of chemistry could afford him other means of decomposing muriate of soda.

> "The *saltwort's* starry stalks are thickly sown,
> Like humble worth, unheeded and unknown."
>
> *Charlotte Smith.*

How is it that marine plants give out soda, while those which grow in the interior of the country afford potash?

This has been accounted for by supposing that these marine vegetables have the power, during vegetation, of decomposing sea-salt, and retaining the soda in their constitution.

Is soda found in any other state?

Soda combined with carbonic acid is found in great plenty in the natron beds of Egypt,* and in the East Indies: it occurs also in various other parts of the world, though never in a state of purity, and enters into the composition of the *sodalite* and of several other minerals.†

What are the distinguishing properties of these two alkalies?

The fixed alkalies are very similar in their general properties; but are easily distinguished by the variety of salts which they form with the acids; and by potash being more deliquescent than soda.

Is there any chemical test by which you can distinguish these two alkalies?

There are many; but a solution of the ore of platina in nitro-muriatic acid will answer this purpose most completely.

What are the chief uses of these alkalies?

The fixed alkalies have various uses in surgery and medicine: they are the bases of several salts; are employed much in the arts:‡ and are of great importance to the analytical chemist.

How are the fixed alkalies employed in the arts?

The fixed alkalies are used in large quantities by the glass-maker,§ the dyer, the soap-maker, the colour-maker, and by various other manufacturers.

In a former chapter, we noticed the use of fixed alkali in making glass:—What is the use of it to the dyer?

The alkalies are known to have the property of altering the hue of most colours; they are therefore employed with this view by the persons who are engaged in this trade.

Why are the alkalies employed in making soap?

An alkali is an essential ingredient in soap, as it is the only article capable of converting tallow or oil into a saponaceous substance, and enabling it to combine with water.*

Why are fixed alkalies employed in making colours?

Many colours are now manufactured in this country which cannot be made without an alkali: thus, animal matters are always incinerated with an alkali to form Prussian blue; a fixed alkali is also employed as a flux in the formation of the potter's blue from cobalt; and what are called French and mineral greens are made by precipitating copper from its solutions by means of these alkalies.

What are the other uses of these alkalies?

They are employed in making alum; in bleaching linen; in scouring wool; and in many other processes too various to be enumerated.

From whence is this country supplied with these articles?

The greatest part of the potash used in this country comes from America and Russia; but the *kelp* of our own coasts, and the *barilla* of Spain and of the islands of Teneriffe and Sicily, furnish us with most f our mineral alkalies.

Are these alkalies sold in a state of purity?

No: both potash and soda always contain carbonic acid* and water; and are often contaminated with earths, sulphur, and other impurities.

Have alkalies any peculiar affinity for sulphur?

Both potash and soda, as well as ammonia, have a strong affinity for sulphur; they combine by trituration or heat, and form *sulphuret* of alkali, formerly called *hepar sulphuris*, or "liver of sulphur."

What is the nature of sulphuret of alkali?

Its colour is similar to that of the liver of animals; its taste is acrid and bitter; and it has the property of decomposing water.

How are the alkalies of commerce purified for the use of the chemist or manufacturer?

Potash or soda is generally mixed with a portion of quick-lime to divest it of carbonic acid, and then lixiviated in proper vessels to obtain a solution of the caustic alkali, free from other impurities. When it is required *perfectly* pure for nice purposes, the alkali is dissolved in alcohol, and purified by a peculiar process.

Are the fixed alkalies ever used in a state of combination with carbonic acid?

Carbonic acid gives potash and soda the property of crystallizing readily; it also renders them mild, and fit for purposes in which caustic alkali would be improper; hence carbonate of potash is employed in medicine, and carbonate of soda for washing and other domestic uses.

What is the chemical name of the volatile *alkali?*

It is called ammonia.

What are the properties of ammonia?

Ammonia when uncombined with water, or any other substance, exists in the state of gas, and is then so extremely volatile as to exhale at all known temperatures. Its volatility is diminished in some degree by combination with water, still more so by combining with carbonic acid, and most when combined with the mineral acids. In the gaseous state it has a remarkably pungent smell, it instantly extinguishes flame, and would be fatal to any animals that were obliged to breathe it. It is lighter than atmospheric air in the proportion of 6 to 10.

As this alkali is a gaseous substance, how can it be applied in the arts?

Ammonia has an affinity for water, with which it readily combines, and forms *liquid* ammonia; in which state it is generally used.

What is the composition of ammonia?

Ammonia is a compound of hydrogen and nitrogen, in the proportion of about one part of the former, and four parts of the latter, when calculated by weight, or of one measure of nitrogen and three of hydrogen if calculated by volume.

Is this alkali capable of being decomposed?

Yes; ammonia may be decomposed by the electric spark. Oxygen gas will also decompose it by the assistance of heat, and then nitrous acid and water will be the results. If passed over red-hot charcoal, it will combine with part of the charcoal, and form *prussic acid*.

What is the effect of galvanism on ammonia?

A very different result may be obtained if ammonia be decomposed in contact with mercury, by means of galvanism; for in this case a metallic substance of a very uncommon nature may be separated from this alkali.

How is ammonia procured?

All animal and vegetable substances, when in a state of putrefaction, will furnish ammonia: this alkali is, however, generally procured in England by a dry distillation of bones, horns, and other animal substances.

What are the uses of ammonia?

In a liquid state ammonia has various uses in our manufactories, and in medicine; it is a valuable reagent to the chemist; and when combined with carbonic acid it takes a concrete form and beautiful white colour, being then the article known in commerce by the name of *volatile salts*.

Are there any other uses to which ammonia is applied?

Ammonia is serviceable in dyeing, and in staining ivory; but its principal use is in making the muriate of ammonia, of which it is the basis.

How is ammonia formed into muriate of ammonia?

Muriate of ammonia is formed by combining ammonia with muriatic acid. It is known in commerce by the name of *sal-ammoniac*.

Muriate of ammonia being formed by two gaseous substances, how does it acquire solidity?

It may appear surprising that the union of two gases should produce a hard ponderous body; but this may be attributed to their loss of caloric. The bases of these gases having a greater affinity for each other than they have for caloric, they combine intimately whenever they come in contact; and the compound having less occasion for caloric than the separate ingredients, the caloric is given out, and a solid is produced.

What are the uses of sal-ammoniac?

Sal-ammoniac is employed in many of our manufactories, particularly by dyers, to give a brightness to certain colours; also by braziers, tin plate workers, and others; and in medicine.

From whence was sal-ammoniac procured before it was made in this country?

Sal-ammoniac was formerly brought from Egypt sufficient for the supply of all Europe; but it is now made in various parts of Great-Britain, particularly in Scotland, where it is formed by a peculiar process from soot; and also from a variety of refuse animal matter.

Is ammonia capable of entering into any other combinations?

Yes: ammonia is capable of forming salts with most if not all of the acids.

Can you recapitulate the origin of the different alkalies?

The volatile alkali is procured from bones and other animal matters; potash or vegetable alkali from the ashes of weeds and burnt wood: and soda or mineral alkali from the ashes of some marine plants, also from sea-salt or muriate of soda.

What is the natural inference from a consideration of the nature and production of the alkalies?

The reflection which naturally arises from a consideration of this subject is, that the original organization of matter, whereby the effete recrementitious parts of animals and vegetables are made capable of producing useful and powerful substances, evinces, that infinite Power and Wisdom, united with consummate Beneficence, can effect the most *important* changes, by the most *unlikely* agents; and can convert to valuable purposes, substances which to us appear totally useless and inert.

PRICE CURRENT.

ARTICLES.		New-York. Nov. 21.	Boston. Nov. 14.	Philadelphia Nov. 19.	Baltimore. Nov. 18.
Beans, white,	per bush.	1 25.. 1 30	2 00.. 2 25	1 50.. 1 75	1 00.. 1 25
Beef,	cwt..	7 50.. 7 75	6 00.. 7 38	7 00.. 8 50	7 00.. 8 59
Bacon, western,	lb....	12.. 15	13.. 14	13.. 14	15.. 16
Butter, fresh,	lb....	22.. 25	18.. 27	17.. 20	31.. 33
Cheese,	lb....	6.. 9	6.. 9	8.. 9	9.. 10
Cotton, best,	lb....	10.. 16	9.. 13	9.. 15	9.. 12
Flour, best,	bbl..	8 25.. 8 75	8 37.. 9 00	7 50.. 8 12	7 25.. 7 50
GRAIN—Wheat,	bush.	1 78.. 1 85	....	1 63.. 1 70	.. 2 00
Rye,	bush.	1 12.. 1 15	1 12.. 1 15	1 00.. 1 05	65.. 66
Oats,	bush.	46.. 53	53.. 58	41.. 46	.. 25
Corn,	bush.	91.. 95	90.. 93	84.. 87	.. 1 00
Hams, pork,	lb....	12.. 14	16.. 17	13.. 15	14.. 15
Pork, in hog,	cwt..	....	6 00.. 6 50	7 25.. 8 00	.. 7 25
SEEDS—Red Clover,	bush.	12 00..13 00	12 50..13 00	10.. 14	11 00..
Timothy,	bush.	2 35.. 2 85	2 63.. 2 75	2 75.. 3 25	2 25.. 2 50
WOOL—Saxony, fleece,	lb....	55.. 65	55.. 60	55.. 60	50.. 55
Merino,	lb....	45 . 55	50.. 55	48.. 52	45.. 50
1-4 and com.	lb....	40.. 45	35.. 40	45.. 48	35.. 40
Sheep,	head,	....	1 50.. 3 25	1 00.. 2 87	....
Cows and Calves,		30 00..45 00	25 00..37 00	18 00..40 00	30 00..40 00

Most of the peasantry in the Shetland Isles, and in the Highlands of Scotland, are supported by collecting sea-weeds, and burning them into KELP, an article which produces great revenues to the lairds of those districts. Many of the wretched inhabitants of those dreary regions have nothing to depend upon for subsistence, but a miserable pittance, which they acquire in this employment.

* The natron lakes of Egypt annually produce a large quantity of mineral alkali. In summer the water of these lakes is evaporated by the sun, which leaves a bed of natron generally two feet thick; and this is broken up by wedges, and packed for the European markets.

† Soda is one of the substances found in the bile of animals. Whenever this alkali occurs native, it is always in a *mild* state; and as it cannot combine with oils to form soap, unless it be *caustic*, this causticity is given it for these manufactories by artificial means. It is worthy of remark, that Nature has furnished the bile with soda in a state of *causticity*, which gives it the property of combining with and saponifying the fat or oily substances taken into the stomach, and rendering them soluble in the other animal fluids. What account can be given of this deviation from the usual course of nature, but the important purpose which it serves in the animal economy?

‡ The greatest consumption of the fixed alkalies in this country is in the manufacture of soap. They are also largely employed in bleaching, and in the manufacture of glass. Soda and potash are also both used in washing, and for other domestic purposes; as they powerfully unite with all greasy substances, which they render soluble in water.

§ It is curious to observe, that the alkalies combine with *transparent* olive oil, and produce *opake* soap; and that they unite with *opake* sand to form *transparent* glass. How various are the properties that have been impressed upon those primary materials of the universe, that were intrusted to man for the promotion of his convenience and comfort!

‖ To make soap, it is necessary to employ a fixed alkali in a *caustic* state. In this country, the business is usually conducted in the following manner: Spanish barilla or Scotch kelp is broken in pieces, or coarsely ground by a horse mill: and, when mixed with a sufficient quantity of quick-lime to absorb the carbonic acid, the whole is thrown into large wooden or iron vats, and covered with water. In great works, these vats are generally of cast iron, and sufficiently capacious to hold three or four tons of alkaline ashes. At a proper time, the water, impregnated with the caustic alkali, is let off into iron receivers below, and the vats are covered again with water, which, after standing a sufficient time, is let off as before. This liquor is called soap-boilers' lie. When a sufficient quantity of this is prepared, Russian or English tallow is put into a large iron boiler, and melted with a portion of the above-mentioned alkaline lie. At first, the tallow appears liquid like oil, but during its boiling it acquires by degrees consistence as it saponifies. When the alkali is uniformly combined with the tallow, the weak liquor is pumped from beneath the soap, and fresh lies are added in their stead. These are boiled as before, till the soap exhibits certain appearances well known to the manufacturer; it is then cooled down, and poured into deep wooden frames, 15 inches wide and 45 inches long; where it remains till it has acquired a sufficient degree of solidity to be cut up for sale. It is the *alkali* which gives soap its detergent quality, and which renders it soluble in water. The tallow serves to moderate the sharpness of the alkali, and to prevent its injuring the hands of those who use it.

In making yellow soap, resin is used in the proportion of about one part to three or four parts of tallow. The resin makes the soap more detersive, and enables the manufacturer to sell it cheaper. Common fish oil, when its price permits, is also used in yellow soap.

Potash is the alkali used for soft soap, the manufacture of which is a distinct and separate trade in this country. A solution of this alkali in a caustic state is boiled with fish oil; and when the oil is sufficiently saponified, and a complete union of the materials formed, the *whole* is poured into small casks for sale, the water having combined with the oil as well as the alkali.

* The potash and soda of commerce contain nearly one-fifth of their weight of carbonic acid, beside lime, silica, and other impurities.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ All subscriptions discontinued in February, unless renewed by payment in advance.

☞ An Advertising Sheet, ☜

☞ Will accompany our next number. The edition is 20,000 copies, circulating in every state and territory of the Union. Advertisements and notices for the Farmers' Directory, must be forwarded to us before the 20th instant.

☞ Annual Agricultural Meetings.

☞ The New-York State Agricultural Society, and the New-York State Agricultural Convention, are both to meet in Albany, on the FIRST TUESDAY IN FEBRUARY next. The Society will meet in the City Hall, at 11 A. M.; the Convention in the Assembly Chamber, at 4 P. M.

It is hoped that every county society, and every county, will be represented at these meetings, either by delegates, or by patriotic individuals. Much, as relates to the improvement of agriculture, and to the substantial interests of the state, may result from these deliberations. Men congregate with alacrity, from remote parts of the state, and at great expense, to compass party or sectarian purposes. Why not display a like zeal when the interests of a whole community are the objects of concerted operation? Surely if there is one business which more than another tends to benefit the entire state, it is the great business of agriculture—it is this which, directly or indirectly, most multiplies the comforts and substantial enjoyments of all classes. Let all, then, cherish this interest, and encourage its improvements.

American Society for the Diffusion of Useful Knowledge.

We know nothing of this society, except what has appeared in its publications. We have not made its proceedings the subject of inquiry, nor have we any personal acquaintance with the gentlemen who appear to manage its concerns. When we saw a list of fifty volumes, professing to be published under its sanction, recommended for the use of common schools, and virtually endorsed by Gov. Marcy and Secretary Dix, as one of the guardians, though self-appointed, of the agricultural community, we examined the list of books recommended, and declared our opinion freely and honestly—that it was *wholly unsuited to form the* BASIS *of a common school library, for an agricultural population.* Reflection has rather strengthened than weakened this opinion. But when we received from an esteemed friend, whose communication we published in our November number, a letter explaining the causes of the omissions of which we complained, with pamphlets detailing the disinterested and benevolent professions of the society, and giving, as officers and members, the names of many of our most distinguished citizens, we felt a confidence, that the objects of the association were truly patriotic and praiseworthy; and that although nothing had been done, in the first series of publications, to diffuse useful knowledge in the great business of agriculture, or other branches of productive labor, yet that something efficient would be done in the coming series. We consequently commended the society to public patronage, and invited our brethren of the type to co-operate in their labors of usefulness.

But since the publication of our last remarks, intimations deeply affecting the character of the association, and tending seriously to impair its usefulness, have reached us from remote parts of the Union—from New-Hampshire and from Kentucky. These intimations are sufficiently explained in the communication which we this day publish from a Concord correspondent, whose name is withheld at his request, though we feel authorized to give it to any one who may feel aggrieved by the facts he alleges. Reports like those stated in this communication are abroad. If they are well founded, they should be known, for we profess to be uncompromisingly hostile to any attempt to deceive the public in matters of such deep interest. If they are not true, the sooner they are met and put down by indubitable testimony, the better; so that whether they be true or false, the accused party has no cause of complaint; because the society should not longer suffer under unjust imputations, if innocent; nor should the public be imposed upon, if the charges be true. We do not deny the right of individuals or associations to speculate in books as well as in merchandize or lands. We ask only that they shall show their true colours.

We consider the course we have adopted in this matter imposed by duty. We shall be ready, nay anxious, to correct any erroneous impressions which these remarks, or those of our correspondent, may create upon the public mind, whenever we can do it with strict regard to truth.

Premium Crops.

We publish to-day three communications which have claims to premiums offered by us for the most profitable crops of corn and ruta baga. Two of these give the culture, product and profit of corn, and the other of the Swede. One of the corn crops gave a product of 118½ bushels—and an estimated profit of $87.71 per acre; and the other a product of 116 bushels, and an estimated profit of $91.96. The ruta baga yielded at the rate of 1,230 bushels per acre, and an estimated profit of $175.80. We invite the farmer, who by the old slovenly mode of culture, seldom netts as much from five or ten acres, as these spirited farmers have netted from a single acre, to pause, and scan the causes which produce this wonderful difference in the profits of farm labor. We presume 40 bushels is a high estimate for the average produce of an acre of corn. Then three acres of common corn would yield about as much as one acre of first rate. Then what is the difference in the expense of the two? The common crop will cost three times as much as the good crop, because it requires three times the labor to plough, hoe and harvest three acres that it does one acre. The only difference that we can perceive, is in carrying out the manure and spreading it. The good farmer carries it out to feed his corn crop—the bad farmer leaves it to rot and waste in his yard, while his corn is starving for want of it. Estimating the average expense of culture, therefore, at $15 per acre, the one expends $45 for 120 bushels of corn, to say nothing of rent, taxes, &c. and his crop, therefore, costs him at least 37½ cents the bushel.—The other expends $15, exclusive of drawing out and spreading his manure, and gets 118 bushels of corn. His crop costs him about *thirteen* cents the bushel, or about one-third as much as his reckless neighbor pays for his. The manure of the bad farmer must ultimately be hauled out or lost; and it is as valuable after having fed the corn, as it would have been if summer yarded. The extra fodder of the good crop, will more than pay for any extra labor that may be required to harvest it.

The modes of culture, &c. of the two crops noticed to-day, it will be seen, were alike in four important particulars:—

1. They were planted on a grass ley.
2. They were heavily manured with unfermented dung.
3. They were managed entirely with the cultivator and hoe, no plough having been employed in dressing the crop.
4. The crop, stocks and corn, was cut up before the grain had ripened.
5. The hills were not earthed.

These are all deviations from the common practice, and the results show, that they are beneficial ones.

The ruta baga crop is also worthy of attention. If an acre of ground, with an expenditure of $30, including manure, can be made to grow 1,230 bushels of ruta baga, 70 lbs. to the bushel, it is certainly an object worthy the consideration of the farmer. If a bushel, or 70 lbs. of ruta baga, is equivalent to 20 lbs. of good hay, for all kinds of neat cattle, the 1,230 bushels, the produce of an acre, would go as far in the economy of feeding, as nearly 20 tons of hay—which we should not ordinarily expect from less than ten acres. But take half or quarter of this estimate, and it shows the crop to be valuable.

The Philosophy of Pruning.

We apprehend that the common practices in this branch of rural labor are not altogether based upon a sound philosophy. The animal structure, we all know, is admirably adapted to its wants, to its habits, and to its uses. There is no surplussage—no useless incumbrance—all is necessary to fulfil the designs of nature. From analogy, as well as from the system and order which every where pervade the visible creation, is it not reasonable to infer, that every part of the vegetable structure is alike essential to its well being? Are not the branches and leaves as essential to the tree, as the limbs and lungs are to the animal? Who will say otherwise? Nature produces nothing in vain. Although we may assist in carrying out her designs, we cannot cross her purposes without suffering the penalty imposed for a violation of her laws.

No part of a plant can be affected without affecting the other parts. Roots and branches reciprocally produce and nourish each other. If a tree has part of its roots destroyed, the branches which these supplied decay; and when some of the branches are destroyed, some of the roots perish also. The extent and form of the one, will in a measure ever correspond with the extent and form of the other. If a young tree is kept close pruned, divested of its limbs and foliage, it is soon stunted in its growth, the wood becomes carious and diseased, and the plant is short-lived. If, therefore, we destroy the equilibrium—which nature has established, between roots and branches, by greatly diminishing the one or the other, we thwart her designs, and mistake our interest. Every branch has its roots—its mouths—in the soil, to supply it with the elements of its food; and every root has its branch and its leaves—its lungs—in the air, to convert these elements into food, for the joint benefit of them both and of the stem. One cannot attain growth without the co-operation of the other. Without the roots the plant cannot obtain the elements of food; without the leaves those elements, if taken into the system, are of no benefit; but, on the contrary, like the undigested food upon the animal stomach, generate disease, rather than promote health and vigor. Every leaf performs its office in the process of nutrition and growth; and, other circumstances being alike, the increase in the growth of the plant, will be in the proportion to the number of healthy leaves: if one half of these be destroyed, the growth will be but one half as great as if the whole had remained—if complete defoliation takes place, the growth will entirely cease. Hence pruning decreases growth, in proportion to the extent or severity with which it is practised.

"Whenever a tree has a live spray cut from it, an injury is inflicted on that tree that can never entirely be repaired. Every wound received is stored up; and if wounds be constantly added, they will accumulate to a degree too great to be borne, and the tree will sink under its infirmities. It is useless to attempt to transfer the timber of the boughs to the stem, or to confine the growth of timber entirely to the stem. However desirable it may be to the pruner, to have all the growth diverted to the increase of the stem, he never will be able to effect it. He may, like the dog, snap at the shadow, and lose the substance; but never will he be able, by pruning off the boughs, to increase the growth of the stem one jot. No; the size of the stem will be in proportion to the head it has to support. The stem is not, as he may imagine, a production formed merely for the use of man; it is the canal, or passage, in which the juices pass between the roots and branches; and the size of this passage is always in proportion to the offices it has to perform. If the number of branches [meaning to include leaves] be increased, the quantity of sap passing between them and the roots will be increased; a greater space is necessary for the increased quantity of sap, and consequently the stem is increased. Let the head of the tree increase, and depend upon it, there will be a corresponding increase of the stem.

"It is said to be right to cut away a small proportion of the weaker branches, and turn the current of the descending sap more abundantly into the stem. It is hard to understand what is meant by this explanation of the effects of pruning. Does the sap descend down the stem till it arrives at the weaker branches, and then ascend up them and increase their size, instead of that of the stem? If so, the weaker branches would soon become the stronger; or rather if trees have the property of sending the sap from the strong branches to the weaker all the branches would be equally strong. The descending sap, on reaching the weaker branches would become ascending sap. And if the small branches be considered obstructions preventing the descent of the sap, the large branches must be greater obstructions. But where does the sap descend from? Pruners forget, that they cannot cut a live spray from a tree without lessening the quantity of its leaves. Their theory is founded in error, and all their reasoning is false."—*Ballard, in Farm. Mag.*

This explains what often seems enigmatical to superficial observers in vegetable economy, viz. that moderate sized trees from a nursery, have ordinarily a much thriftier and healthier growth, and arrive sooner to a good bearing state, when transplanted, than trees that are very large. In the former, the natural proportion between the roots and the branches is preserved,—the former being taken up nearly entire—the sap vessels are filled, and the growth is but partially retarded. While in taking up very large trees, whose roots have greatly extended, the mouths of the plant are seriously diminished, the sap vessels contract and become indurated, in consequence of the diminished supply of sap—and the tree must acquire new roots, and a new sap-wood, by a slow process of growth, ere it can flourish with its accustomed vigor. The same evil results from cutting off the entire top of a tree. It is deprived of its elaborating organs; and although the root may send up the elements of food, they cannot benefit the plant for want of leaves to convert them into vegetable blood. It is no argument against this position, that deciduous trees spontaneously develop foliage and flowers in the spring. There is a store of elaborated sap laid up in autumn to effect this. Strip a tree in June, when this store is exhausted, entirely of its leaves, and the tree will not grow, and will probably die. The stem, at least, will sustain serious injury. The nurseryman knows, that after an apple, pear or plum stock has been cut down and grafted upon, the heart-wood becomes unsound if the graft fails to grow, and the whole stock dozy and in a manner worthless for a future scion, and that it will not grow a particle above where it sends off succors.

The tendency of pruning to generate disease, and to shorten the life of trees, is illustrated in the appearance of old orchards, which have been injudiciously pruned. Wherever a limb is split off by winds or accident, it exposes a diseased heart-wood; and this disease at the heart spreads to the roots and branches, and induces premature death. The natural duration of the apple tree is believed to be more than one hundred years; and yet how few are found in a healthy state at fifty years? Mark the contrast, in soundness of wood, in vigor of growth, and in duration of life, between the apple, and other frequently pruned trees, and those trees, whether fruit or forest, which are left to luxuriate naturally, without the artificial aid of the pruning knife.

If pruning be prejudicial to growth and longevity, why then, we may be asked—why prune at all? We answer, for utility, to give beauty, and to improve and increase the fruit.

In natural forest growth, trees attain height, and a straight clear timber form, from their crowded situation; and as the lower branches become useless they die and fall off. But in cultivated grounds, or where there is ample room for roots and branches to spread, this does not take place; and hence the propriety of pruning here to obtain a good stem for timber, or a handsome top for shade and ornament. Often there are two or more leading shoots striving for the mastery, and unless they are shortened, or taken off, there will be two or more stems, of diminutive size, instead of one stem, of larger size. We may therefore prune shade trees to improve their form, or to please the fancy, and timber trees to improve the bole; but in neither case do we either increase the growth, or prolong the life of the tree.

"As the twig is bent so will the tree incline," is literally true in regard to pruning. We may give almost any form to trees which fancy may conceive, by beginning early, and persevering with the pruning knife or shears, as is witnessed in clipped hedges, and often in ornamental and garden grounds. We may make them dwarfs or standards, or give them a thin or dense foliage, at our pleasure. They may be trained or cut into the shape of animals, into geometrical forms, or architectural or sculptural compositions.

We prune fruit trees to improve the fruit, and to induce a bearing habit. The roots of trees take up from the soil a certain quantity of vegetable food, call it geine, or humus, or organic remains, or what you please—it has constituted parts of vegetable structure, and is convertible, by natural processes, into wood or fruit, or both. If the tendency of the plant is to wood, as is generally the case with all healthy young trees, the fruit will be sparce and inferior, at least till the tree has attained to mature size. On the other hand, if the tendency to growth is checked, by poverty of soil, disease, or judicious pruning, the tree will be brought into a precocious state of bearing, and, in the case of judicious pruning, produce more and better fruit.

In pruning or training to induce a fruit-bearing habit, the object is to check the uninterrupted, and we may say natural, descent of the elaborated sap to the root, by encouraging a horizontal, instead of an upright, growth of the branches, when the tree approaches the bearing age. This causes a stricture in the descending sap vessels, at the bifurcation, or junction of the branches with the stem, and a consequent accumulation of elaborated sap in the branches, to generate fruit buds, and to swell the fruit, The same object is sometimes, though injudiciously, effected, by taking out a narrow circle of bark, or by ligatures, to prevent the descent of the elaborated sap. Hence the upright shoot is often cut out, particularly in the apple tree, and the branches are trained horizontally, diagonally, or in a half inverted position, as on walls, espaliers, and in the *en queneille*, or distaff form of training. These operations have also a tendency to improve the quality of the fruit, by giving it a better exposure to the kind of influences of the sun, air and light, all essential to its due maturity and high flavor. Nature provides for the propagation of the species, by producing perfect seed, leaving to art the labor and contrivance of enlarging and enriching the pulp or fruit. All fruits may be improved from their natural state, by artificial culture, though nothing may be added thereby to the intrinsic value of the seed, or natural duration of the tree. The seeds of the wild crab, or wild pear, are as good to sow for stocks, to graft or bud upon, as the seeds of the cultivated varieties of these fruits; and indeed, according to Dr. Van Mons' theory, which his practice seems to have confirmed, they are the best from which to start new varieties.

Prune, therefore, when necessary, to improve timber; prune for ornament; prune to improve the fruit: but do not prune in the hope of accelerating growth or of prolonging life. And in all your prunings, cut while the wood is small, and spare to the tree all the foliage you can consistent with the object you have in view. By pruning when the tree is young, and pruning often, we may secure a handsome stem and well formed head, and we cause no wounds that do not speedily heal.

The common practice is, to prune in autumn or spring, when the tree is divested of foliage. To this practice we make two objections. In the first place the wounds are exposed—unless covered with a suitable composition—to the searching and corroding influence of the sun, wind and rain, there being no leaves to shield, nor circulating pulp to heal them. In the second place, it causes the multiplication of succors, and often increases the evil which it is designed to cure. The sap is arrested in the spring, when its flow is greatest, in its natural course to the amputated branches, oozes out and corrodes the bark and wood, or exhausts itself in the production of a prolific growth of succors, more detrimental than the parts that have been lopped off. If pruning is performed the last of June, when the exuberant flow of sap has abated, the wounds are in a measure protected, by the foliage, from the weather; much unelaborated has become elaborated sap, and transformed into cambium, or pulp, whose healing qualities soon cover the edges of the wound; few or no succors are generated, and the heart of the tree is in a measure preserved from canker and decay. These opinions, as to the propriety of summer pruning fruit trees, have been confirmed, in our mind, by three years' practice and observation.

Another common error in pruning, is the practice of cutting all the lateral shoots from a young tree, except a few at the apex; and to cut young, vigorous wood from the tops of old trees, leaving long extended naked branches, which are often broken by the winds. In the first case, we obtain long spindling stems, incapable of supporting, when transplanted to an open situation, a respectable top. The same evil occurs in the nursery, or the forest, when the young trees stand in a crowded position. In the second case, we produce unsightly and comparatively unproductive tops. Since the offices and importance of leaves in vegetable economy have been better understood, a manifest improvement in pruning has succeeded. It is now contended, and we think upon correct principles, that none, or but very few, of the lateral branches should be cut entirely from young trees, until the tree is tall enough to form a head; but that the pruner should be content with shortening those which interfere with the main stem, and such as are of unreasonable length. By this means, we obtain a tapering, and straight stem, and retain the aid of a large portion of the leaves towards its enlargement. Every leaf contributes to the growth of the stem below the point of connexion. When the tree has attained a proper height to form the top, it is advisable, particularly with the apple, to cut out the upright shoot, leaving three, or at most four, laterals, or branches, upon different sides, to form the top. If a little attention is given annually to cutting out the small limbs, which are likely to cross or interfere with each other, the necessity of cutting off large branches will for a long time be superseded. In old trees, the old branches frequently become cankered and diseased, and young thrifty wood is thrown out at or near their base. In this case it is always preferable to cut the diseased wood, leaving the healthy shoots to fill their places. When transplanting trees, the knife should be used sparingly. If the roots are greatly diminished, in digging up the tree, the top may be lightened by thinning its branches; or if none of these can be spared without marring the form, the longer branches may be shortened, or cut in, at a bud; but we do not advise, in any case, the cutting off the entire top.

New Grains.

We have noticed in a cotemporary print, some remarks tending to discourage a prevailing propensity in our farmers, to obtain new varieties of grain. This propensity, like that for the morus multicaulis, may be carried, it is true, to a ridiculous extravagance; and although new kinds may often prove worthless, in particular locations, or in general, yet the benefits which actually result to the community, from the introduction of new varieties of grain, are palpably great, and counterbalance all the losses that accrue from ignorance of the soil or climate to which they may be peculiarly adapted. All endeavors to perpetuate the good qualities of a breed of animals, by breeding wholly from the same family, termed breeding in-and-in, have entirely failed. Even the notable example of Bakewell does not seem to form an exception to this remark: for though he succeeded for a time, his stock rapidly degenerated after his decease, unless where it was crossed with another breed. Varieties of fruits have their natural limits of extension, beyond which, we believe, human art cannot render them prolific and healthy. Why should not varieties of grain and roots be subject to the same laws which go to deteriorate animals and fruits? That they do, is evidenced by the facts, that most of the varieties which were in estimation forty years ago, have disappeared from among us, and have been replaced by those which are comparatively new. This remark will apply particularly to our potatoes and Indian corn, and in a great extent to our wheat. By change of soil and climate, the vigor of a variety may have been prolonged; but we doubt whether any variety has been cultivated forty years in the same place, without showing unequivocal evidence of deterioration and diminution of product.

We beg the reader to observe the distinction we make between species and varieties. The better to illustrate the matter to the young reader, we may state, that under the Linnæan system, plants are divided into classes, orders, genera and species. Thus wheat (Triticum) is a genus of plants, belonging to the third class (*Triandria*) and second order (*Dygenia*) to which Loudon assigns 16 species, viz. summer wheat, Lammas, Egyptian, turged, Polish, spelt, one-grained, porcupine, rushy, couch grass, bearded, rigid, crested, maize-like and long-spiked. All other wheats are mere varieties, produced, naturally or artifically, by a cross of two species, and modified, more or less, by soil and climate. It is the varieties which deteriorate, as we alledge. Varieties are multiplied wherever two species, or two varieties, are grown contiguous to each other—the pollen of one kind coming in contact with the pistil of another, invariably producing a progeny partaking of the qualities of both parents, and yet not wholly like either. Hence the strange mixture in our wheat fields, some heads ripening earlier and some later. The continued cultivation of a single variety is precisely like breeding in-and-in with a family of animals. It will deteriorate.

We will cite another illustration. Indian corn (*Zea*) belongs to the twentieth class (*Monœcia*) and third order (*Triandria*) of Linnæus. Loudon gives but two species, the common and Valparaiso cross corn; while other botanists give three or more—so that all our cultivated sorts of this grain are but varieties of probably the same species; and these varieties are continually multiplied in the way we have mentioned. When we see white kernels upon the stock of a yellow kerneled variety, caused by the impregnation of the silk by the pollen from a white kerneled stock, these white kernels are not like the white kerneled or male parent, as their appearance indicates, but they are a new variety, partaking of the quality of both parents; and if planted, this will be apparent in the progeny or product.

From the foregoing considerations—and from the well known fact, that most of the estimable varieties of grain now cultivated, are comparatively new, and have been produced from small beginnings, perhaps from a single head or stool, selected by some observing farmer or naturalist, and carefully propagated—we are decidedly of opinion, that the introduction of new varieties from abroad, and the dissemination of such as may be found deserving of notice in our country, is eminently calculated to promote the interests of agriculture, and of the community at large.

Another consideration. The prices at which these new products are held, is objected to, as savoring of extortion. In the first place, no one is obliged to buy. It is his voluntary act, and *he* should not complain; nor does he complain when he becomes a seller. In the second place, the only way to disseminate rapidly any thing which is intrinsically good, is to demand a high price for it. It will be prized and nurtured in proportion to its cost. In these matters we are apt to graduate value by the cost. We once tendered to the members of an agricultural society, a bag of choice seed, in such portions as they might choose to take, as a gratuity; and although it stood before them, and they examined and professed to admire it, not an individual took a particle. We took it home, demanded a high price, and sold it readily in a few days.

We began this article simply with the intention of acknowledging the receipt of some beautiful samples of wheat, and of returning our thanks to the gentlemen who sent them to us.

We have received from Geo. C. Thorburn samples, in straw and in grain, of the *Whitington Wheat.* It is the handsomest sample of wheat we ever saw, of any kind, although it is a spring wheat. The berry is large, plump and very white, the skin apparently thin, the head seven inches long, the straw stout and bright. Mr. Thorburn will have seed to sell in March.

We find by the (London) Farmer's Magazine of October, that the origin of this wheat was three ears selected from a field, on the mountains of Switzerland, and that it obtained a medal at the Liverpool agricultural meeting in 1836. It is also stated, in an advertisement by the way, that it grows upon poor soils, that 12 bushels sown have produced 300—and that the grower charges £8 per quarter, equal to $4.44 the bushel.

The same number of the Magazine advertises other new varieties of wheat, which are highly extolled, and which have the like recommendation of high prices, to wit, 8 guineas the quarter of 8 bushels, or 25s. sterl. equal to $5.55, the bushel. Of these we give the names of Donna Maria, Fuliard's prize wheat, or four square headed red Brittania, said to have originated from a single ear grown on the field of Waterloo, and to which was awarded the London gold prize medal. Brown's Chevalier prolific ten rowed white wheat, comes recommended by a great number of certificates of growers. This is said to produce—five pecks (about half the common seeding in England) being sown to the acre—forty-two to sixty bushels the acre. And it will be seen in the extracts we make in regard to the Yorkshire cattle show, that the Royal Standard wheat, which we take to be identical with the Whitington, is in high repute. Bating the puffing and humbuggery connected with these advertisements, and the London folks are adroit in these matters, there is no doubt, that all the above named are new and valuable varieties of wheat, which would be an accession to some districts of our country.

We have also received two beautiful samples of wheat, purporting to come from Marseilles, in France, and accompanied by a note signed W. H. Culver. One sample closely resembles the Whitington, though a shade or two darker; the other, said not to have been before imported, resembles the Italian, only that it is larger and plumper than the Italian. Both samples have the size and plumpness of the best winter wheat, though they are said to be spring varieties. They promise to become an acquisition to our husbandry.

New-York Agricultural School.

The following Circular has been addressed, personally, to a few individuals residing in different parts of the state. Relating to a matter that concerns all classes—and as many, with whom we are not personally acquainted, may feel a hearty desire to aid in this great work of industrial, mental and moral improvement—it is here addressed to the public at large—to every individual whose liberal feelings and public spirit may incline to our aid. Subscribers will undoubtedly be entitled to a preference in the advantages to be afforded by the school.

CIRCULAR.

"*Albany, November* 15, 1838.

"Sir.—In 1836, the legislature of New-York passed 'An act to incorporate the New-York State Agricultural School,' with a capital of $100,000, and liberty to increase it to $200,000—'for the purposes of instruction in literature and science, and improvement in scientific and practical agriculture and the mechanic arts.'

"The prominent provisions in the act of incorporation are—that the concerns of the company shall be managed by a board of trustees, to be annually chosen by the stockholders, of which board the Governor and Lieutenant-Governor, for the time being, shall always be members;—that the trustees 'shall purchase a farm of about five hundred acres of land, either contiguous to or near the Hudson river, and nigh to the city of Albany as shall be convenient,' and make necessary arrangements for commencing and carrying on the school. And, that the stock shall not become a matter of speculation, to the detriment of the institution—and to prevent a perversion of the school to other than its legitimate objects, the law limits the dividends upon the stock paid in, to five per cent per annum—and declares, that 'the professors, teachers and pupils of the school shall, unless prevented by sickness, or other unavoidable cause, occupy themselves at least one-half of the time the said school is in session, between the months of March and December, either in the practical agricultural business of the farm, or in the laboratory or mechanic shops connected with said school.'

"In consequence of the indisposition of one of the commissioners appointed to open books of subscription, and the death of a principal patron and manager, only about one-third of the capital stock was subscribed; the corporation was not organized, and the charter became void by non-user. At the last session of the legislature, the act of incorporation was renewed and continued in force. But the deranged state of the business concerns of the country, and the general pressure for money, has hitherto prevented any efforts being made to fill up the subscription As our commercial embarrassments have in a great measure subsided; and impressed, as we are, with a confident belief, that the projected school is calculated essentially to accelerate improvements in the great branches of productive labor, and to exert a benign influence upon society at large, we beg leave respectfully to call the public attention to the subject, with the view of carrying the provisions of the law into speedy operation.

"The law makes no appeal, it is true, to mercenary considerations; but it appeals to higher, nobler feelings—to the public spirit, to the patriotism of our citizens. Its object is to improve the moral and social condition of the state, and to augment the productions of its soil. It is designed to extend to productive labor the efficient aid of modern science, and to instruct it in what experience has taught and confirmed as the best modes of practice; and to elevate, withal, the intellectual and moral character of that numerous class of our population, who are, emphatically, the shield and strength of our freedom, to that healthful and independent condition which the safety of our country demands.

"It is unnecessary for us to dilate upon the numerous benefits which scientific and industrial schools are calculated to confer upon a community. Their great utility has been amply demonstrated in Europe, where they have been long established, and where they continue annually to increase. They seem particularly fitted for a free people, who are entrusted with the sovereign power, and who ever, while free, give the impress to national character. Should the projected school realize any thing like the benefits anticipated from it by its friends, it will become a pattern, and lead to the establishment of like institutions in our land, and to a highly salutary improvement in our industrial and social habits.

"The particular object of this circular is to apprize you of the foregoing facts, and to invite you, as a willing promoter of the public good, to take an active interest in the projected school—to subscribe to the stock yourself, and to influence the wealthy and philanthropic of your neighborhood to do the like. The shares are twenty-five dollars each. It is proposed, that when $50,000 of stock shall have been subscribed, notice shall be given in the Cultivator, Genesee Farmer, and the Albany Argus, of a meeting of the stockholders, at the Capitol in the city of Albany, to organize the Association, and at which time a payment of five dollars on each share of the stock subscribed will be required to be paid. Will you do us the favor to send your reply, before the 1st of February, addressed to Archibald McIntyre, Esq. or Jesse Buel, Albany, with a notice of any subscription you may be disposed to make, or may have been able to obtain, to the stock of 'The New-York State Agricultural School.'

"ARCH'D McINTYRE,
"J. BUEL,
"J. P. BEEKMAN."
*W. H. SEWARD,
*W. L. MARCY.

* We received permission to add these two highly respectable names to the Circular after it had been sent abroad.

Insect Enemies.

At the recent meeting of the "British Association for the advancement of Science," the Rev. F. W. Hope read a paper "On Noxious Insects occurring in the year 1838, more particularly the *Tipula tritici* of Kirby."

The author commenced his observations on the *apple blight.* In this year apple trees have chiefly suffered from the attacks of two insects; one is a beetle (*Anthonomus pomomus,*) which attacks the blossoms in bud, and prevents the fruit from what is called "setting." It is well known to entomologists, and the author hopes shortly to give its history to the world with illustrations. The second is the *Aphis,* or plant louse, which is this year exceedingly abundant. The apple, the hop, and the wheat, have suffered from it. The author would not describe these insects, as they are so well known, but made the following observations:—When vegetation in spring has made considerable advances, and the weather becomes wet and uncongenial, then *Aphides* appear in greatest abundance. He attributes the great abundance of *Aphides* this year to the cold. He was anxious to ascertain if *Aphides* are more abundant in some soils than others, and solicited information on this point. In 1829, the *Aphides* were succeeded by the *Coccinelidæ*: is this usual? The *Aphides* on the wheat this year are more abundant on the spring than the autumn sown wheat, and (near Cheltenham) more numerous on bearded wheat. *Tipula tritici* is observed to be abundant in some districts. The *pupa* and *chrysalides* are not so numerous as in former years, but the caterpillars are very abundant; but the wheat appears more damaged by Aphides than Tipulæ. The author then alluded to the kind of information wanted in these inquiries, with regard to soil, atmosphere, cultivation, and varieties of wheat, which might be supplied by the agriculturist; and regretted that there was not an agricultural section in the Association. He then hoped botanists would supply information:—1. On the species and varieties of wheat grown in this country: 2. Diseases of wheat arising from parasitic fungi and other causes: 3. The provincial and local names of the kinds of wheat. In conclusion, he suggested that a committee of the British Association, consisting of botanists, entomologists, and agriculturists, should be formed, in order to investigate the diseases incident to wheat, and other kinds of agricultural produce.

New Discovery in Philosophy.

Professor Mitchell, of Philadelphia, has succeeded in preparing an apparatus for pressing gases into a liquid and solid state. The discovery of a mode of converting gases into liquids, by compression, was first made some time ago, by M. Thilloms, of Paris. The apparatus of Prof. Mitchell is made to produce a pressure upon carbonic acid gas, of about 1,000 lbs. to the square inch, which by expelling the latent caloric, reduces the gas to a liquid, and of course creates great heat, externally, by the caloric which is thus expelled and set free. On suffering the vessel containing the liquified gas to communicate with the air, a part of the liquid is rapidly evaporated, and the rest frozen into snow, light, dry and very cold to the touch, beautifully white; and when first exposed to the atmosphere, is 122 degrees below the cold of frozen water. As rapid evaporation immediately ensues, visible in the appearance of a white vapor, and carrying off caloric, this low temperature rapidly falls to 130 or 140 degrees below zero. Mercury, which freezes at 140° below zero, becomes solid, in a few seconds, when enveloped in this snow, has the hardness of lead, and exhibits the same appearance when cut with the knife. Thus it seems, that without the all-animating principle of caloric, which exists, either in a latent or free state, in every thing, all gases and liquids would become solids, and every organized being, animal and vegetable, would cease to exist. How wonderful are the works of the creation!

This discovery promises to become of great use in science, in the arts, and even for domestic purposes. Prof. Mitchell is engaged in a course of experiments, with his apparatus, the results of which will be made public through the Journal of the Franklin Institute.

The Farmer's Garden.

KITCHEN DEPARTMENT—(*Continued.*)

25. Hop.—Hops are deemed indispensable, with many good housewives, in the making of yeast, or beer, or both. A few roots, planted on the outer border of the garden, will require little other care than polling and picking them, and from six to ten poles will supply the wants of the family.

26. Horse-radish.—This is a valuable and wholesome condiment, or sauce, with meats. It grows from cuttings of the root, as well as from tops. To have fine roots, it should be planted deep, in rich mellow ground, and stand two years. For winter use, it may be taken up in the fall, and packed in the cellar in earth, like other roots. A few feet of ground will suffice for its culture, and to this it should be confined.

27. Hysop is a sort of shrub, the flower spikes of which are used, fresh or dried, for medicinal purposes. Half a dozen plants on a border will suffice.

28. Lettuce is common in our gardens, and constitutes the principal sallad for our tables. There are a great many varieties, and there is a material difference in their quality. To have fine heads, it is necessary to sow in September, to protect the plants in winter, and transplant in May. The curled Siberian is in general esteem. If sown in a hot bed, and carefully transplanted, about the first of May, into a rich east or west border, the coss and some other

kinds will make tolerable heads, and be excellent.—The leaves may be gathered and tied, as directed for endive, with great advantage to their quality. Lettuce may be sown very early, and small sowings may be made, at intervals, till midsummer.

29. Marjoram.—There is an annual and a perennial—the latter generally cultivated here, as a sweet herb. It should be sown early, cut before it is out of bloom, and hung up in little bundles to dry for winter use.

30. Melons.—In northern latitudes we recommend the treatment, both for water and muskmelons, which we suggested for early cucumbers; that is, burying under each hill a half barrow full or more of hot dung. The melon is sensitive to cold and to moisture—the hot dung imparts heat and induces dryness. If the melons can have the benefit of boxes, covered with glass, through June, these will greatly facilitate their growth, as well as protect them from the striped bug. Our boxes, which have been several years in use, are 18 inches square, six inches deep in rear, and four in front, and are covered with a moveable sash, containing six 6 by 8 panes of glass. Both the water and muskmelon like a sandy dry soil. The hills should be planted six feet apart at least, and not more than four plants should be left to grow in a hill. The old species of muskmelon are far inferior to many new varieties, as the citron, pine apple, cantaloupe, &c. When you get a good kind, save your own seed, and plant no other variety with it.

31. Mint.—The spearmint is often used in seasonings and salads—the peppermint for distillation and medical purposes. A few roots of each are desirable in the garden.

32. Mustard.—The leaves of the white kind are used in salads with pepper grass. The black seeded is used for greens, and is cultivated for the seed, to be manufactured for table use. When intended for seed, it should be sown in rows, two feet apart, early in the spring, and the plants thinned to four or five inches apart. It will ripen in July. Every farmer may raise his own mustard for the table, and manufacture it too; and though not so comely in appearance, it will prove, in eating, much superior to much that is imported from Europe. We have seen it powdered by rolling a junk bottle over it upon a polished stone or hard board. But we have manufacturers who pay a liberal price for the seed, particularly in our cities.

33. Nasturtium.—This is an annual, with a handsome flower, whose berries, preserved in vinegar, are an excellent substitute for West-India caper sauce. Sow early in May. The vines may be supported by brush laid upon the ground.

34. Onion.—This is a vegetable that every farmer can raise, and should raise. It serves many purposes in kitchen economy, and is healthful, and generally grateful to the palate. The onion is sown here about the 25th April, in drills one foot apart, the ground being rich and well pulverized. The plants are ordinarily thinned to the distance of three or four inches; though if two to four are left together, they often bottom well, and grow to a sufficient size. The tree or top onion, may be planted in September; a slight covering of straw will protect it during winter, and it then comes into early eating in the spring. The common sorts are also sown and preserved through the winter in this way. Some people break down the tops in July, to increase the bottoms. This practice may facilitate the maturity of the crop, though it does not increase it. The best way we know of, of preserving onions for family use, is, after they have been pulled and dried upon the ground, to take a stick, of two inches in diameter, six to ten feet long, split it through the centre into two or four parts, to within one foot of the but; then to begin at the bottom and draw the tops of the onions through the slits, letting them close as you progress, till you have reached the top, when the whole is made fast with a stout cord. In this way the onions are kept dry, and will not grow, and occupy but a small space. The onion gives from two to five hundred bushels the acre, and we have known the product greatly to exceed the latter. Some tread the ground, after the seed is planted, and then give it a slight raking, to render it smooth and even. The crop should be drawn when the collar, or lower part of the stem, shrivels and dries. They should be thoroughly dried, before they are housed for winter.—Sometimes the onion is planted in hills, four or five seeds being dropped in each hills, with intervals of five or six inches between them, and in this way they often do well. Another mode of raising the onion, and we believe it the prevailing one in the middle and southern states, is to sow in June, in drills six inches apart, and thick. They will form small bottoms, about the size of a filbert, the first season. They are then planted out the following spring for a crop.

35. Parsley.—This seeds the second year, and is therefore a biennial. Sow in drills at eight inches, in May, or later. A bed four feet square will supply a family. To have it for use in winter, it may be sown in any vessel filled with earth, and kept in the kitchen.

36. Parsnip.—This root requires the same cultivation and tillage as the carrot. It should be gathered late, as it continues to improve in flavor even till spring, till which time the main crop is permitted generally to stand in the ground, unless wanted for winter market or use. When put in the cellar in autumn, the roots, like those of the carrot and beet, should be covered with earth.

37. Pea.—This is a favorite with almost every one, and every one may enjoy it, who has a garden, with but little labor. The first crop may be sown as soon as the frost is out of the ground, and the surface sufficiently dry, and the sowings may be continued at intervals to the first of August. The early sorts, most cultivated, are the June, early Charlton, Bishop's dwarf, &c.; the later ones, marrowfats, Knights, &c. &c. Plant in double drills one foot apart, with intervals between the double drills of two to four feet, according to the growth of the pea.

38. Potato.—For early use, a few hills may be planted in the garden; and these should be of an early variety. The tubers or sets may be mixed with earth in a vessel, and set in the kitchen, or slightly covered in a hot-bed, and afterwards planted; and this will cultiate their maturity.

39. Potato, (sweet,) may be raised here in favorable seasons; though they seldom acquire the rich flavor that distinguishes them at the south. To cultivate them here, make a bed of hot dung in May, of one to two feet thick, and a yard square, cover the dung with four or five inches of good mould, on which lay the seed, and cover it with as much more earth. The heat of the dung will soon cause the potato to grow, and when the plants are of the size of cabbage plants, they may be drawn, and planted out with the dibble like cabbages, in hills four feet apart, or the plants eight inches apart in ridges. The soil should be sandy and dry, and the earth should be gathered into cones or ridges, as for melons. The quality of these potatoes is improved, by exposing them some days after they are dug, to the ameliorating influence of the sun's rays. They can not be well preserved long in this latitude.

40. Purslane, a vexatious weed, which Cobbett says Frenchmen and pigs eat raw, when they can get nothing else. It however makes a very good pot green, when boiled.

41. Radish—several varieties. Sow very early, and at intervals, in drills eight inches apart, and thin to two or three inches between the plants. The early purple top and turnip rooted succeed best for early crops. The black Spanish may be sown in July with fall turnips, and used through the winter and spring.

42. Rhubarb.—This is an excellent article, and should be in every garden. It is perennial, and resembles the burdock much in its growth. The stock of the leaf, which is large and tender, is in high esteem for tarts and pies, and in this way the plant is believed to be highly conducive to health. Peel the stocks, cut them into half inch length, and put them into tarts, pies or puddings, just as you would green gooseberries or currants. Give the plants two square feet each, in good ground, and a dozen of them will supply a family from May to August. The rhubarb may be propagated by offsetts, or from seed, which ripens at midsummer, and may be sown as soon as gathered. There are several varieties. This is getting into great demand as a market vegetable. The seed stocks should be cut in, except one or more left to produce seed.

43. Rue is a handsome little shrub, of occasional use in the family. Two or three plants are enough.

44. Sage, is much employed in seasonings and stuffings, and is sometimes used for tea. It is propagated by seed and by slips. Sow in May, in drills, and transplant the second year, leaving intervals of eight to twelve inches between the plants. Cut the tops before they come into bloom, and dry for winter use.

45. Salsafy, or vegetable oyster, very much resembles the parsnip, in its root, in its hardiness, its culture, and in its properties and manner of cooking for the table. Enough should be gathered in autumn for winter use.

46. Spinach.—There are two kinds, both excellent pot-herbs, one of which should be sown early in September, for early spring use; and the other early in the spring. Sow either broadcast, or in drills, and cover the bed of the winter sort, in November, slightly, with straw or coarse litter, and keep it on till the breaking up of frost, when you may begin to use the crop.

47. Squash.—There are many varieties, both for summer and winter use; and they are continually multiplying by cross impregnation. For summer varieties, those termed bush, which do not send out vines, are to be preferred. The best winter varieties, for garden culture, are the crook-neck, Valparaiso, under most of its modifications, and vegetable marrow. The only caution necessary in the culture of squashes is, that the hills be at least six feet apart, and that but two plants of the winter varieties be left to grow in a hill. To preserve the squash in winter, give it a cool, and particularly a dry berth, where it will be protected from the frost.

48. Tansy.—A perennial medicinal herb, worth having. A single root will soon generate a supply.

46. Tomato.—There has been, of late, so much said in commendation of this vegetable, as promotive of health, that *we* need not recommend its culture. It is a grateful and healthy vegetable, in many ways, to those who become accustomed to its use. To have it in season, during the summer heats, the seed should be sown in a hot-bed, like cabbages, from which the plants may be transferred when the season will admit of it. They are an excellent ingredient in soups, make a good catsup, stewed in their own liquor they are a fine sauce with meats; they may be dried or pickled; and they are made the basis of a medicine, which, if we are to credit the declarations of the venders, is an infallible cure for most all sorts of diseases which man is heir to.

50. Turnip.—None but the early sorts are usually cultivated in the garden, and these seldom escape the depredations of the fly, either in the top or root. They may be sown very early, and at all subsequent periods, before the first of August; yet those designed for winter use, and for farm stock, are generally cultivated upon the farm.

51. Wormwood is an herb purely medicinal; yet as almost every family has an occasional use for it, no one should be without a root or two of it in his garden.

We have thus given the names of fifty vegetables, exclusive of what are termed fruits, which may be usefully cultivated in the farmer's garden, and which are all valuable as articles of diet, as wholesome condiments, or for their medicinal properties—and which require no great skill in their culture. Each man can select from the list such as suit his taste, his wants, or his garden grounds. We know it will be objected by some, that the care of the garden requires too great an expense of labor, and that it will not repay, in its products, for its cost. In reply to this objection we would remark, that the master, and the unproductive inmates of the family, may perform most of the labor, and find in it a recreation, when they are not engaged in more useful employments; that there are always intervals, in the business of the farm, when farm laborers may be profitably employed in the garden; that, when a market is contiguous, for the sale of its surplus products, garden culture has been found to be the most profitable of any description of rural labor; and finally, that every man may limit his garden to the space which he is conscious he can cultivate to advantage. We toil for wealth, not to carry it with us to another world, but to purchase and enjoy the comforts and rational indulgencies which belong to this. Let us then act accordingly, and avail ourselves of those blessings which a kind Providence has placed at our hands, for our benefit and use.

We shall next treat of the ornamental department of the garden.

New Mode of applying Lime.

We observe, in the Farmers' Cabinet, a communication from E. Tatnall, describing the mode in which he had successfully applied lime to his corn crop. He applies it with manure, and yet so as that the dung and lime do not come in contact. His practice is to apply, late in the fall, 25 ox-cart loads of manure to the acre, spread it evenly, plough the ground, and harrow it well, in the fall. In the spring following, he applies 60 bushels of lime to the acre, and again harrows until the ground is in good order for planting. In the culture of the corn, he takes care not to disturb the manure buried by the plough, preferring that it should decompose without exposure to the sun and rain. After the corn is taken off, he ploughs deep, so as to mix the manure with the earth, sows broadcast, and harrows in wheat. In this way he raises 60 to 70 bushels of corn, and 25 to 30 bushels of wheat, upon an ordinary soil. By ploughing for corn in the fall, Mr. T. thinks he destroys the cut-worm, as he is never troubled with it. We think it more likely that the worm is destroyed by the caustic lime which is applied in the spring.

Whether the lime contributes to increase the corn crop or not, we have some doubt; though as a carbonate, we have no doubt it improves the mechanical texture of the soil, and benefits the wheat. The dressing of manure is a heavy one, and should of itself, in our mode of planting, and if unfermented, give the crop of corn obtained by Mr. Tatnall. The manure had, however, been probably fermented, and the distance of planting, in Pennsylvania, is greater than it is with us. The mode of applying the lime, to the same crop, and yet not coming in contact with the manure, we think a decided improvement.

The utility of lime was, however, strikingly shown in another experiment of Mr. Tatnall. He applied it, in different proportions, from 60 to 100 bushels the acre, to eleven acres of very poor land, without any manure, and sowed with oats. The crop was unusually heavy; and best where the most lime was applied.

Tropical Plant Company.

Dr. H. Perrine, who was formerly American Consul at Campeachy, has been for some years assiduously engaged, and has spent much time and money, in forming an establishment near Cape Florida, for the introduction and propagation of tropical plants, the culture of which promises important national, as well as individual, advantages. The government of Florida, has passed an act to incorporate the Tropical Plant Company; and Congress has made an appropriation of a township of land to Doctor Perrine and his associates, on certain conditions, to aid in promoting the object of the association. The Doctor has already a large collection of plants at Indian Key, contiguous to the coast, is about removing thither with his family, and now invites emigrants to join him, and capitalists to embark in the enterprise.—We subjoin Dr. Perrine's note,

"TO THE FRIENDS OF THE ENTERPRISE.

"The principal objects of the company, are to form a nursery of supply and a model of cultivation of the valuable plants of the tropics.

"As however, while Indian hostilities continue, it will be impossible to pursue with safety their intended labors on the main land, of tropical Florida, the trustees will delay the organization of the company, and will apply their personal resources to the formation of a preparatory nursery at Indian Key, and the adjacent inlets. The superintendant Dr. Perrine, will hence reside with his family at Indian Key, until the cessation of the Seminole war, where he will continue to accumulate all the seeds, plants, and other elements for the permanent nursery, to be then established on the southern coast of the Peninsula. During this important interval, the most *essential aid* to these preparatory labors may be *immediately afforded* by very *easy means* in the power of many philanthropic friends of this patriotic enterprise,

"1st. By transmitting to Indian Key, at least two seeds or cuttings, &c. of every superior variety of every valuable vegetable which the possessor may consider adapted to the climate and soils of tropical Florida.

"2. By transmitting a detailed list of all books which the owner may deem necessary to enter into a Botanical and Vegecultural Library, especially adapted to the tropical climate and productions of south Florida.

"3. By transmitting a letter containing the desires of the writer in respect to the purchase of one or more shares of stock, in the Tropical Plant Company.

"The trustees do not expect to receive any articles or services without returning an ample equivalent. All letters should be addressed to Charles Howe, postmaster, at Indian Key, south Florida, the financial trustee. All packages of seeds, &c. not exceeding two ounces, should be directed to the Patent office at Washington, whence they will be forwarded to Indian Key. The proprietors of green houses, &c. will render themselves especial services by sending their respective mites during the ensuing six months.

"Even the druggists may contribute the valuable seeds, occasionally found among their tropical medicines. The trustees are James Webb, Judge of the district at Key West; Charles Howe, Inspector of the port at Indian Key; and Doctor H. Perrine, late American Consul at Campeachy.

"*New-York, October 15th, 1838.*"

The Robinson Fund.

We are happy of the opportunity of being authorized to add $20 to this fund, designed to be awarded in premiums for certain agricultural books—by Prof. F. H. Gordon, of Clinton College, Ten.—for whose communication, inserted in another column, we bespeak an attentive perusal. Whose name shall we add next?

The American Institute,

Held its eleventh anniversary in October. The articles exhibited exceeded in number, variety and excellence, those shown at any former exhibition.—The receipts for admission were greater, by $2000, than those taken at the last fair. Two hundred medals were awarded as prizes, exclusive of several hundred honorary diplomas—a list of the prize articles, and the names of their owners, together with the very able address of Mr. Davis, of Massachusetts, delivered during the fair, are given at large in the Journal of the Institute, a monthly publication which we again recommend to the patronage of the American public, and particularly to the mechanic and manufacturer. The permanency of the Institute is now put beyond doubt, and the benefits which it is conferring on the country are palpable and wonderful.

We subjoin two extracts from the excellent address of Mr. Davis—one giving a happy illustration of the dependance of agriculture, manufactures and commerce upon each other; and the other pointing to the advantages which result from the diffusion of useful knowledge—of moral and intellectual culture. The address does great credit to Mr. Davis and to his country—and evinces in him talents of a high order, and sound American principles. It cannot be read without interest and profit by any one who has the good of his country—of his *whole* country—at heart.

EXTRACTS.

"We have lived in vain, if we have not discovered that the arts and commerce must unite with agriculture to supply the necessary demands of civilized society. It is but the natural division into which labor arranges itself, to feed and clothe us.

"The agriculturist produces from the earth—the manufacturer converts productions into forms fit for use, and the commercial class distribute the commodities of producers where they are required for consumption.

"If Divine Providence had supplied necessities in such a manner as not to require labor, we might dispense with it; or if the earth produced in a form suited to our use, we should only be under the necessity of cultivating, and might abandon manufacturing; and if it yielded the same productions at all places, we might abandon commerce. But we must till the earth or starve; convert the cotton, the wool and the flax into cloth, or go naked; dig the ore from the mountains, and convert it into iron, or cease to have tools, and whatever is made with them; and must interchange the products of different climates, or cease to enjoy them.

"This division of labor is so essential to civilized man, that whenever we abandon it we must return to barbarism. For converting wheat into flour, and wool into cloth, is quite as important as growing them."

"A knowledge of the properties of bodies, saves the slow and tedious process of experiment, which often, for the want of such knowledge, leads to dissappointment. If the agriculturist understands the elements of plants and soils, he readily discovers their adaptation, and can supply in soils those deficiencies which often defeat the labor of the unconscious husbandman, or he can give such direction to it as to render it successful. The arts rest upon principles very often but imperfectly understood by the workman; but the better he comprehends them, the more easily he detects and avoids obstacles, and attains to successful results. As a knowledge of the chemical affinities and union of bodies is of the utmost importance to the dyer, the painter, the tanner, the printer, &c. who thereby understands the rationale of his process, so is a knowledge of the mechanical powers no less important to those engaged in the use or construction of works where those powers are employed.

"Our country has been much distinguished for the invention of useful compositions and labor saving machinery; and may it not be chiefly imputed to the fact, that useful knowledge is not only largely diffused among all people, but the avenues to it are open, and most men, who have a taste for it, find no difficulty in indulging in it?

"Moral and intellectual culture is an essential element of free government; and it is difficult to comprehend how its character can be understood, or it can be maintained by the elective franchise, without it.

"In private life it opens new resources, gives a stronger and better directed impulse to our efforts, and fills the mind with higher, more just, and confident hopes of success.

"But above all, it brings us out of darkness into light—elevates us from slavery to freedom—transfers our tastes and pursuits from the arts of violence to those of peace—and creates that vigorous prosperity, that animated zeal and happiness, which have spread over this broad country, and which have allured from their homes, from the tender ties of blood, and the graves of their fathers, emigrants from all parts of Europe."

Moral Culture,

It is now urged, by a hundred pens, is indispensable to the formation of good citizens; and it is a branch of education, that all agree, has been greatly neglected in training up the youth of our country.—There is not a better antidote to vicious habits, and immoral conduct, in youth or manhood, than steady attention to useful business. Indolence is the parent of vice, all the world say, even, in many cases where the mind has been trained to moral culture. It is easier to prevent, than to cure, moral, as it is physical diseases. If these propositions be correct, then industrial schools would tend greatly to aid moral instruction, if it did not in fact inculcate it. Idleness being the parent of mischief, we should seek to prevent it, by extending to labor those aids which would enlighten and elevate it in the scale of society—which would render it independent and desirable. Young men, carefully educated in the practice of husbandry, or any other useful employment, and so instructed, at the same time, in the philosophical principles of their business, as to feel a reasonable hope of becoming respectable and useful in its pursuit, would be the last to indulge in immoral habits, or to eat the bread of idleness; they would feel animated by the strongest inducements to become examples of industry and virtue—they would love their business in proportion as they became acquainted with its principles, and as it promised, the certain means of rendering them intelligent, independent and useful. Many persons are idle, and often consequently vicious, because they were never taught to labor, and know not the proud glow of independence which one feels who can say, on scanning his means and the enjoyments they yield him—"All these are the fruits of my industry.—Thanks be to God, that I have been thus enabled to provide for myself and to help others." We become attached to good habits, as well as to bad ones, if we put them on in youth. Thus we see men who have been inured to industry, clinging to it, as to a companion of youth, after the inducement to practise it, and not unfrequently the ability to perform, have ceased. And we see many, very many, as strongly attached to habits of idleness, with its concomitant evils, because they were wedded to it in early life, though want and dishonor stare them in the face.

We all know the happy influence of houses of refuge, in reforming juvenile offenders by moral discipline, and *instruction in a business by which they can earn an honest livelihood, and render themselves respectable in society*—considerations which perhaps never entered their minds till they became inmates of these moral and industrial schools. If then habits of industry will *reform* and *reclaim* those who have been vicious, we have the strongest reason to believe, that they will be equally efficacious in *preventing* the formation of bad habits. We therefore say, if you would raise the moral tone of society, teach your youth to labor and to think—teach them to provide honestly and abundantly for themselves, by giving them early habits of industry, and few of them will ever become tenants of a jail or a poor-house.

"What can the Legislature do to improve Agriculture?"

This question was propounded by a commercial convention lately convened at Richmond, Va. to a committee, who were directed to answer it by report. A report was made by Mr. Ruffin, editor of the Farmers' Register, from which we make the following extract.

"In reply to the inquiry, 'what can the legislature do to improve agriculture?' your committee will merely state, in general terms, that every means will be useful and profitable by which light and knowledge will be diffused, and no other action, no other aid or boon is desirable, or would be beneficial. There are so many valuable modes of diffusing agricultural knowledge, that the difficulty is not to find, but to choose among them. Boards of agriculture, agricultural societies, and premiums upon a judicious plan, agricultural schools and experimental farms, and agricultural publications, each and all, elsewhere, have worked admirably to forward the great end in view. But if no more were done at first, by legislation, than the institution of a board of agriculture, as merely an investigating, consulting, and advising body, incalculable benefit might be expected to grow out of one and a cheap mode. Such a board (if the system of furnishing aid should go no further) might be limited in annual expense to $1500, or barely more than the general assembly has spent, year after year, merely in the time used for electing an individual to execute the mechanical business of printing the journals and documents—less than the expense in time and money caused by each single elaborate speech dilivered in that body upon federal relations—not one fourth part of the annual expense of the geological survey, and perhaps not one hundreth part of the money wasted in every session in useless, or worse than useless, debate."

The report closes with a resolution, "that the commercial and general interests of Virginia and North Carolina, as well as the peculiar interest of the agricultural class, require that legislative aid should be given, promptly and effectually, to the diffusion of agricultural instruction and knowledge, and to the promotion of agricultural improvement."

The Mulberry.

We stood alone, among our cotemporaries of the press, for a long time, in maintaining, that the morus multicaulis was too tender to withstand our northern winters. We see our opinion now confirmed by some of the longest established growers, who, if we remember right, once maintained a contrary opinion. And we notice in a late Farmer and Gardener, printed at Baltimore, Md. "directions for preserving the multicaulis through the winter,"—which consists in *taking them from the ground*, and covering them with earth in the cellar. At a late farmers' meeting in Northampton, Dr. Stebbins and Mr. Whitmarsh, who have both, we believe, for a number of years, been actively engaged in propagating and vending the mulberry, pronounced the multicaulis not suitable for our climate. We subjoin quotations from the remarks of each.

"Experience has taught us," says Dr. Stebbins, "that our climate is not congenial to the habits of the morus multicaulis plant; many thousands have been lost every year in consequence of not providing a shelter and protection for them against the frosts of autumn, and the severe cold of our winters. It has been demonstrated to us by expensive experiment, that the tree is not suited to our borean seasons."

"The principal objections to this tree is," remarks Mr. Whitmarsh, "that the leaves contain a great proportion of watery matter, which causes the worms that are fed upon them to be unhealthy, and hence injure their silk. He thought this objection would operate more seriously at the south, where the seasons are longer and warmer. The heat would cause them to grow more rapidly, the leaves would be larger, and he thought, imbibe more moisture. He regretted the universal adoption of this tree at the south, and feared that a failure caused by this fact, would retard the progress of the [silk] business ten years, by discouraging so many who would become losers."

We quote the above as affording hints that may be useful to those who are about embarking in the silk business; though we somewhat doubt if Mr. W. is correct in his objections to the leaves of the multicaulis, and we think he is decidedly in error in supposing that this objection, if well founded, will be greater at the south than in the north—the greater heat at the south decreasing, instead of increasing, the succulence or watery properties of the foliage.

These two gentlemen give a decided preference to what they term the *Alpine*, which Mr. W. says is "the kind universally used in France and Italy." We do not mean to charge these gentlemen with wanton deception, for we have a high opinion of their good standing; yet there is something so mystical in these declarations—so contrary to received opinions—that we can not pass them as current truths, without asking for some further explanation. We have examined all the botanical and other works in our possession which treat of the mulberry, and they are neither few nor of doubtful authority—and yet we can not find in any one the term *Alpine* given to any species or variety of the mulberry. And as to the assertion that the Alpine is universally used in France and Italy, we have Gen. Tallmadge's declaration, that in Finizio's establishment, in Italy, which he visited, 3,000 lbs. of sewing silk are made a week, mostly from the black mulberry (*M. nigra;*) that Finizio stated to him, that the worm fed on the black mulberry made the strongest thread; that on the white mulberry finer and better fabrics; that on the Chinese (*M. multicaulis*) still finer and more delicate fabrics. And we think, (for we have not the letter at hand,) that Gen. Tallmadge says the white mulberry (*M. alba*) is almost exclusively employed in France. Loudon says, "the M. alba is commonly cultivated in France and other countries, for its leaves, to feed silk-worms, though in some parts of Spain and Persia they are said to prefer the black mulberry."—*Enc. Plants*, 782. The Alpine, we presume is a *variety* of the M. alba, and is probably the one alluded to by Loudon, where he says—"the most valuable variety of the M. alba is one grown in Italy, and especially in Lombardy, with vigorous shoots, and much larger leaves than the other." This may also be the Dandolo of Loudon, and the Italian of Sweet, and possibly the Brussa of Asia, from whence it may have been brought to Italy.

Dr. Stebbins advertises the public, that the undernamed (and many not named) descriptions of the mulberry, may be had of him in Northampton, viz. the Manilla multicaulis, the Canton, the *Alpine*, the *Asiatic*, the *Smyrna*, the Brussa and Dandolo. Now we protest against this fabrication of new names, for old things, whether it be from ignorance, for novelty, or to subserve the interests of the trade. Those printed in Italics appear to us to be absolutely of new coinage. This unnecessary multiplication of names tends to mystify the business, to deceive the public and to retard a useful branch of national industry. We believe that all which are named in the Doctor's advertisement are merely *varieties* of the white mulberry, differing somewhat in the size of their foliage, and in their hardihood, but very little in their properties for silk.

We have no sort of objection that Doctor S. should puff his own wares, or his own kind of trees—but we do object to his doing it to the prejudice of others, and of truth—which he indirectly does when he remarks—"The Brussa and Dandolo appear to be selected white mulberry—leaf not large—tree hardy, and there are some other varieties, *which may be used for change of food!*" Now if the Doctor has seen the cocoons and silk produced *exclusively* from the Brussa, he must know that the insinuation here made, that it is unfit for the *entire* subsistence of the silk-worm, and the production of excellent silk, is neither ingenuous nor true; and if he has not this personal knowledge, he has no right, as an honorable man, to give the intimation imputed to him.

The general impression is, that the M. multicaulis will produce few or no seeds. This is probably owing to its rapid and continued growth of wood—and the tree will probably fruit freely when it has attained to maturity of growth. We have yet none but young trees among us, comparatively; and it is particularly remarked of the mulberry, that young trees are shy in bearing, and that the quantity and size of the fruit increases as the tree advances to maturity.

In the East Indies, according to Loudon, the plants are raised from cuttings, eight or ten of which are planted together in one pit, and the pits are distributed over the field at the distance of two or three feet every way. These cuttings being made firm at the lower ends, soon form stools about the size of a raspberry bush, and from these the leaves are gathered. The stools are cut over once a year to encourage the production of vigorous shoots from the roots.

Spirit of Agricultural Improvement in England.

The spirit of agricultural improvement seems to have been awakened in England in an eminent degree, and a zeal to pervade all classes, particularly those of the higher orders, to give to this primary branch of labor, every stimulus and encouragement to improvement, as the great business which constitutes the basis of national prosperity and greatness. Not only has a national society been organized during the last year, but several county societies have gone into operation, under the most flattering prospects of usefulness. We make some extracts below, from the proceedings of the Yorkshire society, at their first annual show, as well to show the spirit that prevails there, as that our readers may profit by the information and suggestions which they contain. After the exhibition had closed, which was remarkable for the great number of fine animals, and new and useful implements of husbandry, which were shown, twelve hundred persons sat down to dinner, which being finished, and the health of the royal family drank—the Chairman, Earl Spencer, rose to explain the objects of the society.

"This being the first dinner of the Yorkshire Agricultural Society," he remarked, "I feel that it is my duty to call your attention to the objects we had in view in establishing this society. Those objects are, to promote agriculture in all its different branches—to render the cultivation of the soil, and the breeding of stock, as improved as the present knowledge of the country can make it—what I mean by improvement in agriculture and good farming is, to cause the greatest amount of produce at the least possible expense. It is not that we wish to encourage farmers in extravagant expenses to make their farms like gardens, when that will not answer the purpose of their pockets—but to employ their capital judiciously, so as to improve the land, and obtain as large a return as they can for the money they lay out. On this, the first occasion of our meeting, we have had a good exhibition of stock, and now, I am happy to say, a full attendance of members. The exhibition we have had to-day, I need not tell you, is admirable as to the quality of the animals shown, and the number was very great indeed. But the object of this meeting is not merely the exhibition of stock; it is collecting together a body of the farmers of England, in order that they may, by communicating with one another, and by what they see and hear, improve themselves in the profession in which they are engaged. When I address this large assembly, in this I also can say, that we have been successful. It is not necessary for me to tell you what the advantages are of improving the breed of cattle. I do not recommend to farmers of small capital to attempt to buy females of great value, and lay out large sums to produce male animals for the benefit of others; because nothing is more essential in farming than that a man should consider the capital he has, before he engages in any undertaking; but it is for persons of large capital to endeavor, by taking pains themselves, to produce male animals, fit to improve the different breeds of domestic cattle in this country. These exhibitions are of the greatest advantage, not merely to persons of the class I have described, but to all farmers whatever. Although I would not recommend any extravagant expenses, depend upon it, if you be careful in the selection of your male animals, you will, even with more moderate females, farm to greater profit. This society also seeks to improve the cultivation of land. I need not tell such a meeting as I am now addressing, that the throwing away manure upon the growth of weeds is not a profitable way of farming; that leaving land undrained and growing rushes instead of grasses, is not good farming; that getting out the heart, by neglecting land, and not applying a proper degree of cultivation is unprofitable—because, depend upon it, that money laid out in improving is the money that will come the quickest back again into your own pockets. With this view, the society has given premiums for the best cultivated farms. By so doing, I am quite sure, we are not only giving those good farmers new information, but we are encouraging them in doing their best. Besides those, we have given prizes for publications on agricultural subjects. It is our intention that each member shall receive a copy of the prize essays gratis, on applying to the secretary. I have stated the objects of this society, and the modes by which we intend to promote it—our object is to produce the food of man in the cheapest manner in which food can be produced. I think the society deserves the support of not merely landlords and farmers, and those connected with agriculture, and the value of land, but also of the commercial and manufacturing classes of the country; it is also good for the laborers of the country; in short, a society which has for its professed object, food at the cheapest rate, is good for every one who eats."

P. B. Thompson—"One of the first objects of these meetings, in addition to what had been so ably stated by his noble friend, was to keep up an open, unreserved communication, between gentlemen and farmers, which he trusted that meeting would promote to the utmost of their power. It was not by speeches, but by plain, honest, unreserved conversation, that he thought these meetings ought to be sustained; and if any person knew any thing more than his neighbor, he was bound to state it. Well, then, yesterday morning, he received a parcel of wheat from Berkshire, which he thought likely to be serviceable if grown in this country. It was found three years ago, growing on the mountains of Switzerland; since then it had been grown in England, and the sample he produced was grown in Berkshire. It was sown on the first of February, called Royal Standard wheat, the crop had now (29th Aug.) been reaped a fortnight, and was supposed to be at least seven quarters [56 bushels] the acre. Another subject worthy their attention was the application and formation of manure with the least possible waste; next year he hoped to be able to give them some useful information upon that point. He never enjoyed a greater pleasure than in witnessing the cattle that day. He never looked over so good an exhibition of female stock as he had witnessed that day—indeed 200 guineas [$932] had been offered for one of the cows shown. That was a practical proof of his noble friend's observation, that the money came back again to the farmer's pocket."

J. W. Childers, Esq. M. P.—"He believed that an exhibition such as he had that day witnessed, had scarcely ever before been seen in England. But he thought that only a beginning, when he saw that within a month or two, the society had doubled the number of its subscribers, he felt that the society would go on increasing from year to year, until its extent was only equalled by the Highland Society, on the model of which it was formed. The Highland Society numbered 3,000 members, and seeing that they had reached 800, he had very little doubt but they would also reach 3,000." Mr. Childers said he was about to propose as a toast—"the cultivator of the best farm"—and proceeded to say—"he trusted in time that every farm in Yorkshire would be raised to the state of this prize farm. He believed it was considered almost a garden, being in such fine condition, and he saw no reason why the county should not teem with farms of this description. What was it that gave this farm such a superiority? its soil was naturally good, but so was the soil of a great deal more land in Yorkshire—it was science and capital, united, that gave those fertile and beneficial results."

"W. R. C. Stansfield, Esq. M. P.—proposed the health of Mr. James Roberts, the tenant who, within the last five years, had drained, in the most effectual, judicious and economical manner, the largest quantity of land in proportion to his occupation. He had the greatest satisfaction in calling their attention to what he conceived was one of the most important branches of the society's operations—drainage he considered the foundation of every thing. Unless they had the means of preparing the soil for the manure and seed all was wasted. He feared this subject was but little considered, either in England or Scotland; if he took his own neighborhood as an example, a mountainous country, with a numerous and very industrious population, the means of improvement by draining had scarcely begun. Without draining, land was unfit for turnips or seed husbandry—it was unfit for human occupation."

Mr. Bates, a successful competitor, on his health being drank, made a handsome acknowledgment. He drew a contrast between the condition of the cattle now and fifty years ago; and proceeded to say, that

"The interests of agriculture he considered of permanent national importance; it was a science to which chemistry and all other branches of natural philosophy ought to give place. He alluded to the proposal for introducing a section of agriculture in the British Association, and regretted that there was not a Professor of Agriculture in either of the universities."

E. S. Caley, Esq. M. P.—"Thus it was, that as science advanced, agricultural operations were carried on with ten times more advantage than before, merely, because, instead of the observations of one man, or two men, they had now the result of the combined operations of all the world. That was the reason why he anticipated the greatest advantages from meetings like that. They were all brought together, not merely to look at the fat stock, as Earl Spencer had observed, but to join in harmony, to impart the result of their own observations, and to receive information from the experience of others; and as it is well known that two heads are better than one, they were much more likely to draw true, faithful and profitable conclusions, as related to agricultural operations, by meeting there and comparing their different conclusions, than they would be if they were all to stay at home and say nothing. He did not say they could not learn anything by staying at home; but, at all events, they could not learn what their neighbors were doing. There was an old saying prevalent in the world, about an old country woman, who had never been from home in her life, but on the occasion of her young mistress being married, was prevailed on to go to the next village to see the festivities, and on getting to the top of the hill, she said—'Lord hey massy on us! wheeaivver thowt t'world was hoaf see big as this!' He mentioned this to illustrate the advantages of not staying at home, in order, not merely to learn from others, but to communicate to others what they knew themselves. He would say to them—'freely ye have received, freely give.' It was not merely for the love of gain they were assembled together on that occasion, or that they cultivated the noble science to which they were addicted; it was not merely for the sake of gain, but for the pleasure of breeding the best ox, or cultivating the best farm. There was something beyond this, some better feeling in their nature to gratify, than the mere love of gain. Was it not a manly, an honorable satisfaction,—what was called in Yorkshire 'a bit of pride,' to show the best sheep or ox to their neighbors. It was not merely the love of gain, but the love of approbation. It was a pleasure to their hearts to look round their own farm-yards, and see to what perfection things might be brought, what symmetry their forms might be made to exhibit. It was not merely the love of gain, but the love of beauty, and the love of praise from their neighbors, who were alike gratified in affording it. It could not but be gratifying to them to see almost all the gentry of the country collected together here to view and admire their productions."

Postage.

We dislike to be harping upon this subject; but it is really one of some moment to us. We are in the daily habit of receiving letters by mail, enclosing a dollar or other bill for the Cultivator, with single postage paid, and extra postage charged here to us. This extra postage is generally 12½ or 25 cents, and often 50 cents—a serious drawback upon our profits when taken in the aggregate. We beg our friends to recollect, that every enclosure in a letter subjects us to additional postage; and if it is not paid where the letter is mailed, it must be paid here, where the error is sure to be detected. We are in the annual receipt of four to five thousand letters, which should come to us free of postage, but upon a great many of which we are charged, and charged legally, with additional postage. We beg our correspondents to abate the evil.

Short-Horned Cattle.

The Short-Horns maintain their standing in Kentucky.—At a late sale of Gen. Gerrard's stock, at Paris, Ky. eleven animals of pure improved short-horn blood, sold for $8,157. One, Exception, was bought by B. J. Clay & Co. at $1,830. At the same sale, ten animals of mixed blood, sold for $2,580, averaging over $250 each.

Mr. Whitaker's stock, lately sold at Powelton, near Philadelphia, went off at good prices. The prices and purchasers were as follows:

Dairy Maid, 3 years, $540, J. Gowan, Philadelphia.
Victoria, 3 years, $520, G. Brinton, Pa.
Nunnia, 3 years, $500, C. Warwick, Va.
Viviana, 3 years, $530, W. Heyser, Pa.
Thornville, 3 years, $500, do
Lady Whitworth, 2 years, $530, C. Warwick, Va.
Lobelia, 2 years, $400, W. S. Torr, Pa.
Enchantress, 2 years, $500, R. A. Taylor, Baltimore.
Minerva, 2 years, $360, Dr. Noble, Pa.
Sarah, 2 years, $380, Mr. Beltzhoover, Baltimore.

H. Clay, Jr. lately sold his imported short-horned Durham cow, Princess, to J. & R. Allen, for $2,000! This *is* the climax.

Agricultural Items.

At the meeting of the Highland Society of Scotland, in August, 177 applications for admission as members were made—a pretty good evidence that the society is not on the decline, though more than fifty years old.

Apples may be kept in a dry chamber, over a room in which there is a fire, even in winter. They preserve best in tight barrels; and after they are unheaded for use, they should be kept constantly covered with a linen cloth, in two or three folds. They are not much injured by frost, if they are kept in total darkness until they be used, or become thawed.

An Agricultural and Horticultural State Society has been organized in Michigan, Hon. Joshua Howard, president. They have resolved to petition the legislature to establish a board of agriculture, to make appropriations for the support of a state agricultural paper, and county societies—and to authorize school districts to draw their quotas of the school fund in agricultural works and publications, to such an amount as the finances of the state, and the school fund, will warrant. We are happy to find our young sister thus early engaged in looking to the substantial wants and permanent interests, of her growing family. We hope she will prove a kind as well as a wise mother in these matters, and teach her children to *earn*, that they may know the true luxury of enjoyment.

Grease for wheels and machinery.—M. d'Arcet, the celebrated French chemist, and master of the mint in France, recommends the following composition as the *best grease for wheels and machinery*, viz.: "Eighty parts of grease and twenty parts of plumbago, (black lead,) reduced to very fine powder, and intimately and very completely mixed together. A very little suffices." So says a French journal.

Liniment for the galled backs of Horses.—White lead moistened with milk. When milk is not to be procured, oil may be substituted. "One or two ounces sufficed for a whole party for more than a month."—*W. H. Keating.*

To preserve cheese, we perceive this year, for the first time that it has met our notice, that some of our dairy women envelope the cheese closely in a cotton cloth, when it comes from the press. The process of rubbing the cheese attaches the cloth so closely to the rind, that the cloth is not noticed by a superficial observer. This treatment preserves the cheese from insects, prevents its cracking, and secures to it a thin rind.

Planting of Trees.—Charles Blakeslee, of Newton, Ct. states to us, that last spring he planted out 14 maple trees, in the following manner:—He put them in holes so shallow as to bring the tops of their roots to the surface of the ground. He then brought loam and turf from a hollow, and raised a mound over the roots one foot high, and eight feet in diameter, and covered the mound with small stones. Notwithstanding the drought of the season, every tree thus served lived, while others, planted in the usual way, all died. Mr. B. ascribes his success to the fact, that the small stones prevented the exhalation of moisture, and deterred cattle and swine from rubbing against and loosening them.

Rohan Potatoes.—Last spring, we sent to Mr. Shepherd, P. M. Northampton, Mass. a peck of Rohan potatoes, to be presented to our patrons in that town. We see in the account of the October fair, in that county, what we deem to be some of the products of this seed. W. Clark, Jr. raised from one potato, 2½ bushels; Mr. E. Mitchell, from 4 lbs. of seed, raised 18 bushels, weighing 1,173½ lbs.

A Knitting Machine was exhibited at the Northampton fair, with which a child of 15 years of age can turn off two pair of stockings per day. It costs but $18.

Apple Pomace.—Farmers, save your apple pomace, for your cows or your pigs. If kept from fermentation, it may be fed to milch cows with great advantage. We have known it to double the quantity of their milk. Pigs will thrive upon it after it has fermented. It may also be made into manure, by mixing it in a compost with quicklime and earth—the lime neutralizing the acid and inducing decomposition.

Evergreens.—M. Vilmorin, the great Parisian seedsman, has found that pines, and other resinous evergreens, grow with great luxuriance on land manifestly unfit for tillage or grass—and that they will not grow well upon a calcareous soil. These conclusions seem to be confirmed by the natural growth in our forests—the pine and other evergreens being generally found upon poor sandy lands, and very seldom upon soils abounding in the carbonate of lime.

M. Vilmorin has come to the conclusion, from numerous experiments, that no species of American oaks will succeed in bad calcareous land; and M. Poiteau goes so far as to say, that the soil of Paris has become so eminently calcareous, from the constant additions it has received from old buildings and repairs since it was first erected, that there is scarcely a tree which can grow there satisfactorily except the elm. Those who plant shade trees may profit from these hints.

Silk Culture.—Dr. Perrine has pronounced the morus multicaulis speculation a splendid *humbug*. The doctor insists, that all efforts to raise silk, from the multicaulis, or even white mulberry, north of Southern Virginia, will ultimately prove abortive, both from the coldness of the climate, and the expense of labor. The doctor is certainly in error. Although the public expectation and enthusiasm have been worked up to an unreasonable pitch in this matter, yet we have not a particle of doubt, that where the business is judiciously managed, as a branch of domestic or household labor, the benefit will be palpable, and the profit certain.

Rohan Potatoes.—The price has advanced; and such is the demand for them, that we will not pretend to set to it any conjectural limits. Mr. Thompson, of Catskill, is the only grower we know who has them now for sale. We pronounced their quality *good* for the table. A better opportunity of knowing them, will now warrant us in saying they are VERY *good.*

Potatoes.—1,000 tons of potatoes had been shipped in the Thames, Eng. in October, for the New-York market. The value of the potatoes sent from Maine to southern ports has been stated at $300,000. Five hundred barrels of Irish potatoes arrived at New-Orleans on the 18th November. The price there was $9 per barrel, or fifty cents per dozen.

Texas.—Flour is quoted in this promising land at $22 per barrel; potatoes $7 per bushel, and butter and cheese at 75 cents per pound.

Two bushels of hard Dutton corn, by being boiled a few hours, we learn from the Farmers' Cabinet, have been found to expand to the bulk of five bushels and a peck.

We have received a sample of *tree*—not *tea*—corn, 8 rowed and yellow, raised at Caldwell, Warren co.

The thermometer stood at zero, at 6 on the morning of the 25th November, at our house; at Utica, it was 4°, and at Montreal, 6° below zero.

M. Multicaulis.—A public sale of one year old plants was held in Boston, in November. They were sold in parcels of fifty. The first lots, untrimmed, and five feet high, were bid off at one dollar a tree; subsequently, some lots, partially trimmed, went off at 37½ cents per tree. Cuttings, with two buds to each, were sold at two cents.

The Queens County Silk Company, Md. held their first sale—not of silk, but of multicaulis trees and buds—on the 18th November. The sales amounted to $2,200, and averaged about $50 per thousand cuttings.

To convey grafts of trees, cuttings of vines—and why not seeds?—in safety to a distance, a writer in Loudon's Magazine recommends, that they be placed in a tin case or cylinder, filled with honey. The honey hermetically excludes the air.

New Agricultural Journals.—The *Farmers' Advocate*, a semi-monthly sheet in octavo, published at Jamestown, N. C. by John Sherwood, price $1.25—and the *Michigan Agriculturist*, a weekly quarto of 8 pages, price $2 per annum. The more agricultural journals, the more agricultural readers, and the more agricultural improvement.

The Silk Worm.—According to the Silk Culturist, Judge Spencer, the past season, raised 40,000 silk worms, and lost but 4.

Glass head dresses.—Our foreign journals announce that a new discovery has been made in the manufactory of glass, by which it is rendered so pliable as to make cloth, or fabric, of the finest texture. Pieces have been produced 2½ yards long, and from nine inches to thirty-six inches in breadth; and some very fine ladies' head dresses have been made from this material, which all considered both very curious and very useful.

A new breed of hogs, is noticed in the Michigan Agriculturist, as abounding on the banks of the Detroit river, which will leap "a five feet fence without difficulty." They may be called leapers if not lepers.

The Rhode-Island Society for the Encouragement of Domestic Industry, have just appropriated $150 of their funds, as a subscription to the New-England Farmer, to be awarded in premiums. Bating any interest we may be presumed to have in the precedent, we may be permitted to say, that it is rewarding those who *do well* with the best means of *doing better*.

Premium Butter and Cheese—The Massachusetts Agricultural Society awarded, in December, the following premiums for the best butter and cheese exhibited for their inspection.

$100 to L. Chamberland, of Westborough Mass. for best butter.
$50 to L. B. Hopgood, Shrewsbury, Mass. 2d. best.
$30 to W. Barhop, Barnet, Vt. 3d. best.
$50 to D. Lee, Barre, Mass. for the best old cheese.
$30 to T. Fisher, Burke, Vt. for the best new cheese.

The premium butter sold from 33 to 47 cents per pound. It was mostly exhibited in stone pots.

Berkshire pigs are getting into as high repute among swine, as the improved short horns have become among neat cattle. We had heard, in several cases, of individual pigs being sold at fifty to eighty dollars. The Franklin Farmer, of the 8th December, informs us of the sale of a pair of Berkshire hogs, at the extravagant price of $500! The purchaser was William P. Curd, Esq. and the seller John R. Bryant, of the society of Shakers, all of Kentucky.

Sidney Spring, of Pratt's Hollow, Madison county, N. Y. says he obtained from one-fourth of an acre, one hundred and seventy bushels of carrots, and from the same quantity of land two hundred bushels of mangold wurtzel.

He harvested from five and an half acres, three hundred and twenty bushels of sound corn; two hundred and ninety bushels of which he sold at one dollar per bushel—the nett gains of which, he says, was about $40 per acre. This land he purchased seven years ago, for eleven and an half dollars per acre.

It is stated in the Franklin Farmer, that a cow belonging to Dr. Samuel D. Martin, gave the day her calf was ten days old, 41 quarts of milk.

A cow, the property of Mr. Kent, of West Springfield, has given, during sixty days, beginning in June last, 1346 quarts of milk!! averaging 22½ quarts per day. Largest yield, 11 quarts in the morning and 16 quarts at night.

Cows kept warm and dry in a stable in cold weather, will yield one third more milk than if exposed to all kinds of weather; and while the weather is wet, they will give twice as much, if stabled, as they will if exposed to cold storms.

A pair of Berkshire hogs, from the stock of C. N. Bement, Three Hills Farm, Albany, was lately sold in Kentucky for $250.

The free use of charcoal for hogs, confined in pens, is highly recommended by many individuals, whose habits of attention, observation and experience entitle them to credit.

Mr. Samuel Woodruff, of Windsor, Conn. obtained from twenty Rohan Potatoes twenty and a half bushels, some of which weighed 2 lbs. 13 oz. each.

Mr. Samuel Crary, of Bethlehem, Albany county, killed on the 5th of December last six pigs, between eight and nine months old, which weighed after being dressed, as follows—272, 269, 253, 252, 240, 220—amounting to 1506 lbs. averaging 251 lbs. each.—They run during the summer in a clover pasture, and fed the wash of a small dairy—fattened in the usual way, and no particular care taken with them, as there was no particular object in view, except fitting them for market. Nine dollars per cwt. was readily obtained for them. They were five-eighths Berkshire and three-eighths China breed.

At the Fair of the American Institute, in October last, a silver medal was awarded to C. N. Bement, for his Vegetable Cutter and a small mill for crushing grain for feeding stock. He also received a silver medal for fine specimens of Rohan potatoes, and a diploma for his Turnip Drill, (a silver medal having been awarded him the year previous.)

Notices to Correspondents.

Oaks.—Friend Bull's letter and eight acorns came to us through the mail, charged $1.12½ postage. The acorns must of course go to Washington. It is not easy to determine the species to which an acorn belongs, without seeing the cup and the leaf. From the description of the cup being fringed, we think it is the over-cup white oak, the Quercus lyrata of Michaux.

Indurated Clays.—We have received several samples of earth from Rufus Clark, of New-Brunswick, which have been examined by a scientific gentleman, who considers them indurated clays, similar to those found in various parts of New-Jersey; the white is of a fair quality, and would probably be of service in the manufacture of pottery, and possibly of porcelain.

A gentleman at Maysville, Ky. asks, if the soil he has described to us—a rich loam, which has lain some years in pasture, and has just been ploughed—is suitable for the Rohan potato, and whether we would advise to plant these potatoes and his corn in *hills*, instead of *drills?* We respond affirmatively to all these questions—believing that the culture in hills will be less expensive, and the product equally abundant, as if planted in drills.

Morus Multicaulis.—In answer to the inquiries of S. Rosa, Painesville, Ohio, we are almost disposed to say, that people, now-a-days, esteem that kind of mulberry best, for the manufacture of silk, which they want to sell. We verily believe there is no great difference in the quality of the different mulberries for silk, under household management. The seed of the genuine multicaulis cannot be had. The price of the trees ranges from 25 cents to 25 dollars. The Messrs. Prince of Flushing, *advertise* 65,000 trees, and trees are for sale at Philadelphia, New-Jersey, &c.

Tree Corn.—We have several applications for Mr. Thorburn's Tree Corn, which, we are sorry to say, we cannot supply. It is to be had of the Messrs. Thorburn, in New-York and Albany, seedsmen.

One of our subscribers in Indiana, Joshua Cottingham, writes as follows:—"Since I began to read the Cultivator, I have been adopting some of its recommendations, particularly in regard to rotation of crops. I find that by mowing my clover and grass one season, pasturing it the next, and then turning it in deep for wheat, sowing on the first furrow, and harrowing in the seed well, I get double the crop of wheat that my neighbors do." Now, if Mr. C. raises 10 acres, and adds 10 bushels to the product of each acre, as we may infer, by alternating grain and grass, his gain in a single year, by taking the Cultivator, in his wheat crop alone, is more than enough to pay for the Cultivator as long as he lives, though he should reach the next century. The average product in his vicinity, our correspondent advises us, is 30 to 60 bushels of corn, and 10 to 30 bushels of wheat to the acre; and he expresses a belief, from his own improvements, that the product may be doubled by manuring—a thing not there thought of—and judicious management. There is great danger, that the "skinning" business will be carried to a prejudicial length in the new, as it certainly has been in the old states.

Brussa Mulberry.—Sheldon Basset, of Hector, has sent us sundry interrogatories in regard to this tree.—All the reply we can make is, that the seed was originally brought from Turkey, by Mr. Rhind, we think five or six years ago, and planted by the late D. Ruggles, Esq. at Newburgh. We saw the plants in the springs of 1837 and 1838, on the place of their growth. They appeared not to have been injured a particle by the winter, although much crowded and much of the wood slender. The seed has sold at $10 per quarter of a pound, which quantity has given fifteen to twenty thousand plants. We do not know that there is any seed for sale in this country. The plants may be had at the Albany Nursery, at fifty cents to one dollar each, according to size. The tree, it is presumed, may be propagated like the other varieties of the mulberry. The leaves are six inches or more broad. The growth from the seed last season, in a crowded situation in the nursery, was about two feet.

Acknowledgements.

We have received two apples from Mr. Rotch, of Butternuts, believed to be *vandeveers*, tender, juicy, and of pleasant, though not of very high flavor—a fair, handsome dessert apple, above the medium size and quality. The Tiffin, Ball and Water-fallow, from Mr. Thompson, of Catskill, together with a pear, name unknown, but of flavor strongly resembling the Seckle, in eating in December and January. We received grafts of the Ball and Tiffin, from Mr. Saul, Lancashire, Eng. and sent them to Mr. Thompson, who propagated them. The Ball apple is of mammoth size, flat, the stem inserted in a deep cavity, yellowish green colour, with a red cheek, in eating in November, juicy, but of medium flavor. The Tiffin is a beautiful red apple, somewhat larger than the Spitzenburgh, but of similar shape; flesh crisp, yellow and sprightly—we think an excellent dessert winter fruit. The Water-fallow resembles in size and flavor the Fall Pippin, though later, as it comes in eating after the former is done. It is from the middle states, and may be pronounced as good as the Fall Pippin, with the advantage of keeping longer. Two apples from Vermont, from Dr. James, of more than medium quality—both seedlings. *See seed grain.*

Female Patronage.—Among 29 subscribers received in a letter last week, from the "Bay State," we recognize among them with great satisfaction, the names of *sixteen* ladies.

CORRESPONDENCE.

Great Ruta Baga Crop—Mixing Soils.

Schaghticoke, Dec. 1, 1838.

Mr. Buel—Sir—I send you a statement of the produce and culture of a patch of ruta bagas, which I have raised the present season, the profit of which, if not the greatest, I flatter myself, is not the least, which will be offered for your premiums; as the summer has not been favorable to the produce of large crops of turnips. The soil is a sandy loam, (generally so called,) but contains by far too great a proportion of sand to be termed good, and I think myself amply compensated for applying from 50 to 100 loads of clay per acre, in the increased products of the first two years. The manure was spread and ploughed in immediately before depositing the seed. They were sown the first day of June, in drills about two feet apart one way, and owing to a partial failure of the seed which was old, a foot or 18 inches the other, which I am persuaded was an advantage to the crop, as they grew very large; one weighed over 24 lbs. after being trimmed. The after culture was one dressing of plaster, which I think is of very great advantage to them, especially in a drought; three hoeings or weedings, in which care was taken not to earth them up at all. The harvesting is very much facilitated by using a hoe ground sharp to cut the tops as they stand in the ground, after which they are pulled with a hook; in this way two men will gather seven or eight hundred bushels of them in a day. I had 970 bushels, calculating 70 lbs. per bushel, from 126 rods, at the rate of 1,231 bushels per acre. I had another piece I think equally as good, which were not measured.

The profit of the 126 rods is as follows:

Dr.	To 20 loads manure, at 25 cts.......	$5 00
	Carting and spreading the same, ...	3 00
	Ploughing, rolling and harrowing,....	2 00
	Seed, ...	0 37½
	Sowing, ½ day, ...	0 25
	3 hoeings, 10 days, 6s.............	7 50
	Harvesting, 6 days, 5s.............	3 75
	Interest on land at $100 per acre,...	5 50
		$27 37½
Cr.	By 970 bushels ruta bagas, at 1s. 3d..	$151 56
	Tops for fodder,....................	5 00
	⅔ds manure for succeeding crops, ...	5 32
		$161 88
	Deduct charges,............	27 37½
	Balance, ...	$134 50

Profit $134.50, or $170.80 per acre.

I am trying an experiment in feeding them, which if important, shall be communicated to you and the public.

Yours, &c.
JOHN C. MATHER.

Corn Crop.

Volney, Oswego co. Nov. 27, 1838.

Mr. Buel—Sir—I saw in your March number of the Cultivator, a premium offered on several articles of agriculture; I therefore send you a statement of one acre of corn raised by me this season, hoping that if I do not prove a successful competitor, the cause of agriculture may receive an additional witness in its behalf. The soil is a warm gravel; the corn was the twelve rowed yellow variety. About the 1st of May, I carried on and spread, all over the ground, seventeen loads of stable and barn-yard unfermented manure, ploughed before the manure dried; bushed and harrowed the ground well, being careful not to disturb the sod, which had lain to pasture four years; and on the 14th and 15th of May, planted the same, three feet and three inches apart each way. It was dressed with seven bushels of good unleached house ashes, mixed with one and a half bushels of plaster, when it made its appearance above ground. On the 10th June, went through between the rows both ways with cultivator; 18th June, cultivator both ways, then thinned to four stalks in each hill, and hoed out the weeds. On the 3d July, cultivator both ways, and commenced hoeing; put no more earth about the hills than we took from them, but carefully cleaned out all the weeds from the hills. The seed was prepared by rolling in tar water and plaster. The corn was cut up the 1st of September, at the ground, and shocked in small shocks, and on the 25th it was husked and housed.

The product is 110 bushels of first rate corn, and 6 bushels of second rate, making in all 116 bushels of corn, and four loads of stalks per acre.

EXPENSE OF CROP.

Ploughing 1 day and board,...............		$2 00
Bushing and harrowing 1 day,............		2 00
Planting 1½ days,.........................		1 13
Hoeing 4 days,............................		3 00
Horse and hand with cultivator 2 days,.....		2 00
Cutting and shocking 2 days, ...		1 50
Husking and housing 8 days, ...		6 00
Ashes and plaster,.........................		1 25
Interest on land at $50 per acre,..........		3 50
Thrashing corn 3 days, ...		2 25
17 loads manure at 25 cents,........	$4 25	
Carting and spreading,............	4 25	
	$8 50	
Deduct ⅔ds for succeeding crops, ...	5 66	
		2 84
Total charges, ...		$27 47

VALUE OF CROP.

110 bushels sound corn, at 6s. 6d.........	$89 37½
6 do soft corn, at 3s..............	2 25
4 loads stalks, at 8s	4 00
	$95 62½
Deduct charges,............	27 47
Nett profit,................	$68 15½

WILLIAM INGALL.

I hereby certify that I am personally acquainted with the above named William Ingall, and believe him to be a person of veracity, and that the truth of his statement may be depended on.

AARON G. FISH, *Justice.*

Corn Crop.

Port-Byron, Nov. 8, 1838.

Judge Buel—Sir—As I have been a constant reader of your valuable paper, the Cultivator, from its commencement, and think I have received much instruction and profit by it. I take the liberty to state to you some facts, that I think may be for the encouragement of some farmers.

Some time in March last, I commenced drawing manure from the barn-yard with two boys and a pair of steers, for the purpose of making them handy; the most of the time we used a horse before them. One of the boys lives with me, the other I hired at $5 per month. We drew the manure on a clover ley of three years' standing, about three acres. We put on the whole, 150 common wagon loads, spread it as even as we could, then ploughed, turned it over smooth, rolled and dragged it well, and planted the 11th and 12th of May, with Robbins' drill-barrow; planted what we call the 12 rowed yellow corn, but some ears have 20 rows, and from 10 to 15 inches long. Aimed to have the rows 3½ ft. apart, hills from 1½ to 2 ft.; from 2 to 3 kernels in a hill; rows north and south. I soaked the seed first planted in warm water, with a little salt-petre in it. The drill did not work well; I then took the dry seed and planted the remainder of it, which generally came up well; but before I knew it, the crows and worms had devoured a great deal of it. I planted it over, and part of it the third time, with the little golden corn. It nearly all stood finely. I went through it three times with a horse and cultivator; hoed it well the first time, was not quite so particular the next. I think it the best piece of corn that I ever saw in the state. Sometime the fore part of September, we cut it up at the roots, and stooked it up, but did not husk any until 15th October. It turned out so well, and was so sound, that I thought I would measure an acre, and see how much was on it. So we took the August No. of the Cultivator, the square and a rope measuring two roods long, went to the field and measured an acre, according to the rule laid down in said number; we measured the wagon box, or first load, 24 baskets full, holding almost 1½ bushels each; we had on the acre 169 baskets, or seven loads and one basket. We took one basket out of the heap, just as it came, and shelled it, and it weighed 37½ lbs. We husked a load more, and Mr. Cronkhite, one of my hands, thought the corn was still better; we then measured another acre as accurate as possible in the same way, 12 rood 3 feet by 13 rood 2½ feet; we husked off of that 166 baskets, or seven loads, wanting two baskets; we shelled one basket as before, and it weighed 39½ lbs. of shelled corn; the corn was husked and thrown down, the wagon going round to gather; shook down the corn, so that the loads might have been a little larger, and the corn rather sounder, as there was not so much damage done on the second acre by crows, &c. Thus you see, the first acre had on it 112 bushels 23¼ lbs. of shelled corn; the second had on 118 bushels 28 lbs. or 118½ bushels; the second acre had on it eight loads of pumpkins; the stalks are well saved, and are excellent fodder. I sowed turnip seed on the whole piece, but the corn and pumpkin vines so covered the ground, that the turnips are worth but little; a few bushels grew to good size since the corn was cut.

EXPENSE OF CROP.

10 days with team and boys at manure, ...	$10 00
5 days with young man and team do........	7 50
Parts of days ploughing, perhaps 5, ...	7 50
1 day with drag at 12s....................	1 50
1 day planting at 6s	1 75
1st hoeing, went through with horse and cultivator, 3½ days, with 2 men and 2 boys, worth..................................	5 37
2d hoeing, 2 men and 2 boys 2½ days each,..	3 75
3d hoeing, 3 men and 2 boys 2 days each,...	4 75
4½ days cutting up, with a man and boy,....	3 94
	$46 35
One-third of the above, is....	$15 35
3½ days husking 1 acre with 2 men and a boy,	5 25
Whole expense of one acre, ...	$20 60

VALUE OF CROP.

118½ bushels of corn from an acre, at 6s. 6d. amounts to..............	$96 31
8 loads of pumpkins, worth	8 00
Stalks would sell quick at................	4 00
	$108 31
Deduct expenses,...........	20 60
Nett profit of one acre,......	$87 71

I am yours, with great respect,
JOSEPH F. OSBURN.

Mentz, Nov. 13th, 1838.

This may certify, that I helped raise the said corn, or tend it, and measure, husk, shell and weigh it, and believe the above to be true to the best of my knowledge.
JOHN HADDEN.

This may certify, that I helped measure the 2d acre as above, and husk it, and believe the above statement to be true. ABRAM KELLS.

P. O. Port-Byron, town of Mentz,
Cayuga county, 17th Nov. 1838.

I am personally acquainted with Mr. Joseph F. Osburn, and have no hesitation in saying that his statement contained within, is in all respects true; and further, that any statement in agriculture coming from him may be relied on. HORACE PERKINS, P. M. & J. P.

Legislation and Agricultural Education.

Clinton College, Tenn. Nov. 13, 1838.

Hon. J. Buel—Dear Sir—No subject interests me as much as the improvement of the soil and the mind, taken together, as the great business of our nation. And your remarks under the head of "the crops," in No. 8 of the Cultivator for the present year, are so full of the spirit that should actuate all Americans, that I must beg leave to quote them, and I wish they were published again and again, in large capitals. "*Will the politician, the manufacturer, the merchant, and the mechanic pause a moment and reflect upon the controlling influence which the abundance or scantiness of the harvest has upon the prosperity of our common country, and upon their several pursuits? If the harvest is abundant the whole land is prosperous and happy. If the harvest fails, every class feels the electric shock, business becomes stagnant, embarrassments multiply, and the whole land mourns. How important is it then, that all should feel and exert a direct influence in encouraging and qualifying the husbandman to increase the products of the soil—by legislative patronage, and by a system of enlightened education, calculated at once to make better farmers and better citizens.*" I have quoted your remarks all in emphatic characters, because they contain an idea that should be brought home to the full investigation of every American.

Of all the citizens of the U. States, perhaps, eighteen-twentieths are farmers, and if these do not prosper, the other classes cannot. The merchant cannot sell his goods, nor the manufacturer, nor the mechanic his labor, because the farmers who are their customers are unable to buy. The physician cannot prosper, because eighteen-twentieths of his patients are farmers, and unable to pay him liberal fees. The lawyer can not prosper, because eighteen-twentieths of his clients are farmers. The minister of the gospel cannot prosper, because eighteen-twentieths of his hearers and congregation are farmers. The politician cannot make his nation prosperous, because eighteen-twentieths of those who support the treasury are indigent farmers, and money is necessary to carry into effect the measures of the nation. From all this, which must be evident to every one, it appears to me, that our politicians, both of the Union and of the states, have always been legislating at the wrong end of affairs. Roads, banks, schools and commercial facilities, seem to have engrossed their whole care. It is true that these are all desirable blessings, but they are the *result* of wealth, much more than the *cause* of it. Roads and colleges cannot be made without wealth, and banks are useless when they have no money to represent their paper. If the states would adopt a course of legislation that would bring all the talents in them to bear upon their soils, wealth would soon be so abundant that roads, and colleges, and banks would be made wherever they are needed. Fluctuations in the money market would be less frequent and less distressing; for the money in the country would only keep pace with the wealth in it, and there would be less fictitious bank notes created by legislative authority without money to redeem them. But instead of all these blessings, we have none of them to a great extent. Thus it is that one radical error in the community produces a thousand errors and difficulties. Nature made our country principally for agriculture, and the neglect of it, throws every thing else into confusion and distress. Heaven has made no two countries precisely alike and for the same purposes. Then if the inhabitants of any country direct it to the end for which it was created, that nation will be prosperous; but if any country be directed to a different purpose from the one for which it was created, then disppointment and poverty must be the consequence of such perversion of Heaven's laws. It is vain to legislate for the objects which complete a nation's happiness, when the whole country is crippled in its operations by being diverted from the very end for which it was created. Let us have a universal system of scientific agriculture, practised every where in our country, and the observance of the laws of nature (Heaven) in that one branch of business, will soon give us a sound currency, good roads and good schools, as well as all other blessings we desire. Had nature made our country exclusively for manufacturing or for commerce, then there would be great good sense in directing the efforts of our government and our people to commerce or manufactures. In such a case it would be superb folly to make agriculture our absorbing care, to the neglect of the very purpose for which our country was created. But suppose our country were *mainly* created for agriculture, and provided with fertile soil, congenial climate and facilities for exporting our products to every part of the world, what would you think of our government, if it were to direct its efforts to the fostering of commerce and manufactures exclusively, while agriculture was neglected? Would you not say, that as a nation we have reached the summit of foolishness? But precisely such, (shall I say it? O! shame for boasted U. States!) the truth must be told, precisely such is a true but imperfect picture of our country, and of the movements of our government. Has Heaven made such a variety of salubrious climate, and such an immensity of the richest soil in the world, to be thus neglected, or thus frolicked away? How long will our people suffer themselves to be intoxicated by the political buzz and party spirit, which our politicians perpetually keep up, while they overlook—proudly forget—and even spurn to condescend to the true, the vital interest of the country. It is high time for us to rise and assert our rights. Let us vote down at the ballot box every puffed politician who would lead us away from our main interest, by filling our heads exculsively with Van Burenism, Clayism, Websterism, Whiteism, Harrisonism, Jacksonism, or any other mere partyism. Let us make them speak out and act out for the interest of our country or leave them at home, and select other lawgivers who *will* study this vital blood of our nation. It is vain to disguise any longer; to this point we must come at last. Our soil is every day washing from under us, and he is no patriot, no friend to the people, who would make them forgetful and drunk enough, on a mere ism, to frolick away their homes. It is high time, too, that the newspapers, which so pervert and poison the community, shall be commanded to stop their mad—their whirlwind—their baneful—their ruinous career. No man can study the sober interest of his country or his farm, if he reads them, while they are thus full of every thing that is slanderous, intoxicating and poisonous. Newspapers are very useful, so long as they are conducted with sober truth, and patient good sense; but when they are ever ready to sacrifice truth, philosophy and the vital interest of the country for mere party purposes, they are vile scourges to any nation. Let us then induce them to a season of sobering and reflection, till they become decent things. Let those who spend $20 a year for newspapers to heat their blood, curtail their reading of this kind, and spend $5 for agricultural papers that will make them prosperous, and their children—and their country, happy. But few men can in truth affirm that they have warrantee deeds to their farms while they confine their reading exclusively to party newspapers; because their soil will depreciate and wash away to the gulfs and oceans, and thus leave their deeds located upon sterile clay or sand. Then let us unite upon those measures which will save and improve our country, by bringing the individual and national mind to bear upon and develop all the natural advantages of the soil. The literature of our country needs remodeling. Though I am not old, I have spent most of my life, thus far, in teaching science, with a farm under my care. And I am ashamed, that so little of our boasted learning is practical—tamed—domesticated, and familiarized to the avocations of men. When the young man graduates with honor, he is then unfit for any occupation—he has still to learn his profession. Whereas, the college or university ought to fit young men at once for the occupations they are to follow. To promote these ends in agriculture, I propose to add $20 to the premiums offered by Mr. Solon Robinson and yourself for the publication of certain agricultural books, as described in the 8th number of the Cultivator. I also unite with Mr. Robinson in petitioning for an American Agricultural Society: and I join with him heartily in the proposed national petition to congress for the establishment of a National Agricultural School. And I would suggest that the Smithson bequest, lately received by the U. States, of £100,000, is the fund which should be set apart for that purpose, provided there is nothing in the *will* of the liberal Mr. Smithson to forbid it. Your ob't servant.

F. H. GORDON.

P. S. A convention of delegates from the societies of agriculture in our state takes place at Lebanon on Monday next.

Hoeing Wheat.

Hector, Tompkins co. N. Y. Nov. 27, 1838.

J. Buel—Dear Sir—I have seen an article in your paper, headed "*Wheat on Clover Ley.*" I have been in the habit of growing wheat on clover ley, for nine or ten years past, and find great benefit resulting from it. The only difficulty that I find resulting from this mode of farming is, that on moist ground, after an unfavorable season for preparing my ground, grass has grown with my wheat in such quantities as to destroy say from two to four or five bushels of wheat to the acre. In 1837, I attempted to plough in about three acres of clover; at the time of ploughing, the season was dry, and the ground so hard, that when I finished ploughing it, I considered that about one-third of the ground was left unbroken by the plough; this ground was a part of the same field where I had corn then growing; I could not improve it any as a pasture; I ploughed this ground again after the middle of August; the season had continued dry, and the clover had not rotted, and my plough drew up the clover into heaps, like ploughing in straw, and when I had finished ploughing this time, much of the ground remained yet unbroken by the plough. I sowed this ground with wheat, I believe the 9th day of September; it was so badly prepared, that I think I should not have been disappointed if some part of it had not brought five bushels of wheat to the acre. Early the next spring, this wheat appeared to promise a good crop, but I soon found plenty of grass growing with it. I soon visited this wheat again and took along my hoe, and began to hoe up some of the grass sods, placing some on stones, and others in the place where I had taken them from, with the roots of the grass upward. I soon found that I did not disturb the wheat much, the roots of the wheat not being interwoven with the grass roots. I continued hoeing this wheat at intervals untill I had hoed it twice over, and some part of it three times. After this wheat was fully grown, one of our best farmers, knowing that this ground was badly prepared, examined this wheat, and found it so clean from grass and so good a growth, that he gave it as his opinion, that if it should fill well, it would bring me twenty-five bushels to the acre, or nearly that. This wheat, like most of the wheat the past season, was not well filled, and was not kept separate from my other wheat, having no intention at the time of tilling of communicating this beyond my immediate neighborhood; I kept no accurate account of the time spent in hoeing this wheat, but concluded at the time, that it amounted to about one day, or a little more, on each acre; and at the time of harvesting, concluded that this ground had brought me, in return for hoeing it, about eight bushels of wheat to the acre. Although I cannot ascertain the exact benefit resulting from hoeing this wheat, yet I feel confident that where my wheat has grass growing with it, it will pay me as good wages for hoeing it as my corn will.

I ought to have said that twenty-five bushels to the acre would have been as good a crop as I ever had on the same ground. SHELDON BASSETT.

Recipe for Curing Hams, Pork, &c.

Schenectady, 8th December, 1838.

Sir—In the November number of your Cultivator, is a recipe for salting pork and hams. If you are of opinion that the following mode is better, and that the public may profit from a knowledge of it, you may give it a place in the Cultivator.

I rub fine salt, with molasses and salt petre on hams, and pack them as close as I can in a cask. After a day or two, add pickle. In a cellar where it does not freeze, thirty days is long enough for hams not over 20 lbs. to lay in pickle. I use iron hooks, made of wire 1-4th of an inch thick, one end sharpened and turned short to hook into the ham; the other end turned wide, to hook over a pole of two or three inches diameter, and the hooks are six or seven inches long after they are made.

I hang up the hams a few days to dry, and then smoke them. Immediately after smoking, I hang them in the larder or store room, and slip over each ham a bag made for the purpose, of stout and close cotton or linen, and with a string tie it as tight as possible round the hook, and *above the ham*, so that a fly cannot enter or deposite her eggs on the ham, and the hams remain perfectly free from worms through the summer, or any length of time, as fine as when bagged. The hooks are cheaper than strings, as they last an age, and the bags, if kept for this purpose, will serve for many years, if kept perfectly free from holes, &c.

If hams are not bagged till March or April, the flies may have deposited eggs on them, and they should be examined weekly to learn whether insects are on them, to be removed.

I object to the advice of packing hocks and jowls, with the hams, to save pickle, as it will not allow room for enough pickle to save the hams. Many years ago, I packed pieces of pork among the hams, to make it compact, and after the hams were smoked, found they had not taken sufficient salt, and were tainted so early as the month of March.

If hams are packed closely, in a cask of much size, there will not be too much room for pickle enough to save them.

I use pickle saturated with salt in all cases. When it is not convenient to use casks, hams will cure equally well, by mixing so much molasses (or sugar) with fine salt, and ruhbing them together till like pretty dry sugar. Lay the hams, skin down, on a wide board, one end drooping. Rub on the flesh parts, the salt and salt petre thus prepared. After a day or two, the molasses will cause the salt to dissolve and run off; set a vessel under the lower end of the board to receive the pickle, which you can baste on the hams, after adding more salt to the hams, as it melts and runs off. Thirty days is long enough, when pickled as above. I have used an ounce of salt petre, and a half ounce to each ham of 16 or 20 lbs. and found no difference in the hams when used.

The observations of friend Comfort. in preparing and smoking his hams, are very judicious.

I think pork better without salt petre; it may be packed, skin down, each layer, covered with coarse salt, which is preferable to fine salt, except for rubbing on each piece of the pork before packing. After the cask is full, cold water filled to cover the pork, provided salt is put on, so as not to diminish that used in packing the pork: or pickle may be boiled, with some sugar or molasses, if sweet is preferred. Put some pearlash or salæratus in while boiling, as it causes the scum to rise, and clear the pickle, and the scum must be skimmed off.

If mice are in the room, they can crawl up the wall, over the ceiling, and descend to the ham. To prevent them from lodging on the ham, take a smooth and stiff paper, make a hole in the centre of the size of the wire, and slip it on the hook from which the ham is suspended, to form a cap above the bag. When the mouse passes down on the hook to the ham, he will slide off the paper to the floor. and must commence a new journey on the wall. Most respectfully,

DAVID TOMLINSON.

Spring Wheat and Ruta Buga in the Southwest.

Steubenville, (Ohio,) Dec. 5, 1838.

Mr. Buel—While I am writing, I will state to you one or two facts, which may be of some interest to you. The first is, that the ruta baga crop so far as I can learn, failed entirely in this neighborhood, the last season. The second is, that the Italian spring wheat with me was a very poor crop. I sowed something over two bushels of seed, fine looking grain, obtained from Mr. Hathaway, of Rome. It was sown in a field a part of which was in winter wheat. The spring wheat was sown on a rich sandy soil, (Ohio River Bottom,)—straw good—ears formed good size, but much blasted, and much of the grain shrivelled; whole crop 19½ bushels. The winter wheat adjoining 27½ bushels to the acre.

I am afraid that ruta baga and spring wheat will be an uncertain crop here on account of the warmth and dryness of our summers and falls. The last summer was very warm, and the latter part dry. Some seasons, I have no doubt, they will succeed well.

I intend to try beets, as a substitute for turnips.—Beets are as sure a crop as we have. Has the comparative value of a good crop of beets and turnips, in our country, ever been ascertained? If beets will afford as much nutriment as turnips, allowing both to be a good crop, I suspect very much we must adopt beets here. Yours very respectfully,

J. H. HALLOCK.

Experiments in Planting Potatoes.

J. Buel, Esq.—I procured of J. A. Thompson of Catskill, in May last, 9 Rohan potatoes, weighing one pound, gave a friend one of about the average size, planted the eight potatoes, two sets in a hill; the 8 potatoes planted 75 hills, producing 199½ lbs. being at the rate of 221 bushels to the acre: I will here mention that I have allowed 60 lbs. to the bushel, and 5,000 hills to the acre; the hills a little less than 3 feet asunder, each way.

I planted the same number of hills with the common white potato, 2 sets in a hill, which produced 186½ lbs. being at the rate of 207 bushels to the acre, making a difference of 14 bushels to the acre, in round numbers, omitting fractions.

I will here remark, that it took 15 of the common potatoes to plant as many hills as the 8 Rohans planted; making a difference of nearly half in the quantity of seed.

Planted 20 hills of the common potato, with one potato in a hill, which produced 56½ lbs. being at the rate of 235 bushels to the acre.

Planted 20 hills of the common potato, half a potato in each hill, which produced 50½ lbs. being 210 bushels to the acre.

Planted 20 hills of common potatoes, with two sets in a hill, which produced 48 lbs. being 200 bushels to the acre.

Planted 41 hills pink-eyes, with two potatoes in a hill, which produced 99½ lbs. being 202 bushels to the acre.

Planted 41 hills of pink-eyes, with one potato in a hill which produced 66¾ lbs. being 135 bushels to the acre.

Each variety of the above potatoes were as near of a size as I could judge; were all planted on the 26th of May, and all received the same treatment. The tops of the Rohans were green when the frost killed them, about the middle of October, and I am inclined to believe the potatoes had not got their growth, for I should think that there was not any that would weigh over one pound, although the land was in a high state of cultivation.

Should the above experiments with different varieties of potatoes, and different quantities of seed, induce any one of your many subscribers to try experiments, and ascertain the proper quantity of seed, I should consider myself abundantly paid for my trouble. SHERMAN BASSETT.

North-East, Dutchess Co. Nov. 15, 1838.

P. S. The tops of the common potato, with only two sets in a hill, sent out laterals, and shewed to all appearance nearly as many tops as the hills planted with the whole and half potato. S. B.

How to Eat your Potato and to Plant it.

New-Haven, Vt. Nov. 12th, 1838.

Mr. Buel—Sir—As the potato crop the present season has proved, generally, to be very light, perhaps it may be of use, to some at least, both to plant the potato and to eat it. I will just give you a sketch of an experiment I tried on raising potatoes from what we call the seed ends. While fattening my hogs last fall, (whch was done principally on boiled potatoes,) I cut off the seed ends, or I took off from one-fourth to one-third of the potato, according to the shape of it—if long one-fourth is sufficient, if round more is necessary, that the piece taken off may be thick enough to retain moisture sufficient to preserve the chit through the winter. I continued cutting off the seed ends until I got twenty bushels of them, boiling the remainder of the potato for the hogs. When cold weather came on, I buried them on sandy soil, and let them remain until about planting time. I then took them out, planted in hills, each three feet apart, put one piece in a hill, generally, if very small, two. To satisfy myself that they were as good as the whole potato, I planted four rows of the whole potato, of good size, by the side of the seed ends. When I dug them, I found those from the seed ends to equal the other in measure, and to beat them in size. J. L. ELDREDGE.

The method of planting the eyes, and eating the potato, has long been practised in some parts of Europe. In this case the eyes are taken out with a scoop, somewhat resembling a salt spoon, though larger.—*Cond.*

Proper use of Clover Leys—Advantages of Agricultural Periodicals.

Gt. Barrington, Mass. Dec. 12, 1838.

Mr. Editor—I often hear the remark from intelligent men, that such and such soils are not very strong; that they require a great deal of nursing, otherwise are soon exhausted. For my own part I claim but little knowledge of the properties of soils for retaining fertility; but it does seem as though some labored under a very great misapprehension in this matter. Undoubtedly there are some soils so porous—so much exposed to the operations of heat and frost, wind and rain, that they are sooner exhausted of their fertility than those that are more compact and more adhesive. Still let there be a fair representation of facts, and I imagine there is not the difference in the properties of soils, in the same neighborhoods, that some suppose. For instance, in the valley of the Housatonic there are many farms that extend from the river to the adjacent hills, embracing three varieties of soil—the alluvial, which is sandy; the table land, which is a gravel; and the upland, or hilly, which, perhaps, may likewise be termed gravel, but of a different texture from the former, and is stony, and very rough and uneven. The first are natural meadows, and, when annually inundated, very productive of grass and requiring no manure. These are often permitted to remain undisturbed by the plough for years in succession, and, notwithstanding, yield a great burthen of hay: still, according to Professor Hitchcock's analysis, they contain but a very small proportion of *geine*, or vegetable food, less than most other soils in the county; the annual inundations restoring the fertility exhausted by continual cropping. The second variety, the table land, or gravelly, are light, dry, and requiring but little labor and strength of team to cultivate; and, in consequence, are exhausted by a succession of crops, without any regard to judicious rotation. But the rough, stony uplands and hills are more difficult to plough, and are allowed to remain in grass or pasture much longer, and thus recover their exhausted strength—hence they acquire the character of stronger soils. There are lands, in this vicinity, of the same character as those which require so much "nursing," which are, every year, improving in fertility and value, and it is a remarkable fact that these lands which are thus improving, were, a few years since, considered as very inferior and hardly worth the cost of cultivation. The proprietors of these lands, in some instances, have hit upon a course, which, if varied in some respects, appears to me the proper one for such lands. Almost uniformly clover, (with plaster,) is used as an ameliorating or enriching crop; yet the *land* is but little benefitted thereby. For as soon as the clover has attained to such a height that cattle can "get a good bite," while the herbage is tender, and before the stalk becomes in the least indurated, the cattle are turned upon it, and continued there as long as they can get a living. Then comes the turn for colts or sheep, which continue the spoliations till the field is a complete waste, and almost as barren of herbage as the Lybian desert. And now, perhaps, it is time to put in the plough for a winter crop; so the soil is turned over, and if ten bushels of rye, or fifteen or twenty bushels of oats per acre are obtained the proprietor is entirely satisfied.

Now, Sir, it strikes me that this is a mistaken policy. It is true that the stock that takes the first clip fares most daintily, and the land is somewhat benefitted by the manure left upon the surface; but, in the case of a dairy farm, where the cows are often driven a considerable distance from the pasture to the yard, there is a great waste; though many never think of that. But the root of the clover thus sheared of its lungs can never attain to much size; and as hardly a leaf or a stalk is turned under, the soil can be but little benefitted by the green crop; and if it does not degenerate it does not improve.

About three years since, in July, I called on a gentleman in the north part of this town, who makes use of clover "according to my notion" of the right way. He went with me over a considerable portion of his farm, and through fields which he intended to sow with wheat or rye. The soil was a gravel, and, by nature, not the most fertile. In these were horses, swine and cows, up to their eyes in clover in full bloom, and of most luxuriant growth: and I assure you it gave me pleasure of no ordinary degree to witness such a feast—a feast for the eye, for the brute and for the soil. I remarked, "Indeed Mr. T. your stock fare sumptuously." "Yes," was his reply, "and that is the way I manure my fields. When the clover is pretty well rolled down—I don't allow the cattle to *eat it all up*—I go in with my harrow and complete the levelling process by drawing it in the same direction that I plough, that in the latter operation the herbage may be more completely buried." He likewise told me that it was by far the cheapest manure he could use, and that as long as he could produce clover in such abundance he would not draw manure if it were *given* him. This is carrying the principle to its fullest extent—further than I should approve: but it might have been his extravagant manner of showing his entire confidence in the system of cultivation, independent of other means of fertility. Still I very much doubt his willingness to *give away* his yard manure, or to part with it for the market price; and I did not observe that he "*summered*" any. He need not have told me that he obtained large crops—they were splendid—for his oats in adjoining fields proved it. By the way, oats are the crop he most cultivates. The land in this region is often ploughed in the fall, and only harrowed (but that *thoroughly*) in the spring.

These lands, thus managed, I have observed are rapidly increasing in value and productiveness. 'Tis strange—surpassing strange—that some people have such short vision that they can not see the simple causes of their neighbors' thrift! There is no necromancy—no *exclusive* knowledge in the process. And here I would allude to the benefits of agricultural periodicals: those who read, observe and practise are the most enterprising, the most successful and the most valued citizens. 'Tis they who bring wealth into a community; 'tis they who make a community prosperous; and 'tis among such that the advantages of society and education are most amply enjoyed. It is by the perusal of agricultural periodicals that I have acquired what little I possess of taste for agriculture, and, in a great measure, my knowledge of the art; though I have but recently commenced connecting practice with theory.

But I have trespassed far more upon your time and patience than I intended. The hope that the hints I have thrown out may be of service somewhere, has been the inducement to offer them for your consideration, and for publication if deemed worthy of notice. Yours respectfully,

F. WHITING.

American Society for the Diffusion of Useful Knowledge.

Concord, N. H. Nov. 24, 1838.

Hon. J. BUEL—Dear Sir—I am one of your constant readers, and am ready to bear testimony to the great value of the Cultivator to farmers. No farmer should be without a copy of it on his table, and he who hesitates on account of the small price, has yet a lesson to learn in the way of economy. Although I have the care of a large farm, I find some time to read—and a part of my time I devote to public service.

My favorite subjects are AGRICULTURE and EDUCATION, and as a father and citizen I am fully persuaded, that the moral character of our people will not only depend upon the elevation of *Common Schools*, but on the nature of the pursuits which are recommended to our children, after they shall have become free and prepared to act for themselves. I have confidence in the integrity of *Farmers*. I believe that the cultivation of the soil is eminently calculated to inspire the higher sentiments of our nature, and to strengthen and increase the devotional spirit. I would say of the farmer what has been said of the astronomer—*an undevout farmer is mad.*

I believe, dear sir, that our institutions, in the hands of farmers, *are safe*. As much cannot be said of any other profession. I do not speak this in disparagement to other vocations—far from it: I mean simply, that it is the duty of all to lead young men out of large towns to the country, to cultivate that soil which is endowed with an amount of wealth not to be counted, and which is capable of sending forth the tens of thousands of beauties which adorn all external nature, and which, in its diversified productions, sustains the whole world.

But I digress—my first object in writing you was, to notice an article in the Cultivator of this month on "*Common School Libraries.*" Your remarks upon the importance of such libraries are just, and show, in my opinion, that you are able to do much good in exercising you influence in their behalf. Two or three months since, I saw a number of the *Charlestown Aurora*—or rather I believe they call it the *Bunker-Hill Aurora*—in which the editor makes an attack on the "*American Society for the Diffusion of Useful Knowledge.*" It was stated, that the members of that society, or most of them, were elected without their knowledge or consent—and that the whole matter was managed by a few individuals—who cared for nothing but for the profits of the concern. I have no objection to seeing my neighbors doing a good profitable business, "not I,"—but I like to see profession and practice agree. Believing that the plan of school libraries was one fraught with incalculable blessings to the rising generation, I took pains to ascertain the acts of the case, so far as my means of communication would allow me. I found that the Bunker Hill paper was right in its conjectures, and to my pain, I found that it did not tell half the story.

The amount of it is, that the society was planned by Mr. Abbott the secretary, and more as a speculation than any thing else. I found that many of the individuals printed as members, were made members without their knowledge or consent—and some of my friends are of the number. I found that the library of fifty volumes, was made up of the *old volumes* of the "Family Library," and the "Girls' and Boys' Library," printed from the old plates, and the only variation was in the binding. These series were published by Messrs. Harpers, of New-York.

Many of the volumes are excellent works in their way, but most of them are not adapted to the capacities of the young. A particular examination must convince you of the truth of this ascertion. Besides, the committee of the society consented to make a statement, which is little less than downright deception. Under the head of

"EXECUTION OF THE PLAN,"

it is stated, "all the arrangements for carrying the design into execution, are in a state of forwardness, so far as they can be, before the necessary funds are secured. It is estimated that $15,000 are required to manufacture the stereotype plates for 50 volumes," &c.

Now, the very volumes offered, are printed from plates that have been used for several years, and on examination of some of the volumes, you will find that they have *two title pages*—one 1835 or 1836 and another 1838—proving that they were printed two or three years ago!!! Much more might be said, but I am no writer, and must beg that you will excuse the matter for yourself. If publishers wish to get off their old stock, let them say so: but in the name of heaven, let not the friends of education come forward with any plans of deception. As yet New-Hampshire has done but little to advance education—but we have made our best plans to be proposed at the next session of our state government. Old Massachusetts is marching forward boldly and grandly in the great cause. I am quite pleased to hear, that the board of education of that state, have decided to have prepared two series of 50 volumes each, adapted to children of different ages, to be edited by some of the most distinguished men of our country. This is as it ought to be—and I can but say to the disinterested and philanthropic gentlemen of that honorable board *God speed.* I am respectfully yours, S. H.

Hints in Rural Economy.

From a Female Correspondent.

Mr. BUEL—I have just been reading in the Cultivator an inquiry as to the cause of pork shrinking and swelling in the pot, and have a few remarks to offer in reply. My father-in-law, old 'Squire S——, you know, had been a great farmer, and not an unobserving one. He accounted for it in this way, saying, that any man of observation, who fed his own hogs when fattening, would see, that during the increase of the moon, hogs ate, at least one-third more, than in the decrease; that they should be killed, when thriving, *just before full moon*; that in the old of the moon, when they eat less, their vessels would be comparitively empty, which caused the shrinkage in the pot. Whether his philosophy is correct, I am not able to say; but the fact is indisputable as to the different stages of the moon.

I will mention one or two more discoveries, made by myself, which *may* be of use, if you think them worth inserting. During warm weather in dog-days, the best house-keepers, who have but a cow or two, and are obliged to let their cream stand two or three days to collect enough to churn, are often troubled with having their milk or cream separate, and a *whey* settle at the bottom of the vessel, which makes the butter a long time in coming. To correct this evil, take a lump of pearlash as large as a walnut, to six or eight quarts of cream, dissolve it in a pint of cold water; by stirring that into the cream before you put it into the churn, it becomes thick, like cream in the fall, and the butter will come very soon, and be as yellow and hard as in autumn.

In raising silk-worms, I experienced a difficulty which I hear nothing said of, but with me was the greatest I met with; indeed the only one; which was, to find something they *liked* to wind their cocoons on. I tried split sticks, dried twigs of every kind, but they would run from them all, until I got some fine *thrifty* sprouts of the Lombardy poplar, which I suspended over them, the ends of the branches just touching their tray. They immediately began to go up, and as the leaves which were long, began to wilt and curl, they formed little envelopes where they soon began to wind, and when taken down there were several branches where *every* leaf contained a fine *large* cocoon. There were several worms which had commenced spinning on the side of the tray, that left them, and took to the leaves, and not a single one attempted to stray, after the poplars were hung up.

Mode of Improving Peat Bogs.

To JUDGE BUEL—Sir—In a recently published account of the proceedings of the eighth meeting of the British Association for the advancement of science, I find the following notice which may be interesting to some of the numerous readers of the Cultivator.

"Dr. Adams communicated some observations on Peat Bogs, the purport of which, we believe, was, that by burning off the surface and sprinkling the subsoil with sulphuric acid, it would become fertile, and that the surface moss, if removed to the farm-yard, and also sprinkled with sulphuric acid, would become excellent manure. In reply to a question by Prof. Buckland, Dr. Adams said, that in some parts of Ireland it was the custom to burn off the spongy part, sprinkle the acid over the ground, and it became prolific. The moss was also prepared in the farm-yard. Major Portlock said he was aware of the practice, but believed it was done, not only for the purpose of converting the peat into manure, but also to correct some deleterious quality in the peat. Prof. Sedgwick suggested that something should be distinctly ascertained, and communicated to the Association at their next meeting, for the subject was one of importance. The principle, no doubt, was, as Major Portlock had stated it, to destroy bad vegetation by means of poison. It must be recollected, however, that the peat moss was of the utmost value to the poor peasantry of Ireland. Mr. Bates said that he had tried a similar experiment thirty years ago, and in the first year the peice of ground was rendered very prolific. But he tried it the next year and did more mischief than he had in the first instance done good."

It is well known that many of the salts, of which sulphuric acid, or oil of vitriol, forms one of the constituents, are highly useful as manures. May not this in some cases, be owing to the acid which they contain? Would not it be worth while to determine, by a series of experiments, the effect of a *very* dilnte oil of vitriol upon soils of different kinds? B.

The Season in Indiana.

Lake C. H. Ind. Nov. 25th, 1838.

It is worthy of note that the drouth still continues in this section of the country to a distressing degree. The old adage, that, "winter never with rigour sets in, till the swamps with water are fill'd in," is completely falsified. The general character of the weather eight months past has been thus:—April cold and dry; May warm, without a single shower; June hot, with two or three days about the 10th, of excessive rains and scalding hot; July and August constant sunshine and south wind that engendered much sickness; September and October continued dry sunshine, with two or three small showers and as many drizzly days, but not rain enough to prevent a complete exhaustion of springs, ponds, streams and marshes, &c.

November, the first days, warm and pleasant, Sunday night the 4th a snow fell about three inches—the 5th, 6th and 7th misty, and snow melted and came off excessive cold, destroying great quantities of potatoes and turnips; then moderately cold until the middle of the month, when the cold increased, and Sunday the 18th was a most severe cold day, freezing the ponds over, strong enough to bear a man. Since then it has been moderate, but now, the 25th, is again very cold. Cattle have required feeding all the month, and in many places water for stock is very difficult to be had.

This has been a season of suffering in the west.

Yours &c. SOLON ROBINSON.

Barilla Ashes—Drill Barrows.

"The ashes from Barilla, are for the most part stronger than any other, and if the same quantity of them were laid upon land as is commonly done with wood ashes, they would burn and destroy the crop. The ashes from the Barilla is a strong rich manure, and sold at 5*s.* per cart load. This excellent manure was first used by the Flemings with great success. Two loads of these ashes are sufficient for an acre of arable land. They should be laid on the ground when the weather is inclined to be wet, in order that the rain may more easily dissolve and wash them in.

"They are generally made into composts with earth and well fermented dung; in the proportion of two loads of dung, to one of earth; the ashes are then added in the quantity of one load to ten of this mixture, turning over, and incorporating the whole completely. Laid upon grass-land in the end of autumn, this manure produces a deep verdure during the winter, and an early vigorous vegetation in the spring; it is therefore particularly calculated for cold wet pastures. One writer remarks that he never uses it alone on account of its hot burning quality; his method is to make a large heap, two parts of earth to one of dung placed in alternate layers to rot. After this has undergone a strong fermentation, he causes the whole heap to be turned and well mixed, leaving it for some time to mellow, then mix one load of ashes to ten loads of compost, leaving the whole to mellow together.—About the latter end of September he causes about ten loads of this compost to be laid in little heaps on each acre of land intended to be sown with wheat; it is immediately ploughed in with the seed. He has also tried this manure on lighter lands, and found it to answer well, provided it has lain a considerable time in the compost heap to mellow, and lessen its natural heat and causticity; but it agrees best by far with clayey soils, and on such is worthy of being recommended as an excellent dressing for wheat crops. As soap makers use much lime to deprive the alkaline salts of their fixed air, the addition of lime to the ashes is unnecessary."—*Complete Farmer, English Edition.*

The reading of this account of Barilla ashes encouraged me to use them to a considerable extent. They have been tried by several of my neighbors on wheat and rye fallow, with good effects on the grain crop, but more particularly so on the succeeding grass.

In all the *drill-barrows* that I have noticed (except my own and those made after them,) the rollers for pressing in the seeds have been *convex*. Mine are made *concave*, about one inch deep in a breadth of three inches. This in my opinion has the effect to press the earth around the seeds as well as upon the top of them. Besides if heavy rains soon fall, after planting, it has seemed to me better for the water to stand and settle a little off, rather than immediately upon the seeds. ROB. WHITE, Jr.

Shewsbury, N. J. December, 1838.

Farming in North Carolina.

Mocksville, Davie county, N. C. Nov. 19th, 1838.

Judge Buel—Dear Sir—Having lately become a subscriber to the Cultivator, (the first in this county I think,) I am much pleased with the character of the work; it certainly contains a great deal of very useful information for the farmer, such as I felt the want of myself, and I know it is the same case with my neighbors, as I don't know of a single agricultural paper that is taken in this county. The zeal with which agricultural schools are urged, and legislative aid invoked, is certainly commendable, as it appears to me that that course will be the surest way of introducing the new system, as it is very hard to get men advanced in years and fixed habits to change. Our system of farming in this state, is certainly very bad, and I can see it more plainly since I read the Cultivator; (I have the back volumes.) To speak in general terms, we are carrying on the "skinning" system in high perfection. Our farms are mostly divided into "meadow and plough lands." As to permanent pasture land, we have very little; our cattle, sheep and hogs mostly run at large in the woods and old fields in summer. We alternate corn with small grain and small grain with corn; pasture our lands every opportunity, as soon as the crop is off, until we are ready to put another on. Clover is scarcely known here as a field crop, and as to stocking down our plough lands with grass seeds for mowing or pasture, the practice is not known here. Root culture is not attended to, but for the table. I have some doubts whether our climate is not too hot to pursue it to advantage. We go over a great many acres, and get few bushels; feed our stock from stacks in the fields, and "summer yard" what little manure is accidentally made about the barn and stables, and there is very little improvement in the breeds of our stock.—To all of which, however, there are some exceptions, particularly in this county; we have some enterprizing men who are departing from the beaten track, and endeavoring to improve their lands and stock; but so far as I am able to judge, we all lack knowledge as to the "why and the wherefore," or the true science of farming; but from the number of agricultural publications now in circulation, enough may be obtained to better our condition very much, and I feel a hope that proper exertions on the part of those who see and feel the necessity of a change, will bring about a favorable one, even among those who are fixed in the habits of their forefathers. As some evidence of my industry in the cause, enclosed are ten dollars for ten copies of the present volume of the Cultivator, for my neighbors who have consented to take them. And I would say to every subscriber, try and do likewise. Very respectfully, &c.

C. HARBIN.

Inquiry as to the Operation of Gypsum.

Canton, Pa. Dec. 1838.

Permit me to inquire through the columns of your very valuable paper, for a little information on a subject that would seem to merit more attention than it has as yet perhaps received from philosophic investigation; I mean the manner in which gypsum (common plaster) operates on plants to increase their growth. Does the sulphate of lime absorb another portion of oxygen from the atmosphere when on the blade of the plant, and thus leave the nitrogen at liberty to be absorbed by the plant to increase its growth, or is it some other way, or how is it? C. C.

Remark—The first point to be solved is, does the gypsum actually benefit the plant, *while upon its leaves?*—This is a controverted point—and we are rather inclined to sustain the negative. Our opinion is, that gypsum, that is, sulphuric acid in its combined state with the calcareous base, is a necessary element in all plants which it benefits, and that it is imbibed only by the roots of the plants from the soil, and consequently that it only benefits when it enters the soil. We know of no case where a greater portion of oxygen can be combined with sulphur than exists in sulphuric acid.—*Conductor.*

Singular Facts.

Black Locust Grove, near Liberty, Mo. Nov. 6, 1838.

Hon. J. Buel—Sir—In the last number of the Cultivator, I saw the rust on wheat attempted to be accounted for. Now, sir, I will give you my own observations and experience on that subject, for your reflection.

In the year 1835, the army worm, (a brown worm with white stripes,) made its appearance in Mason county, Ky. and was very destructive on some meadows and pastures, and some of us thought they would ruin our wheat, but not so. The season was wet and cool about the time of and during their appearance. The wheat had began to turn a little just below the head; a Major Waddle had two fields of wheat, one of them the worms stripped of all its fodder or blades, and got a few paces into the other, when they disappeared; the field they stripped made an excellent crop, while that portion of the other which they did not touch, was nearly ruined by rust. The fields were both clover sod, consequently the wheat rank and thick bladed. It was remarked that year, that every field in which the worms made their appearance turned off good crops, while most of those that escaped the worm were lost by rust, especially the fields that had been in grass.

Now, sir, you can make what use of this you deem best. I will now give you a description of some singular stocks of corn which made their appearance in mine and one of my neighbor's fields; the variety planted was the large yellow gourd seed. After the crop had generally silked, and the most of it in good roasting ears, you could see several stocks not tasselled, and still growing in all the thriftiness and verdure of June, though unusually dry. One of them (which I now have) is indeed a curiosity, measuring 17½ feet long with five joints undeveloped, (for there were five blades clustered up around the tassel, which had just began to make its appearance,) now allow only six inches to the joint, and it would have measured when grown, 20 feet, and 33 joints, 13 of which had roots from one to three inches long sticking out all around them; the blades were from four to six inches wide; none of the stocks ever had any corn on them. Most respectfully, AUGUSTUS H. F. PAYNE.

EXTRACTS.

Of Grass Lands that ought not to be broken up by the Plough.

There are various sorts of grass lands that ought not to be broken up; as water meadows; salt-marshes; lands apt to be overflowed; lands near large populous towns, where the produce of grass land is always in demand, and consequently dear; and low lying tracts, in the vallies of mountainous countries. But whether rich lands, which have long remained in grass, and continue productive, should ever be converted into tillage, is a question respecting which a great diversity of opinion has been entertained.

The lands considered as best adapted for permanent pasture, are of three kinds; strong tenacious clays, unfit for turnips or barley, which are said to improve more the longer they are kept under a judicious system in grass; soft clayey loams, with a clayey or marly bottom or substratum; and, rich sound deep-soiled land, or vale land, enriched at the expense of the higher grounds, generally lying in a situation favorable with respect to climate.

The advantages of such pasture are represented in the strongest light. It is affirmed that they feed cattle to a greater weight; that they are not so easily scorched by the summer's drought; that the grasses are more nutritive for both sheep and cattle; that milch cows fed upon them give better milk, and more butter and cheese; that the hoofs of all animals pastured on them are much better preserved; that they produce a greater variety of grasses; that when properly laid down they yield a succession of pasture throughout the whole season; that the herbage is sweeter, and more easily digested, and that they return an immense produce at a trifling expense.

To break up lands possessing these advantages, it is said, can only be justified by the most urgent public necessity, and to prevent the horrors of famine. The real value of such lands will appear by considering their rent and produce. The grass lands of Lincolnshire are accounted the best in the kingdom. The rents are various, from £1 15s. to £3 per acre, [equal to $7.77 to $13.32] and the value of the produce per acre from £10 to £15. This produce arises from beef, mutton and wool, and is obtained, with little variation from the nature of the seasons, and at a trifling expense. The stock maintained per acre on the best grazing lands, surpasses what could be fed by any arable produce. It is not at all uncommon to feed at the rate of from six to seven sheep in summer, and about two sheep in winter. The sheep, when put upon the grass, may weigh from 18 to 20 lbs. per quarter, and the increase would be at the rate of 4 lbs. per quarter per sheep. But suppose it only 100 lbs. at 8d. per pound, that would amount to £3 17s. 10d. The wool would be worth about two guineas more, besides the value of the winter keep, and the total may be stated at about £7 per acre, got at little expense. Such lands, it is evident, can not be better employed than in feeding stock.

Grass on tenacious clays and heavy loams, when brought in a succession of years, or perhaps of ages, into a state of great productiveness, can not be ploughed without the risk of great injury, and are more profitable in the production of herbage than they could be in the production of grain.

Grass on deep-soiled sound vale lands, would be productive of corn if ploughed; but would be probably injured by cultivation; from their texture being altered and rendered unduly loose and open by tillage; from the native plants being more or less destroyed or enfeebled; and from the great decomposition and waste of the principles of fertility resident in the soil.

The extent of these descriptions of land, however, is not so great, that the advantages of breaking them up could probably ever be a national object, or worth the risk of injuring their future productiveness in grass. But there are pasture lands of the inferior sort, which are apt to be confounded with those already described, and respecting the propriety of occasionally appropriating them to arable culture, there can hardly be a doubt. Such lands do not depend upon their intrinsic fertility, but upon annual supplies of manure derived from the arable land in their neighborhood.—*Loudon.*

OF THE ADVANTAGES AND DISADVANTAGES OF BREAKING UP GRASS LANDS.

The advantages of breaking up grass lands, not of the richest quality, will appear by a comparison of their product with that of arable land. From the inquiry of the Board of Agriculture, it appears that an acre of clover, tares, rape, potatoes, turnips, kale or cabbages, will furnish at least thrice as much food as the same acre would have done had it remained in pasture of a medium quality; and consequently, that the same extent of land would maintain at least as much stock as when in grass, besides producing every other year a valuable crop of corn; and this, independently of the value of the straw, which, whether consumed as litter, or as food for cattle, will add considerably to the stock of manure. It follows, that with the exception of rich pastures, arable land is, on an average, superior to grass land with respect to furnishing articles of human food, in the proportion of three to one; and consequently every piece of land, unnecessarily kept in grass, the produce of which will only maintain one person, is depriving the community of food, capable of maintaining two additional members.

The principal objection to the conversion of old turf into arable land, arises from an alledged infirmity in the new when compared to the old herbage; a complaint which probably originates either from the improper choice of seeds, or from giving them in too small quantities, thus favoring the growth of weeds. A gentleman who had a large farm, principally consisting of strong rich clay, (every field of which, with hardly an exception, he occasionally broke up,) was accustomed to lay them down with a crop of barley, and to sow 14 lbs. of white clover, a peck of ribbon grass and three quarters of hay seeds the acre. By this liberal allowance of seed, he always secured a thick crop of herbage the first year, which differed from old pasture only in being more luxuriant. Such lands, therefore, under judicious management, will rarely be injured by the plough. When laid down from tillage into grass, they may not carry for the first year or two, such heavy cattle as they would afterwards, but they will support more in number, though of a smaller size, and bring a greater weight of butcher's meat to market. It is often desirable to keep one or two moderate sized enclosures, of from ten to twenty acres, according to the size of the farm, in perennial pasture, for the feeding of cattle and sheep, and as a resort for the stock to go to in case of a severe spring, or summer drought; but the retaining of any considerable portion of a farm in old turf, or permanent pasture, unless of the richest quality, is, in general, injurious to the landlord, the tenant, and the public. The value of any estate, where the system of permanent pasture has been carried to an unreasonable extent, may be easily and greatly augmented by appropriating the manure of the farm to turnips and other green crops, and by the adoption of the convertible system of husbandry.

There are many cases where this doctrine, though in general to be recommended, ought not to be carried to its full extent. In Norfolk, where the land is commonly light, and where sheep are both bred and fed upon the same farm, a proportion of permanent pasture is essential.—*Loudon.*

[*From the (London) Farmers' Magazine.*]

Essay upon the Breeding of Live Stock, and on the Comparative Influence of the Male and Female Parents in Impressing the Offspring.

By John Boswell, Esq. of Balmuto and Kingcausie.

[In the year 1825, the Highland Society proposed as the subject of prize essays, the solution of the question, "Whether the breed of live stock connected with agriculture be susceptible of the greatest improvement, from the qualities conspicuous in the male, or from those conspicuous in the female parent?" Four essays were received, to which premiums were awarded. Those that were written by J. Boswell, Esq. of Balmuto, and by the late Rev. Mr. Berry, were considered the best. As many persons may not have seen these essays, which contain information valuable to all those who study the principles of breeding, we have given the essay by Mr. Boswell, which will be found interesting to every one concerned in the breeding of stock.]

Te quoque, magna Pales, et te memorande canemus
Pastor ab Amphryso.—VIRGIL.

The very great utility of a clear knowledge as to the best method of improving the breed of live stock, connected with agriculture, must be apparent to all; and as one heartily devoted to agriculture in all its branches, I cannot help congratulating the farmer on the information he is likely to receive on so important a subject through the endeavors of the Highland Society. As this subject has long (I may say from my earliest youth) been one in which I have taken the greatest delight, and on which I have bestowed much thought, besides having had very great opportunies of seeing experimentally the changes produced on stock from crossing, and other circumstances, I trust I may be justified from any charge of self-assurance, in offering a few facts in as short and succinct a manner as the nature of the subject and my own experience as an author, will permit, being well aware that facility of communicating knowledge is almost as necessary as experience in order to shine as an essayest.

Hoping, then, for candor in weighing the various facts I shall bring forward, and deprecating criticism as to the manner in which they are brought together (being a mere farmer, and no author,) I shall lay before the society such as occur to my recollection.

The society has put the question, "Whether the breed of live stock, connected with agriculture, be susceptible of the greatest improvement from the qualities conspicuous in the male, or those conspicuous in the female parent?"

The first thing to be done is to answer the query put by the society, and, having done so, to prove by facts that the answer given is the proper one. I have not the slightest doubt in my own mind that the answer ought to be "the male."* But before proceeding to prove this, I would warn all who may turn their thoughts to the subject, that it must be an enlarged view of this or any other matter connected with nature, which alone can give a true knowledge as to the point at issue. The fable of the fly on the building ought never to be forgotten; and the stock of a country or a district can only lead to the true result as to any particular breed. I would also remark, that, before the breed of a country can be improved, much more must be looked to than the answer to the question put by the Highland Society, such as crossing, selection of both parents, attention to pedigree, and lastly, food and care of the offspring.

I shall endeavor to explain my ideas on these heads; and then, having given some proofs as to the male being the parent having the greatest influence on the progeny, I shall endeavor to prove, that, whether I be right or wrong, still the male is the parent which we must look to, as best calculated to improve the breed of any country.

The art of improving the breeds of different animals was almost, if not altogether, unkown to the ancients. Virgil, who seems to have paid some attention to it, has stated things which experience has since taught us are erroneous. In this part of the island it has yet to be introduced, and we are forced to go to England for authorities on the subject. A few of our countrymen have indeed, of late years, come forth, as it were—and in this number we must rank Mr. Stirling of Keir, Mr. Robinson of Ladykirk, and Mr. Rennie junior, of Phantassie, who having seen the value of improved stock, and of attending to pedigree, or breeding from parents, "de bonne race," as the French well express it: but with the exception of these, and some few others, we are yet miserably behind. The very term "a great breeder," signifies two totally different things in England and Scotland: in the former, it means a judge, and one who delights in improved breeds; in the latter, a person who has a great number of (commonly speaking) half-starved calves or miserable lambs, and in whose stock we may see every variety of shape and colour. We have only to look to any drove of Scotch beasts on the road, to satisfy ourselves of the want of all care in our breeders. The cattle are of all different shapes, some with horns, and some without; and if you inquire of the owner, you will find that he purchased some of those dissimilar beasts, not from different breeders, not in different districts, but from the *same farmer*—and his own cattle in one fair. How and why is this? Because our Scotch farmer is ignorant of his own trade! They all know and admit, that "breeding-in-and-in," or "oure sib,"* as they call it, is bad; they know the value of crossing, and they wish to cross, and do so; but it is without judgment. A farmer no sooner hears that his neighbor has got a good bull, most likely from a distance, than he says, "I must have a breed of him," as he calls the first offspring between his own cow and this bull; and the cow is put to this animal, although the one should be Galloway, and the other a short-horn: thus his calves are so unlike, that, when his stock is carried to market, they present that tag-rag appearance which I have mentioned before, and which the best dealers are now rectifying to themselves for their own profit, by carefully classing them into horned or polled, &c. and thereby raising the value of the *self-same animal* from 10s. to 20s. a-head in the markets of the south, by giving them that uniformity which the breeder ought to have done.

When I would praise the advantage of crossing, I would have it then to be clearly understood, that it is only to bring together animals, *not nearly related*, but always of the same breed, never attempting to breed from a race-horse and a cart-mare, or *vice versa*. Such a thing may do well enough for once to get an insulated animal, but will end in vexation, if attempted to be prolonged into a line.

We know that crossing, even however ill-done, is productive of good. It uniformly frees an animal from many of the weaknesses and maladies to which those bred *in and in* are subject, and almost invariably procures a much larger animal than either of the parents. That enlightened gentleman and accurate observer of everything connected with animals, Sir John Sebright, whom I shall frequently have occasion to quote, says, "I have tried many experiments by breeding in and in, upon dogs, fowls, and pigeons; the dogs become, from strong spaniels, weak and diminutive lap dogs; the fowls become long in the legs, small in the body, and bad breeders."

Mr. Bakewell, that illustrious breeder, denied this; and was the first, I believe, who said that a cross was unnecessary, that animals would not degenerate by being bred in-and-in, &c. but let us look to the result. His admirable breed of sheep are fast going to decay; they have even now become small, and are, to a great degree, what is termed soft sheep, *i. e.* liable to many complaints. The malady to which sheep are most subject, decay of the liver, attacks them very frequently, and altogether, they make good the old adage, of soon ripe soon rotten; more quickly coming to maturity than any animal we know, and as speedily going to decay. I have seen the wonderful effects produced by crossing, in renovating this breed, having, for several years, been in the habit of buying in a couple of scores of Highland ewes, and putting them to a pure Bakewell ram. They were always poor small things, worth not more than from 3s. or 3s. 6d. to 6s. each; yet these ewes produced lambs which astonished every one who saw them, and which sold to the butcher at 10s. 6d. a head. As to the appearance of those lambs I shall have occasion to speak in another place. Did the limits of an essay permit I could bring many more instances to prove this my first position, that it is absolutely necessary to shun breeding in-and-in; but, as I must hasten to the main question, I shall only remark, that the benefit of crossing extends even to the vegetable creation, a fact which is now pretty well known, and may easily be proved in the cultivation of various plants. In none is it more conspicuous than in the turnip. It is now some years since it occurred to Mr. Gordon, farmer, at Orrock, near Aberdeen, that, as the brassica tribe easily breed together, as it were, it might be possible to cross the ruta baga with some of the other sorts. He did so, and found that the crosses which he had got were far superior in size to either of the sorts he put together, and also very hardy as to standing frost. I know another small farmer, who, after a very severe winter, tried putting red-top and Norfolk white turnips together, which are both very easily destroyed by frost. From these he procured a cross which stood the frost uncommonly well, and grew to a large size on poor soil. But to proceed to selection.

In this term I would include, not only the choice of two well-made parents, but the guarding carefully that the same defects, however slight, did not occur in both; for it is a fact, stated by Sir John Sebright, and which has uniformly been proved by my own experience, that it is not always by putting the best male to the best female that the best produce will be obtained; for should they both have a *tendency* to the same defect, although, in ever so slight a degree, it will, in general, preponderate so much in the produce as to render it of little value.

I found the truth of this in a very striking instance about ten years ago. Having a cart mare of a very superior description (and which has twice gained premiums at agricultural shows) I looked out for a first-rate stallion, intending to breed from her. At that time a horse, belonging to Mr. Buchan, near Crief, called Blaize, was carrying all before him.* I thought I could not do better than breed from this horse, not taking into consideration that both sire and dam were of the same make, viz. rather long in the leg; the consequence was, that I had a very fine foal to be sure, but with longer legs than either of the parents. The next time I had learned to correct my former error, and bred from a short-legged horse from Cheshire, which was a great cross to my Scotch mare, and also differed from her in shape. The effect was immediately visible. I had a mare which it would be difficult to produce an equal to, the leg not being so short as the father's, although the whole appearance much resembled him, nor quite so long as that of the dam. Another very striking instance of this came under my notice a few years ago. A friend of mine (General Burnett) had a mare what is called three parts bred, certainly a very fine mare to breed from, but a very tall mare, with long legs, which was put to the longest legged thorough-bred horse I ever saw (Bethlem Gober, the property of lord Aboyne.) The produce quite resembled the sire, and, at two years old, had reached the height of seventeen hands; but he was a monster, all legs, and very soon proved this by knuckling over at the pastern joint, till at last he could not walk; and at three years old was shot. The same mare was next covered by Hospitality, a horse as remarkable for being short in the leg, and what is termed short-jointed. The produce was now a low sturdy animal, greatly resembling the sire, and short in the leg;† thus in both instances proving, not only what I mention to be requisite, viz. judicious selection of the two parents in reference to the make of each, but also the great power of the male to change the whole shape and appearance of the produce.

I proceed next to mention the necessity of attending to *pedigree*.

If we look, with an attentive eye, to Nature and to her productions, we shall see that they are not only beautiful, but that all she does is uniform. Thus, every wild animal is of the same colour, and nearly of the same shape; every flower resembles another; but man must always be assisting nature, as he terms it. Then we see flowers grow many coloured, or perhaps double; beasts and birds change their shape, colour aud nature, so that we see such varieties as were altogether unlooked for.

The only way we can guard against this, is to know well what the *ancestors* of the animals we breed from were. Without this, our produce will every now and then be breaking through the general rules, and annoying us with odd-looking animals, deriving their shape from some of their ancestors, perhaps, two or three generations back.

Few words will suffice as to food, and care of the offspring. Nothing can be more absurd than to suppose that animals can improve if neglected in their youth.

We have the strongest proof of this in the starved animals brought from the West Highlands, which crowd our fairs, particularly those of Falkirk and Hallow Fair of Edinburgh. Let a farmer buy some of those when "year olds," and place them (ere they be at the age of maturity) in a more genial climate, and on good keep. See what beautiful cattle they become. Let him buy two-year olds, and the improvement will be less—at three, and they will only lay on fat, without reaching large size. On the other hand, let him purchase half a dozen starved looking small cows, from the same part of the country, in calf (provided they shall be of the pure breed;) let him take those cows home, and suffer the produce to suckle the dam while she feeds in good pasture. In winter, let them be well fed, and lie in a shed or house tolerably warm. What sort of beast has he now? Let the reader call to mind the West Highlanders shown at Queensbury House for the two last years, every one of which weighed from 70 to 80 stone, and the question is answered. I was once taken to see the cattle of the late General Simpson, who had the purest short-horn blood, a breed which, without all doubt, are capable of being made the fattest. These cattle were in such a state as I have never seen any other animals. They were all bone and skin, their eyes looked unhealthy; and altogether, from starvation, and I rather think from want of crossing, they appeared like so many invalids in the last stage of consumption. To improve any breed, or keep it up when improved, stock must be well fed from the time they are produced. "Sir," said a great breeder to me once, "to produce a fine animal, you must feed him from the starting-post." Warmth, that is a temperate climate, appears to be perfectly necessary to the improvement of all animals, and particularly so *in live stock connected with agriculture;* for, if we look at these animals, or even the human species, whether in the frigid or in the torrid zone, we find them dwindling into Liliputian size.

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* It often happens that an author who has distinctly espoused one side in a question so difficult as this, feels disposed, after the lapse of two or three years, to modify, or even alter, his opinions; but it is consistent with our knowledge, that the accurate observations and farther experience of two years have only strengthened the author of this essay in the assertions which it contains.—*Editor Farmers' Magazine.*

* Nearly related.

* This horse generally cleared £150 per annum to his owner, gaining every prize at all the agricultural shows for many years; frequently being selected as the best, when 25 to 30 of the finest stallions from Clydesdale and Fife were shewn in the same field; and was, without all doubt, a most superb horse.

† In the Philosophical Transactions for 1809, in a paper by Mr. Knight, on the same subject as this essay, the author, in contending for the impropriety of propagating from large in preference to small females, brings forward a very interesting remark upon length of leg in the offspring. "Nature," says he, "has given to the offspring of many animals (those of the sheep, the cow, and the mare, afford familiar examples) the power, at an early age to accompany their parents in flight; and legs of such animals are nearly of the same length at the birth as when they have attained their perfect growth." The natural result from which would be, that the offspring should resemble their mother in length of leg, and consequently, while there was an excess in this respect on her part, care ought to be taken to breed from a male, calculated by the comparative shortness of his legs, or the great depth of his chest and shoulders, either to correct the tendency or impart a body of proportional power.—*Ed. Mag.*

I come now to the grand point; to prove which, I conceive it will be necessary to fix upon some marks whereby a change, and that change an improvement, may be traced. The one, which in my mind is by far the strongest, is colour; next, I would place smallness of the head and ears; in the horse, ox, and sheep, prominence of the eye; in all wideness of the chest, tendency to fatten, early maturity, tranquillity, and love to man, or rather dependance on man.

Let us now proceed regularly, and commence with the horse, as the most noble as well as the most useful animal. The influence that the male has on this class of animals is the most striking. Every one must recollect how, in blood-horses, the colour of the sire goes throughout the progeny, and, in a dealer's stable, every grey is a Delphini or a Sir Harry Dinsdale, every black a Sorcerer or a Thunderbolt, and so on. While you hear people constantly remark that such a horse can be nothing but a get of such a one—what is this but to say, the colour and appearance of the male goes throughout the produce? In work-horses it is the same. A very strong instance of this was visible some years ago in the county of Kincardine. Here there was not, I suppose, one single mare to be found of a chesnut colour, when Mr. Barclay, of Ury, brought down a Suffolk punch, of a bright red chesnut colour, and in a few years plenty of chesnuts were to be found. A few years afterwards, a dun or slate-coloured stallion gained the prize from the Kincardine Agricultural Association; when he came into the country, dun horses were very rare, now they are to be found everywhere. In the county of Fife, some years ago, a horse called Sportsman, found his way from Yorkshire, and covered a vast number of mares, particularly those belonging to the farmers, which at that time were either black or grey. This horse was a rich dark brown, with a tanned muzzle, and he instantly made a very large proportion of horses of that favorite colour; and what is still more remarkable, he was himself one of the best trotters ever seen, and his progeny were so also, so that the farmers talking of a good trotter, would say, "O yes, he is a Sportsman." Sir Robert Dick, a few years ago, purchased a work-mare, which I happened to know the breed of for several generations. She was black, very large, and coarse; eyes small, head and ears large, and very rough at the heels. This mare was put to Caleb Quotem, a beautiful bay horse, with much of what dealers call gaiety. I saw the produce; it was bright bay, with no hair at the heels, the eyes large, the head and ears small, and altogether the produce had put on the appearance of a blood-horse. Here the dam was of the cart breed. Let us look the other way: Mr. George Harley Drummond had two or three thorough-bred mares, which had thrown foals, small in size and deficient in bone to a blood-horse. He put them to a cart-horse, they instantly produced stout boned colts, with much hair at heel, and altogether like the sire. In the year 1821, I purchased a very neat small mare for a relation of mine, which had a foal at her foot by a cart-horse; this foal turned out to all intents a very good cart-horse. The mare was afterwards put for three seasons to Kutuzof, and the foals were in all appearance like blood-horses.

The late General Ayton, of Inchdairnie, a great many years ago, sent down a horse from England to his property in Fife, which covered the country mares in his vicinity (at that time, I am informed, very poor beasts,) and produced such wonderful effects on the breed in that neighborhood, as may be seen this very day; the horses in that quarter being the best in the country, and particularly remarkable for width of chest, docility in work, and altogether fine animals. Last year (1824) I chanced to see the tenantry of a gentleman, who has the district which lies along the banks of the river Avon, in Aberdeenshire, driving his winter store of coals. The horses struck me as being far above the common run of those in the Highland glens, and in fact first rate, compared with what ten years before I had seen in the carts of the self-same farmers. I was at first somewhat at a loss to find out how so great a change had taken place, as I knew that the land in that part of the county was all held by small farmers, who neither could nor would purchase large high priced mares to breed from, far less those horses then in my view. I soon found, on investigating the matter, that the whole change had been brought about by good stallions; and in this way: The different agricultural associations in the north have, for many years, been in the practice of offering large premiums for stallions, which brought troops of fine horses from the west of Scotland. After the best had been picked out for the prize, the rest were set adrift; and these horses, dispersed over the country, of late years, from the badness of the times and an overstock of them, covered at any price the farmer pleased to offer. Thus good horses wandered into their glen, to their very doors, and at such a price as these men could give; the result was what I have stated.

In the horse, then, it seems clear that it is to the *male* we must look for improvement. Not that I would be supposed to assert that the whole improvement can be brought about *at once* by the male; that, if a man were to put a Shetland pony to Eclipse—such a one, for example, as "The Great Unknown" has been pleased to mount Mr. Yellowlees on—were the little beast, from which the agriculturists' legs dangled, put, I say, to Eclipse, no one would hope to procure a racer; nor can we think that a Lincolnshire black, and a Highland garron, taken out of a peat cart, will produce an animal fit for a London dray; but by repetition the end will be produced. I once put the question of the Highland Society to a very able man who fills a chair in one of our universities, and who is an observer of nature of no ordinary cast, and who also, from his profession, (a medical man,) may be supposed to be a good judge. His answer instantly was, "The male, without all doubt, but (added he) you must have a female capable of developing the good properties of the male, otherwise a good male will be thrown away."

(*Remainder in our next.*)

On the best means of permanently improving the class of Clay Soils.

[*From the Farmers' Magazine.*]

There is no doubt but thin clay soils could be easily improved, and perhaps in a much greater degree than the sandy soils have been during the last 40 years; and the surface may yet be seen clothed with a rich herbage which shall vie with that of the other soils in producing the best cheese, beef, and mutton.

Clay soils, will produce pasture just in proportion to the quantity of decaying active vegetable matter in their composition. If this be abundant, the crop will be rich and luxuriant; and the decaying fibrous roots will form a dry, porous soil, giving a sufficient depth for the rain to sink through the subsoil, where it will run off by the furrow drains. If there be little vegetable matter in the soil, the moisture will make the earthy matter in it collapse and adhere together; and it will form a cold, wet, sterile clay, producing little else but carnation grass of little value.

Pasture on clay soils should never be converted into arable culture, unless the application of skill and capital will not only repay the additional expense of the culture, but also tend to increase the permanent productiveness of the soil. Without a proper application of skill, capital and industry on such land, the converting it into arable culture will only tend to diminish the produce, if the free produce under the artificial culture fall short of that which nature itself afforded.

Much may be learned from the practice of market gardeners, in the neighborhood of London and elsewhere. They have two methods of trenching their land When the soil and subsoil are good to a great depth, they turn the surface under and fetch up a fresh spit from below to constitute the surface for so many years; but when the subsoil is poor or strong clay, they bastardtrench it, as they call it; that is, they throw the surface spit forward, always keeping it uppermost, and dig the subsoil by turning it over in the trench without moving it from its place.

Their object in thus trenching their clay soils is to get depth for the rain-water to decend, and to give a greater depth of moisture to the roots of plants in dry weather, and for the superabundant moisture in wet weather to decend below the roots of plants, and run off to the drain.

If we perfectly drain thin clay soil by furrow draining, and deepen the subsoil by trenching with the spade or the subsoil plough, making it pervious to the moisture which falls on it, that it may immediately sink to a depth below the reach of the roots of the plants, the cultivated surface will be dry; and if we reduce the tenacity of the soil by applying to it those light or sandy substances, which, when well incorporated with it, will make and keep the soil permanently porous and friable, then the land which before produced only a poor crop of carnation grass, or if arable, of oats, will now produce an abundant crop of wheat, beans, oats, clover, and even turnips; and if properly laid down, and full of manure, will form a rich pasturage for any kind of stock.

When clay soils have dry pervious subsoils, they become darker in colour from the repeated application of manures, and under a proper system of cultivation they lose their adhesiveness, and become a loamy soil, producing the most fruitful crops of wheat, beans, clover, vetches, cabbage, and naturally produce the best and richest herbage for dairy cows. The milk from cows fed on such pasture produces more cheese and butter than the milk of cows fed on a sandy soil, and of a better quality.

Any thing which will produce permanent friability in clay soils, such as sand, lime, burnt clay, loose light vegetable matter, or long unfermented manure, will alter its texture and improve its quality.

When tenacious soils are completely subsoil drained, and a system of deep or subsoil ploughing is adopted, every time when the land is in summer fallow, if the soil be deepened and the subsoil made more porous; and if never ploughed when too wet, and a full portion of vegetable manure be given to the soil, and well mixed with it, a mechanical effect will be produced, which will change the nature and texture of the soil, and give to it that friability which is so essential in all productive soils. The rain that falls on it will now percolate through it to the depth of the new formed subsoil, and thence to the furrow drains.

The soil now receives the circulation of the air, which is carried on by the rains filling up the interstices which the air previously occupied, and the complete drainage draws off all the superabundant water as it falls. By this operation the earth again receives a fresh supply of air from the atmosphere, which promotes a chemical as well as mechanical action in the soil, and hastens the decomposition of the air and water, as well as the vegetable and animal manure it contains, and thus a liberal supply of the nourishment necessary for the growth of plants is obtained.

Soil that is principally composed of calcareous matter, in minute divisions, becomes a most tenacious stubborn soil; and, under certain circumstances, as sterile as the most worthless clay. Calcareous matter, therefore, although reckoned a valuable constituent in a soil, becomes an evil when it composes the greater part of it.

Calcareous clay, when thoroughly dried, falls to pieces like burnt lime, whenever it is again wetted.—Every poor clay soil may be much improved by paring and burning the surface, after it has been completely drained.

This is the first step that ought to be taken towards ameliorating such a soil, and the more clayey the soil is, the deeper ought the soil to be burnt. When the burnt surface is mixed with the soil to the depth of the furrow, it acts as a coarse sand, and makes it more friable and porous, by converting the matter, which was before damp and adhesive, into a dry, friable, warm soil, permanently improved and capable of producing luxuriant crops of every kind.

If we can get depth and friability to the subsoil of strong adhesive clay we thereby prevent stagnant water from injuring the roots, and give to the plants the liberty of sending these roots to a greater depth in search of nourishment.

In all rich soils, there is vegetable matter in every state of decay, and the greater this portion of decaying vegetable matter is in strong clay soils, the greater is its productive powers. Besides this, decomposing vegetable matter will tend to keep strong clay land loose, friable, and porous.

Cash Book.

[*From the Farmers' Cabinet.*]

A little care prevents much cost and trouble.

It is a very easy and simple affair to keep a cash book, and yet how very few farmers do it. Any person who can write can keep a book of this description, and many advantages accrue from it. On one page of your cash book set down every thing sold, and the sum received for it. On the other side put down all your outgoings or expenditures; and when it is begun, if the amount of cash on hand is put at the top of the column of receipts, at any time by adding up the two pages, and taking the difference of them, will show the balance of cash you should have in hand; and if there is any disagreement, there must be some error of entry, or there must be "a hole in the purse." A book of this kind accurately kept, would show at the end of the year, or at any other time, the amount of wheat, corn, potatoes, butter, poultry, eggs, or any other articles sold and the sum received for them. It would do more, it would show all your outlayings for stock, seeds, implements of husbandry, repairs, clothing, tea, coffee, sugar, salt, &c. &c. and also for wages, and would present a very curious and interesting document for family examination at the end of a twelve month; and if there should be found to be "a hole in the purse," it would indicate the spot where repairs were most necessary.

A farmer keeping a book of entries of this description, would always know his latitude and longitude, as a captain of a ship does when on the ocean, and he would be less likely to run on to shoals, or get among the *breakers*. As it is not very usual among farmers to take recepts when money is paid on ordinary occasions, and not in very large sums, and as the memories of many people are very frail, such a book of entries as has been referred to, would be of essential service as a record of payment when no other evidence of it existed, and might prevent litigation and trouble in case of the decease of one or both of the parties. On the death of the head of a family who has kept no regular records of his receipts and payments, much difficulty and sometimes heavy losses have occurred, besides a great deal of trouble and anxiety to those who were obliged to grope in the dark in settling his estate.

It is well known that very many worthy intelligent farmers are careful to preserve an accurate statement of all their worldly concerns, duly arranged in proper form, and such rarely find "a hole in the purse."

But there are many others who would at once plead guilty, or, if they did not, could readily be convicted on responsible testimony, of totally neglecting to keep any intelligible series of entries in a book, of their ingoings and outgoings, and these are the persons who often complain of "a hole in the purse," and yet they are not careful to have it repaired in due season.

ABRAHAM.

System of Culture.

In every system, it is absolutely necessary to attend to the equal distribution of labor throughout the year; so that the work which the system requires to be performed in each month may be easily accomplished by the means the farmer is provided with. The different operations should never be allowed to encroach on each other. If these are properly adjusted, the business of each week will be confined to the time in which it is required to be performed.

The best mode of cultivating arable land is that which produces the greatest quantity of green food for sheep and other beasts, and which they should eat on the ground.

This prepares the land for a crop of grain or corn for the use of man. The alternate system of grain and green food for stock, is that which never should be deviated from.

It produces not only a much greater return of corn and other food for the use of man, but also a much greater quantity of green food and straw which sheep and other animals consume, and gives at the same time a proportionally greater return of vegetable and animal manure. By this means the farmer has not only the power of reproducing the same quantity of grain, &c. but of increasing the capability of the soil to produce an additional quantity. The production of turnips and green food for sheep, gives perhaps ten times the quantity of manure, that the old system did. Increased productiveness given to the soil is genuine agricultural improvement.

Crops of corn, as food for man, alternating with crops of vegetables, as food for sheep or other stock, is the foundation of all good husbandry.

Such a mode of culture should be adopted as will not only increase the quantity of manure, but hasten its decomposition, and thus increase the productiveness of the soil by raising an increased quantity of food for sheep to be again consumed on the land that produced it; and when the soil is thin, poor, light sand, this may be repeated year after year, on the same land, whether it be arable or pasture. The consumption of the produce by sheep on the land is the best, the cheapest, and the most effectual means of improving pasture, as well as arable land.

Vetches, rye, clover, and buckwheat, are sometimes grown on land and ploughed in as a manure; but if these crops were converted into a manure by passing them through the stomach of sheep, the effects produced would not only be much quicker, but of much greater value.

When the farmer is convinced that his corn crops are productive just in proportion to the quantity of sheep he keeps on his arable land; and when he is experienced in the best mode of cultivating the varieties of grain and vegetables which are best adapted to the soil of his farm, he may then calculate with certainty on the result of his operations.

As the weeds which grow on the land are the natural plants of the soil, they much sooner feel the influence of the weather, the manure, and the culture, than the artificial crops we cultivate, and consequently take the lead of the crop; we ought therefore to eradicate every weed out of the land, and when once we get it clean, to keep it so.

We should never take a crop of corn, if by taking it, we give an opportunity for the weeds to spring up in the soil; for this would be only sowing the seeds of future labor and expense, as well as incur loss to us in preventing their increase. The repetition of corn crops in succession tends to increase the stock of weeds in the soil, without giving to the farmer either the time or the power to diminish them, and their growth necessarily retards or prevents the growth of the crop we cultivate; but the production of green crops, such as turnips, potatoes, vetches, and clover, gives to the farmer time and power to clean out any weeds that may be in the soil; and the growth of these crops prepares the land for the production of a crop of corn.

It should be remembered, however, that whenever the weeds have got ahead of us, we must then have recourse to summer fallow to get rid of them. Whatever gives nourishment and life to weeds would, if no weeds were in the ground, give life and nourishment to cultivated plants; and that land which has a dry porous subsoil is most productive, and much easier cultivated than that which has a retentive subsoil; therefore if the land have not a porous dry subsoil naturally, one should be given to it artificially, and this the farmer should do whatever be the expense,—it will repay him with compound interest.

Different modes of culture must be adopted on different soils; for it is evident that the same cause will have very different effects upon soils of a different nature.

The effect produced by rain on clay soils has been shown to be very different from the effect which it produces on sandy soils; and the effect of drought on a dry sandy soil is equally different from the effect which it has on a wet clay soil.

Frost expands the water in the soil about one-twelfth; hence during a thaw, the water is contracted to its original bulk, leaving the soil in a loose open state, and well prepared to receive the influence of the atmosphere. Sandy soils are easily penetrated by water and air; but clay, unless well pulverized, is impenetrable to either.

The best soil for any kind of plant is that in which it naturally grows with most luxuriance; and a quicker repetition of such plants may be made than of those to which the soil is not naturally so well adapted.

Clay soils having a proper mixture of sand and lime will produce wheat, beans, clover, and cabbages, in the greatest perfection.

Light sandy loam is best fitted for the production of barley, rye, peas, turnips, potatoes, vetches, &c.

Every different soil requires a peculiar management, and a different course of cropping.

Light sand and gravel are early soils, and should be early planted in the spring, that their growth may shut out the influence of the sun from the ground at an early period of the summer.

All succulent plants, and those that are not allowed to ripen their seed; such as clover, rye grass, vetches, turnips, cabbages, carrots, potatoes, &c. are said to receive a great part of their nourishment from the atmosphere; and therefore do less injury to the land than wheat, barley, rye, oats, peas, beans, or any of the succulent plants when they are allowed to bring their seeds to perfection.

Vetches, peas, and beans, seem only to injure the land they grow on when they are permitted to perfect their seed; for if they grow so luxuriantly as to produce nothing but straw, which is sometimes the case, or if, like vetches they be cut green, their growth does not injure the land but is an advantage to it; we may therefore presume that it is only in ripening the seed that the soil is injured by such crops.

When clover, vetches, turnips, cabbages, &c. are produced and consumed on the land without perfecting their seed, the soil is not at all injured by their production, and they may be repeated and consumed every year not only without the least injury being sustained by the soil, but an actual yearly increase is thereby made to its productive powers; if any one of these crops, however, be allowed to perfect its seed for two consecutive years on the same soil, the land would be injured for many years to come. The inference to be drawn from this fact is, that the soil is injured more in producing the seed, than in producing the stem and foliage, or leaves. The foliage may receive more of its nourishment from the air than the seeds; or, the seeds may receive more of their nourishment from the soil than the foliage.

The injury that land sustains from converting grass into hay is, that the production of seed either of grass or of corn is that which injures the land more than the most luxuriant growth of leaves or straw.

Pasture prevents the production of seeds and encourages the growth of the roots, which are thus promoted, and are constantly pushing out in search of nourishment all the year round; so that there is no period when they lie dormant, as in the case when seed is produced.

All perennial plants that produce seed lie dormant for several months after they have produced it; and annual plants, if prevented from yielding their seed, either by mowing or pasturing, become biennial or even triennial.

There is a great loss sustained by land from the keeping of corn in the straw for a year or two; as the farmer is thereby prevented from keeping stock to consume the straw, and of course the land sustains the loss of manure from its non-consumption.

The adoption of the best rotation of crops will not secure, at all times and under all circumstances, the improved result: no! the rotation must be accompanied with the most sedulous attention to the minute details of all the operations, and these must be executed at the proper time to insure the result required.—*Morton on Soils.*

Young Men's Department.

Hints to Young Farmers.—No. XII.

SOCIAL AND CIVIL DUTIES.

Every person of common reflection must be aware, that he owes to others, and to society, certain social and civil duties, in requital for the kind offices and protection which he receives and enjoys from the community of which he is a member; and he *should* know, for such we consider to be the indisputable fact, that upon the manner in which these duties are performed, will materially depend his reputation with good men, and the measure of his pure enjoyments in life. Hence it is of the first importance, that he should fix upon a scale of morals in early life, which shall govern in his business transactions, and in his intercourse with society.

Every class in society seems to have a scale of morals peculiar to itself, in its business affairs, none of which are exactly fitted for general adoption. The importing merchant, for instance, thinks it justifiable to use deceptive invoices, by which he defrauds the revenue of a part of the duties due upon merchandize; while the salesman is valued and rewarded according to his tact in extolling his wares to the buyer—in giving them a fictitious value. Those who subsist on the spoils of office, consider that—"all is fair in politics"—that "the end justifies the means." The lawyer encourages litigation, because it is his vocation—his dependence for the wants and the superfluities of life. The physician knows when he gets hold of a rich patient, and deems it no breach of morals to make him pay well—to pay something for his poor neighbor. The parson, even, feels no compunction in abandoning his flock to the wolves, and *accepting a higher salary*, when he is persuaded he can be more eminently useful to the cause of vital piety. And the farmer practices a thousand little devices, to multiply his pence, which he would hardly applaud in his neighbor. We do not mean to charge these practices upon the whole of the different professions—for there are many honorable exceptions in all—we would merely intimate that they are besetting sins, human propensities which it requires fixed principles and inflexible fortitude to resist and overcome. If once successfully indulged in, they are apt to obtain an ascendancy; and to become more and more difficult of restraint.

But there is a precept, of the highest authority, applicable to all classes and conditions of life—which all commend, though few practise it. It is to "DO UNTO OTHERS WHAT YOU WOULD THAT THEY SHOULD DO UNTO YOU." This constitutes the highest rule of moral conduct, and its observance confers the highest honor—the purest happiness. Adopt it as the rule of life. It will insure you the respect and love of all who cherish virtue—it will do more—it will insure self-approbation, and self-respect.

Order and Neatness;

OR THE FORCE OF INDIVIDUAL EXAMPLE.

[*From Fireside Education*]

These two virtues generally go together, and you seldom see one without the other. In illustration of their benefits on the one hand, and the evils which result from their neglect on the other, let me introduce to the notice of the reader the following sketches, which he may have seen before. They are pictures of village life, but lessons may be drawn from them to suit the city, as well as the farm-house and cottage.

The village of Decay is situated somewhere in New-England. The land is good, and the people have all the means of comfort and happiness, but they don't know exactly how to use them. We shall give a sketch of Capt. Seth Wideopen's house, which is a sample of the whole town. Capt. Wideopen, by the way, is a good sort of man enough, and is well off, as the saying goes. He has two hundred acres of land; but he has not the good sense to observe the advice of the old rhymes—

"'Tis folly in the extreme to till
Extensive fields, and till them ill.
The farmer, pleased, may boast aloud
His bushels sown, his acres ploughed,
And, pleased, indulge the cheering hope
That time will bring a plenteous crop.
Shrewd common sense sits laughing by,
And sees his hopes abortive die,
For, when maturing seasons smile,
Thin sheaves shall disappoint his toil.
Advised, this empty pride expel;
Till little, and that little well.
Of taxing, fencing, toil, no more
Your ground requires when rich than poor;
And more one fertile acre yields
Than the huge breadth of barren fields."

The captain is also ignorant of the advantages to be found in following the injunctions laid down by the same writer, as follows:—

"Neat be your farms: 'tis long confessed
The neatest farmers are the best.
Each bog and marsh, industrious, drain,
Nor let vile balks deform the plain
No bushes on your headlands grow
Nor briers a sloven's culture show.
Neat be your barns, your houses neat,
Your doors be clean, your court-yards sweet;
No moss the sheltering roof enshroud,
No wooden panes the window cloud,
No filthy kennels foully flow,
Nor weeds with rankling poison grow;
But shades expand, and fruit-trees bloom,
And flowering shrubs exhale perfume.
With pales your garden circle round;
Defend, enrich, and clean the ground;
Prize high this pleasing, useful rood,
And fill with vegetable good."

The fact is that there is more comfort in neatness and order than most people think of. There is also much virtue in these things. They stamp themselves, after long habit, on the mind and heart, and, to some extent, mould the intellectual and moral character. No being but a pig is happy and at ease in the midst of filth and confusion; and if a person, by living among them for a long time, gets reconciled to them, he is so far depraved and degraded toward the standard of one of the lowest of the brute creation.

But to be a little more particular. Capt. Wideopen's house stands on a broad street that runs for a mile in length through the village of Decay. It is an old farm-house, one story high, with its gable end to the street. In front of the house is the wood-pile, spread out so as to cover a rood of ground. As you pass by, the barn, cow-house and yard, with its deep morass of manure in high flavor, salute the eye and nose. The pig pen, wide open and in full view, is between the house and barn. In a warm day the congregation of vapors is overwhelming. The well, the wash-shed, the wood-shed, all are in full view to the passers by. The space around the front door is defiled by the pigs, who root and grunt there by day, and by the geese, who roost there by night.

Thus all the unsightly and unseemly objects are spread out to view, and the scene is embellished by the addition of broken sleighs, sleds, ploughs, wagons, carts, old posts, &c. There lies a shapeless heap of stones; yonder is a gate hanging by one hinge, which will soon be broken for want of care. Here is a pair of bars thrown down; there the stone wall has tumbled over!

Such is the scene presented by the residence of a wealthy, respectable farmer in New-England; and I am sorry to say that there are hundreds, nay thousands, like it in New-England—ay, in New-England! Not that every village is a Decay, or every farmer a Wideopen. No! Some of our villages are delightful, and some of our country people are patterns of good order and neatness. But I am speaking of those who are not so. And if these pages should come into the hands of any person, in New-England or out of it, who is ignorant of the advantages of neatness and order, let me urge upon him, as worthy of immediate attention, the following remarks, drawn from observation and experience.

1. A man, whose house, like Capt. Wideopen's, is out-of-doors marked by disorder, confusion and want of cleanliness, is generally the same in-doors.

2. Where there is confusion and want of neatness, though there may be plenty of bread, butter, milk, cheese, fuel, clothing and other necessaries, there is little comfort, little thrift, little good nature, little kindness, little religion, little beauty, little peace or happiness.

3. Children brought up in the midst of confusion and want of cleanliness, are likely to be low, vulgar and vicious in their tastes and in their character. Let fathers and mothers consider that, if they bring up their children in this way, they are schooling them to be drunkards, profane, mean, base, wicked and despised; that the schooling of home is the most lasting of all schooling; that the ferule of the school-master cannot efface what the father and mother have taught; that the preacher cannot destroy the die stamped upon the young heart at home by parental example! Look to this, ye fathers and mothers, and if for your own sakes ye are indifferent to neatness and order, for the sake of the young immediately around you, be no longer so!

4. There is a constant tendency in the want of order and neatness to cause ruin and waste; consequently a man who, like Capt. Wideopen, allows things to go on in this way, generally gets poorer and poorer, till at length, mortgages, embarrassment, debt, losses and the law, bring him to poverty.

5. Neatness and good order contribute to health, wealth and happiness; while opposite habits tend to disease, misery, poverty, vice and short life.

Let us now turn to another scene. The village of Thrivewell is also a New-England village, and is remarkable for its pleasant, cheerful aspect. Every person who rides through it is delighted; and the place has such a reputation, that the land is worth more, and the houses will sell for more, than in almost any other place of the kind you can name. And this arises from the good taste, neatness and order, which characterize the inhabitants. I will give you a sketch of the house belonging to Capt. John Pepperidge; a careful, correct, upright man, who has risen from poverty, to ease and competence, by industry, economy and prudence.

His house stands three or four rods back from the street; the front yard is green, grassy and decorated with handsome trees. The wood-pile is fenced in; the barn-yard, pig-pen, &c. are also tidily fenced. It is a favorite proverb with Pepperidge, that there *should be a place for every thing, and that every thing should be in its place.* This is his great maxim; and he not only observes it himself, but he requires every man, woman and child about him to observe it also. He says it saves him one hundred dollars a year.

He has other rules, such as *a stitch in time saves nine*: thus, as soon as a stone falls off the wall, he puts it up; when a rail gets out of the fence, he replaces it; when a gate is broken, it is forthwith repaired; if a clapboard is loose, a nail clenches it. Thus, matters are kept tight and tidy. Of a wet day, instead of going to the tavern, he spends the time in making little repairs. At odd moments of leisure, he sets out trees and shrubs; thus, year by year, beautifying his place, and rendering it not only more comfortable, but also worth more money, in case he should ever desire to sell it.

Capt. Pepperidge takes great pleasure, and perhaps a little innocent pride, in his place, though, to say the truth, it is by no means costly. He loves better to spend his time in making it more convenient and pleasant, in setting out trees, improving the grounds, mending the fences, &c. than in going about to talk politics, or gossip upon other people's business, or in haunting a tavern bar-room. In short, his home is comfortable, pleasant, delightful. It is neat and orderly, inside and out. And he has made it so; though his wife, having happily caught the influence of his example, contributes her share to the good work. His children are well dressed, well educated, well behaved. Can such a man be a drunkard? Can he be vicious? Can he be wicked? Who has so good a chance of health, wealth and happiness? Who so likely to be respected by his neighbors? Who so likely to do good by his influence and example? Come, Capt. Wideopen, I pray you, and learn a lesson of farmer Pepperidge!

Let us look at the practical effect of Pepperidge's example. Formerly the village of Thrivewell was called Uneasy Swamp, and was inhabited by a set of people becoming the name. They were poor, ignorant, idle and *uneasy*. They were jealous of all rich people, and considered the unequal distribution of property a dreadful evil. They were equally jealous of the wise, and considered the unequal distribution of knowledge a nuisance to be abated. They were also jealous of the virtuous, and hated nothing so much as a just and honest man.—In short, they were, half a century ago, where some conceited but ignorant and ill-minded people are now, willing to level every body and thing to their own standard. If a candidate for office was up, who addressed their prejudices, and coaxed them with promises, though meaning to cheat them, he was the man for them. If he was known to be mean, slippery and unprincipled, fellow-feeling seemed to render them kind, and the more ardently they espoused his cause. Such was Uneasy Swamp; a place which may have its image still in some parts of the country.

But Pepperidge came among the people and set them a good example. They persecuted him, reviled him, hated him, ridiculed him, broke down his fences at night, and played him sundry mischievous tricks. But he was patient, and tough in his patience, as the tree that gave him a name; and he overcame them at last. One by one, the villagers began to imitate him. The small brown houses gradually lost their look of squalidness and disorder. The Swamp emerged from its shadow, and became a cultivated valley. The little farmers and the humble mechanics rose from their degraded condition; education spread its light; industry and frugality showered down their blessings; and Uneasy Swamp became the flourishing village of Thrivewell.

And thus, though none of the people are what is called rich, none are poor. The small houses are neat, and the fruit-trees, the blossoming shrubs, the green grass around them declare that the people are happy. They are not mad in the foolish chase for riches, which is destroying more peace in this country than all the bodily diseases our flesh is heir to. They are now, from better knowledge, satisfied that the rich man shall possess his wealth, both because they perceive that, generally speaking, the laboring classes are the happiest, and that the security of property is the only steady impulse to economy, industry, providence, and the other important village virtues. They are more fond of knowledge, for they perceive that it increases their power of being happy. They respect talent and wisdom, for they know that these are gifts sent by heaven for the guidance of man to happiness. In politics, they are staunch republicans, but always give their votes for men of sterling integrity. A man who has the general character of being an artful, intriguing office-seeker, has no chance with them. They are perhaps a little prejudiced against cities and city people. If they ever have any thing to do with a lawyer, they go to one who has been bred in the country, and one who was in early life a farmer.—They think, and, perhaps, justly, that while this rustic breeding gives a man an habitually honest and plain turn of mind, it also renders him more knowing, sagacious and favorable in his feelings, in respect to country people.

I cannot better close this sketch than by introducing some lines which are much esteemed in the village of Thrivewell. Every man, woman and child there knows them by heart.

> " Let order o'er your time preside,
> And method all your business guide.
> Early begin and end your toil,
> Nor let great tasks your hands embroil;
> One thing at once be still begun,
> Contrived, resolved, pursued and done.
> Hire not for what yourselves can do,
> And send not when yourselves can go;
> Nor till to-morrow's light delay
> What might as well be done to-day.
> By steady efforts all men thrive,
> And long by moderate labor live;
> While eager toil and anxious care,
> Health, strength, and peace, and life impair.
>
> Nor think a life of toil severe;
> No life has blessings so sincere.
> Its meals so luscious, sleep so sweet,
> Such vigorous limbs, such health complete,
> No mind so active, brisk and gay,
> As his who toils the livelong day.
> A life of sloth drags hardly on;
> Suns set too late and rise too soon.
> Youth, manhood, age, all linger slow
> To him who nothing has to do.
> The drone, a nuisance to the hive,
> Stays, but can scarce be said to live;
> And well the bees, those judges wise,
> Plague, chase and sting him till he dies."

CASIMIR PERIER, on being called an "aristocrat," and one of the privileged classes, replied—"My only aristocracy is the superiority which industry, frugality, perseverance and intelligence will always assure to every man in a free state of society. I belong only to those privileged classes to which you may all belong in your turn. They are not privileges created *for* us, but created *by* us. Our wealth is our own; we have made it. Our ease is our own; we have gained it by the sweat of our brows, or by the labor of our minds. Our position in society is not conferred upon us, but purchased by ourselves—with our own intellect, application, zeal, patience and industry. If you remain inferior to us, it is because you have not the intellect or industry, the zeal or the sobriety, the patience or the application, necessary to your advancement. This is not our fault, but your own.—You wish to become rich, as some do to become wise; but there is no royal road to wealth any more than there is to knowledge. You sigh for the ease and repose of wealth, but you are not willing to do that which is necessary to procure them. The husbandman who will not till his ground shall reap nothing but thistles and briars. You think the commodities in human society are useless and misdirected if you do not become wealthy and powerful by the changes; but what right have you to expect—you idlers and drones in the hive—you shall always be fed on the honey and sweets of life? What right have you, who do nothing for yourselves, your families, your communes, your arrondissments, your country or your kind, to imagine that you will be selected by them for their favor, their confidence, their rewards?

"I am not an aristocrat in that sense of the term in which it may be applied in absolute governments, or under imperial rule; but if, by an aristocrat, you mean a man who has earned his promotion by his industry—Oh, then, indeed, I am an aristocrat; and, please God, I may always remain so. The distinctions in human society displease you, because you have not the talent or industry to amend your own position. You are too idle to labor, and too proud to beg; but I will endeavor to take care that you do not rob me. I throw back, then, with indignation and resentment, the charge which is made. I belong to the middling classes of society. I have been selected by my fellow citizens, and by my king, as one of their representatives; and, by the blessing of God, I WILL REPRESENT THEM."—*Blackwood.*

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Maysville,	Ky.	5	York,	Ill.	5
Mocksville,	N. C.	10			

PRICE CURRENT.

ARTICLES.		New-York. Dec. 19.	Boston. Dec. 19.	Philadelphia Dec. 19.	Baltimore. Dec. 16.
Beans, white, ...	per bush.	1 25.. 1 30	1 75.. 2 00	1 50.. 1 75	1 00.. 1 25
Beef, ...	cwt..	7 50.. 8 00	6 50.. 7 75	9 00.. 9 50	9 00..10 00
Bacon, western, ...	lb....	12.. 16	13.. 14	15.. 17	15.. 16
Butter, fresh, ...	lb....	22.. 26	18.. 27	17.. 21	25.. 37
Cheese,.	lb....	6.. 9	8.. 10	8.. 9	8.. 9
Cotton, best, ...	lb....	10.. 16	9.. 13	9.. 15	9.. 12
Flour, best, ...	bbl..	8 62.. 9 25	8 50.. 9 25	7 50.. 8 50	8 00..10 50
GRAIN—Wheat, ...	bush.	1 78.. 1 85	....	1 70.. 1 77	1 70.. 1 82
Rye, ...	bush	1 12.. 1 15	1 10.. 1 12	1 00.. 1 12	90.. 94
Oats, ...	bush.	50.. 58	53.. 58	41.. 43	40.. 42
Corn, ...	bush.	91.. 95	95.. 96	84.. 92	75.. 81
Hams, pork, ...	lb....	12.. 14	16.. 17	13.. 15	14.. 15
Pork, in hog, ...	cwt..	....	10 00..11 00	7 25.. 8 00	7 75.. 8 50
SEEDS—Red Clover, ...	bush	12 50..14 50	12 50..13 00	10.. 14	15 00..
Timothy, ...	bush.	2 37.. 2 75	2 63.. 2 75	2 75.. 3 25	.. 3 00
WOOL—Saxony, fleece,...	lb....	50.. 62	57.. 62	55.. 60	50.. 55
Merino, ...	lb....	45 . 52	50.. 55	50.. 55	45.. 50
1-4 and com......	lb....	36.. 40	35.. 40	38.. 40	35.. 40
Sheep, ...	head,	....	2 25.. 3 50	1 00.. 2 87	....
Cows and Calves, ...		30 00..45 00	30 00..37 00	18 00..40 00	30 00..46 00

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. V. NO. 3, WASHINGTON-ST. ALBANY, N. Y. FEBRUARY, 1839. No. 12.

Conducted by J. BUEL, of Albany.

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☞ Price of the published volumes, 50 cents per vol. stitched—the four volumes bound together, $2.75—bound in two volumes, $3—the four vols. bound each separate, $3.25.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ An extra sheet of 16 pages accompanies this No. making 32 pages gratuitous matter with this volume.

☞ A LIST OF AGENTS, principally of gentlemen who have volunteered as such, accompanies this number. ☞ Any person who forwards us Ten Dollars, for ten subscribers, becomes virtually an agent, and is entitled to the eleventh copy for his trouble, or to ten per cent, and in that proportion for any greater amount. Post-masters are particularly invited to receive subscriptions—a legitimate object of the post-office law being, in our opinion, to facilitate the diffusion of useful knowledge among the people.

☞ An interesting communication from Mr. Garnet, of Virginia, and several other favors of correspondents, are unavoidably postponed till our next.

Close of the Volume.

This No. closes the fifth volume of the Cultivator. We have endeavored to make it useful to the great cause of improvement which it professes to promote; and in this effort we have been ably sustained by more than TWO HUNDRED CORRESPONDENTS, from different parts of the Union. To these gentlemen both the Conductor and the Patrons of the Cultivator are under great obligations; and we feel warranted in tendering to them, in behalf of our subscribers as well as ourselves, our hearty thanks. But this, we trust, is but a small portion of their reward: the consciousness of doing good to others—of having discharged a high obligation to society—is the *best* reward to a philanthropic and benevolent mind. Who can pretend to limit the beneficial effects, present and remote, which will result to the nation from their concentrated labors—*to improve the soil and the mind!* We see every where the most salutary changes, in the improvement of our husbandry, and in the condition of farmers, produced by the increased circulation of agricultural periodicals; and yet, in our opinion, we see but the germ of their usefulness. And is there a member of society, be his situation what it may, that can say, *he* is not benefited by this change? Putting our own labors out of the question, is there a subscriber, who after attentively reading *this* number, will say, that he may not be benefited by the matter it contains—more than one dollar—the price of his annual subscription? We think not. These considerations, we trust, will stimulate our correspondents to persevere in their labors of usefulness. We have a stock of individual experience and useful knowledge in our country, which, if drawn out and diffused over the land, would cause it to teem with plenty.

We feel also under great obligations, and wish here to make our acknowledgments for them, to the numerous class of gentlemen who have volunteered as agents—from a wish to promote useful improvement—to extend the circulation of the Cultivator.—We earnestly invite a continuance of their co-operation.

Board of Agriculture.

In the bill reported to the last legislature, by Mr. L. F. Allen, for the improvement of agriculture, there is a provision for the establishment of a Board of Agriculture. The subject has been recommended, by the Governor, to the consideration of the legislature. Propositions for establishing similar boards in Virginia and North Carolina are now, we believe, before the legislatures of those states. The bill of Mr. Allen provided further, that a room in the new state buildings should be assigned for the use of the board, and that the room should also serve as an agricultural museum.

As both the board and the museum may appear of doubtful utility to many, we will endeavor to explain, as far as we are able, the objects of both,—or at least to suggest some of the advantages which may be expected to result from their establishment, sufficient, we think, to warrant any expenditure they may require from the state.

It is matter of general notoriety, that the agricultural staples of a district, or state, are subject to fluctuation and change. These changes arise from exhaustion of the soil for particular crops;—the introduction of new articles of culture;—the fluctuations of the market;—the demands for new and particular products, or from other unforeseen causes. We have witnessed many of these changes in our day; and unless we mistake the signs of the times, other changes of importance are on the eve of taking place, at least in many districts, by the extension of root culture, the silk business, and the fabrication of beet sugar. To facilitate these changes, which are often indispensable, it is important that our farmers should be early and correctly advised of the best modes of managing the new articles of culture, and of their products and profits. Thousands, and tens of thousands, may be wasted in useless experiments, and a useful and profitable branch of culture may get into disrepute and be neglected, for the want of the requisite knowledge for its management.

The upper valley of the Hudson, and the valley of the Mohawk, were, not very remotely, the great wheat growing districts of the north. Wheat was their staple product, and this wheat constituted the great mass of farm produce which was sent down the Hudson from this city and neighborhood to New-York. These districts do not now produce enough wheat for their own consumption. Wheat culture has given way to cattle and sheep husbandry, and to the raising of coarse grains.

The great staples of our southern states, a few years ago, were rice, indigo and naval stores. Cotton was then a stranger to their soil; but it is now almost their entire staple, and constitutes by far the largest article of export from the United States.

The New-England states formerly raised grain and provisions sufficient for their consumption, and to export. They are now importers to a large amount. Manufactured goods constitute their principal exports.

Root culture is but of comparative recent introduction into Great Britain. It has changed her whole system of husbandry, as that of the sugar beet has that of France. The advantages which have resulted to those countries, from root culture, have been vastly great; and New-York, we have no doubt, will ere long reap from it like advantages. We are now much in need of manual instructions for cultivating the beet, and manufacturing the sugar. The French farmers have been immensely profited by the exertions of their government to collect and diffuse a knowledge of the best modes of practice in the beet sugar business; and even now that government is offering large bounties for new improvements in the manufacturing processes. France now makes 100,000,000 lbs. beet sugar per annum.

The silk business is exciting great attention among us. Our soil and climate are adapted to it. Managed as a household concern, it promises to become a source of individual and national wealth. But we lack experience, and we lack instructions which may be implicitly followed. We import silk to the amount of 20,000,000 dollars a year, produced in a soil and climate very similar to our own. Under the instruction and fostering care of the government, the silk business might soon become a great and profitable one to New-York.

These two new branches of agricultural labor, the beet and the silk business, have already attracted the notice of adjoining states, whose legislatures have offered liberal bounties to encourage their prosecution. Connecticut gives a bounty of one dollar for every hundred mulberry trees planted in the state, for the fabrication of silk, and fifty cents per pound for every pound of merchantable silk made in the state. Massachusetts gives a bounty of one dollar for every ten pounds of cocoons produced, and one dollar for every pound of silk reeled or thrown in the state; and a liberal bounty on sugar manufactured from the beet root. Vermont gives a bounty of ten cents a pound on cocoons; and Pennsylvania and New-Jersey, we believe, have also offered bounties to encourage the silk business. New-York, no doubt, stands ready to follow the praise-worthy example of her sisters, in these as in other matters deeply interesting to her agriculture—as soon as she has settled the question of party ascendency. But hitherto her statesmen have been too much engaged in *political* legislation, involving banks, rail-roads and canals, to cast a thought upon the humble claims of agriculture; which, having had nothing to give to party, would of course be last to be served by party.

New grains, new grasses, new roots and plants, new breeds of animals, new implements of farming, new manures, and new modes of culture, are constantly coming into notice. Many of these would prove valuable in our husbandry. Our agricultural population are so dispersed, their means of information so limited, and they are withal so distrustful of whatever is new, that improvement with them progresses slow. But were there a central board, who would take early cognizance of these matters, and publish their opinions upon them; who would collect, at home and from abroad, all choice seeds that promise to become an acquisition to our husbandry, and distribute them among careful and discreet farmers, the progress of improvement would be greatly accelerated. In regard to new farming implements, there are and will be many of intrinsic merit—and there are and will be others that are worthless.—The farmer cannot distinguish well the good from the bad without trying them, and this he has seldom the opportunity of doing thoroughly. The consequence is, he is often deceived; and is afterwards deprived of the benefits of those which are good, from an honest distrust of his own judgment as to their merits. The matured opinions of competent judges, acting under the authority of the state, would go far to prevent imposition, and to facilitate the general introduction of the most valuable kinds.

There are already several articles in extensive use in our country, and for which the home demand must increase, which might be profitably cultivated among us, were their culture once fairly introduced, and the processes of preparing them properly taught.—We will particularize madder, woad and weld, plants in extensive use in dying cloths. We import annually of these to the value of some millions of dollars. We have grown them all on a limited scale, and have no doubt but they may be made profitable farm crops.

Having made these preliminary remarks, we are now prepared to answer the question—

In what way would a Board of Agriculture benefit the State?

A Board of Agriculture should consist of three or more intelligent men, and a secretary, meet perhaps quarter-yearly, and receive a fair compensation for the time necessarily devoted to the duties of their office. The secretary should devote his whole time, under the direction of the board, to the interests of agriculture—

1. In collecting, arranging and publishing statistical and other useful information in regard to rural affairs.

2. In collecting and distributing seeds of such kinds of agricultural products, as may promise to profit our husbandry; together with the modes of their culture, management and preparation for market.

3. In receiving, labelling and arranging, models of implements, geological specimens, seeds and samples of rare or excellent products of the soil, portraits of fine animals, donations of books, &c. and in exhibiting them to visitors, and explaining their objects, qualities and promised advantages.

4. In answering the inquiries of agricultural men, on all matters relating to any branch of husbandry, or any article of culture.

5. In corresponding with societies and individuals, on matters promotive of the interests of agriculture.

The due performance of the above enumerated duties could not fail to be very serviceable to the state, in promoting the improvement of her agriculture. But there are other duties which might be performed by the board, of unquestionable benefit, should one be instituted, and the legislature think proper to confide such to them, to wit:

6. Examining, testing and deciding upon the me-

rits of all new implements of husbandry, offered for their inspection—and upon which the board might be authorized to award discretionary premiums, where the articles should be judged highly meritorious—and thereby giving them a character upon which the public might rely. And,

Last in order, though perhaps first in importance, a Board of Agriculture might write, compile, or procure to be written, and printed, books upon agriculture, the veterinary art, orcharding, gardening, rural embellishment and household economy, suitable for the common school libraries of an agricultural population.

In the several duties above enumerated a Board of Agriculture would do much good. Such a board has been eminently useful in Great Britain. Such virtually, in France, is the Royal Central Society of Agriculture—its premiums, and its laboring members, being paid from the public treasury.

The great question with many will be,—not what will be its ultimate benefit—but *what will be the cost?* The man who plants an apple tree, does not expect an immediate return for his outlay. He knows that he has to wait years for his remuneration; but he knows it will come; and that when it *begins* to come it will go on progressively increasing in profit, till he has returned to him his fifty or his hundred fold. So it is with expenditures for improving agriculture; the returns, though not immediate, are progressive and certain. The cost of a Board of Agriculture, however, will depend much upon what they are allowed by law to expend. Their pay and expenses would probably not equal the pay of many individual inspectors and other officers under the government; and would hardly amount to a tenth of the expense wasted last winter, in the boyish struggle in our legislature—to get credit to *party* for a short session.

An agricultural museum would be a matter of no great expense, but one of manifest utility. It would be taken care of by the secretary, with perhaps occasional assistance. Geological specimens might be furnished from the collections made by our geological corps. Models of agricultural implements might be required from the patentees or proprietors who exhibit them for inspection. Books would accumulate as donations; and portraits of choice animals would be presented by breeders, as a matter of interest. Specimens of agricultural products, and seeds of rare vegetables, would be tendered by our farmers, from motives of pride as well as of public usefulness. Foreign seeds and agricultural curiosities would be collected by our citizens travelling abroad, and by those engaged in foreign commerce. Every citizen would feel disposed to add to the collection whatever might be useful or curious of the productions of the soil. The hall would become an agricultural news-room—a central point of resort for citizens and strangers, who wished to acquire information, or should be desirous to communicate it, on the all-important business of agriculture. It would also afford an appropriate place for lecturing upon practical agriculture; and upon the sciences connected with its improvement, in the winter months—subjects which may yet become as popular and useful as phrenology and animal magnetism.

The Highland Agricultural Society of Scotland, to which we may safely refer for models of usefulness, is erecting a magnificent hall, at an expense of nearly 30,000 dollars, to serve as an agricultural museum. In this are to be deposited models of all known agricultural implements and agricultural machinery—an assortment of seeds, grains and grasses adapted for British culture—specimens of various kinds of timbers produced by forest trees—a collection of insects and grubs known as inimical to trees and plants—samples of dyes derived from native shrubs, with specimens of shrubs themselves—specimens of minerals, ores and rocks existing in Scotland, and adapted for useful purposes—original maps and surveys, explaining the geological structure of different countries, and showing where coal, lime, iron, stone, and other valuable mineral products abound—models and portraits of different varieties of stock, of the most approved breeds, showing their respective points and characters, &c. &c. Such a museum, we believe no one will deny, would be of value to any state,

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Gov. Seward's Message.

It is neither our province nor intention to take notice of this able state paper, further than it relates to education and to agriculture, two subjects which, however seldom associated in the public mind, are nevertheless intimately connected, in what best promotes the great interests of our republican institutions. Education in the higher branches of knowledge, including natural science, and the application of the principles of the latter to productive labor, would multiply the legitimate sources of our wealth, and raise the agricultural class, in intelligence and in spirit, to the elevated rank assigned to them in our political charter, and which the safety of the republic requires they should occupy. This class once enlightened, would know how to appreciate the advantages of education; and having the means and the disposition, would take care to provide liberally for the education of their children.

The governor well remarks, that crime decreases as useful knowledge is disseminated. There are abundant statistical facts, to verify this remark. By useful knowledge, we mean particularly, that knowledge which incites to, and augments the fruits of, productive industry—that knowledge which gives to the possessor ample power, not only reputably to provide for himself, but to administer to the wants of others, and to advance general improvement in the condition of the human family.

"The standard of education," says the Message, "ought to be elevated not merely to that which other states or nations have attained, but to that height which may be reached by cultivation of the intellectual powers, with all the facilities of modern improvements, during the entire period when the faculties are quick and active, the curiosity insatiable, the temper practicable, and the love of truth supreme. The ability to read and write, with the rudiments of arithmetic, generally constitute the learning acquired in common schools. To these our colleges and academies add *superficial instruction in the dead languages, without the philosophy of our own; scientific facts, without their causes; definitions, without practical application; the rules of rhetoric, without its spirit; and history, divested of its moral instructions.* It is enough to show the defectiveness of our entire system, that its pursuits are irksome to all except the few endowed with peculiar genius and fervor to become the guides of the human mind, and that it fails to inspire either a love of science or passion for literature.

"Science is nothing else than a disclosure of the bounties the Creator has bestowed to promote the happiness of man, and a discovery of the laws by which mind and matter are controlled for that benignant end. Literature has no other object than to relieve our cares and elevate our virtues. That the pursuits of either should require monastic seclusion, or be enforced by pains and penalties upon reluctant minds, is inconsistent with the generous purposes of both. Society cannot be justly censured for indifference to education, when those who enjoy its precious advantages manifest so little of the enthusiasm it ought to inspire. All the associations of the youthful mind, in the acquisition of useful knowledge, must be cheerful; its truths should be presented in their native beauty and in their natural order; the laws it reveals should be illustrated always by their benevolent adaptation to the happiness of mankind; and the utility and beauty of what is already known should incite to the endless investigation of what remains concealed. If education could be conducted upon principles like these, the attainments of our collegiate instruction might become the ordinary acquirement in our common schools; and our academies and colleges would be continually enjoying new revelations of that philosophy which enlightens the way, and attaining higher perfection in the arts which alleviate the cares of human life."

We are here urged to raise the standard of education; we are admonished of the insufficiency of our colleges and academies in teaching what is most useful in the important business affairs of life; and we are told, that under a proper system of education, all the useful attainments of college instruction, might become the ordinary acquirement in our common schools.

The great source of the evil here complained of, we apprehend, is to be found in a vitiated public taste, formed too much after the fashion of the old continent—a predilection for what is showy, and superficial and transitory—in preference to that which is useful and substantial. With us, "merit should make the man, and want of it the fellow." Yet such is the homage we are accustomed to pay to a fine exterior, to polished manners, and to professional and mercantile pursuits, that the farmer or mechanic, seeks these professions and employments for his son, as the surest means of giving him fame and fortune, and in the hope, too, often, of sharing himself in the anticipated distinction of the boy. Hence, in subserviency to the public taste, is the inutility of our higher schools of instruction to the useful branches of industry. "I am ashamed," says Prof. Gordon, of Clinton College, "that so little of our boasted learning is practical—tamed—domesticated, and familiarized to the avocations of men.—When the young man graduates with honor, he is then unfit for any occupation—he has still to learn his profession. Whereas, the college, or university, ought to fit young men at once for the occupations they are to follow." The plan of the professor might be carried out, with facility, in the great business of agriculture, and the time and expense of the noviciate of life greatly lessened. A school of agriculture would teach his head knowledge, and his hands labor, at the same time, without impairing the value of either branch of instruction. Give him the "scientific facts" of the college, and he would explain "their causes," and demonstrate their effects and their utility in *field practice.* Give him the literary polish of the higher schools, and you would fit him for the civil duties of life. And give him, superadded to his scientific and literary teachings, a practical knowledge of the best modes of farming, and he comes forth from the school, highly qualified for usefulness—for *head*-work or *hand*-work, conjointly or separately. He will have no occasion to be ashamed of his profession, or to seek the bar or the counter, or to peddle pills or politics, to become respectable and respected.

"We seem at last," says Gov. Seward, "to have ascertained the only practicable manner of introducing normal schools into our country. It is by engrafting that system upon our academies."

We are sorry to question the correctness of this conclusion. We are afraid that but few, very few, of the young men who are participating in the public bounty in our academies, will be disposed to follow the humble business of teaching, longer than to acquire the means, or until an opportunity presents, of embarking in a more lucrative employment. The academy is considered a sort of stepping stone to the liberal professions; and we doubt whether those who are set apart for teachers can divest themselves of the predilections of the school.

We have another cause of doubt. From the character his excellency has given us of our academic studies, we are obliged to doubt the competency of these normal schools to qualify teachers for instructing a rural—an agricultural population. We beg not to be misunderstood. Academies may be considered purely literary institutions. They teach little more than ordinary schools, that concerns rural economy, or the arts of productive labor. Now it is a conceded truth, that boys should be taught what they are to practice when men. A vast portion of our male children are destined for agriculture and the arts, and under proper teachers, might acquire much elementary knowledge in their future business. Will the pupils from our existing normal schools possess either the disposition or ability to impart to them this preliminary, but very useful instruction? So far as our knowledge goes, no normal schools have yet proved successful, but such as have been exclusively devoted to the instruction of teachers; and in most cases where they have proved successful, we believe, the pupils have been instructed, in a greater or less degree, in the principles and practice of agriculture—qualifications considered useful, if not essential, in the teachers of a rural population. Normal, like agricultural instruction, holds but a secondary grade, when connected with literary schools; and the inferior will always be made subservient to the higher study.

The allusion, in the message, to the promised utility of common school libraries, is forcible and concise; and we hope the request to the legislature, to give its "co-operation in the *beginning* of this wise and momentous policy," will be promptly complied with.

"For the evil of our whole system," concludes Gov. S. on this subject, "there is a remedy, simple, economical and effectual—the establishment of a department of education, to be constituted of a superintendent appointed by the legislature, and a board to be composed of delegates from subordinate boards of education to be established in the several counties. The state board might exercise a general supervision, with powers of visitation of the colleges, and the county boards the same powers in their respective counties. The duties of all these officers, except the superintendent, ought to be discharged without compensation, and the tenure of office might be made so long as to secure efficiency. I am satisfied the state abounds with competent individuals who would assume those duties without other remuneration than the consciousness of rendering enlightened and patriotic service in the cause of education."

Boards of Education have been established in some of the neighboring states, and the one in Massachusetts, in particular, has already had a highly salutary influence towards improving her system of public education.

We extract below all of the message which relates directly to agriculture, and shall reserve our remarks upon it to a future occasion. It forcibly impresses upon the consideration of the legislature, the importance of providing for the improvement of this primary, but too much neglected art.

"The science which involves the physical laws most open to our investigation, and to which the primeval law of our existence compels us, and the art which precedes all other inventions, and whose cultivation leads to plenty, and is cheered by health and contentment, are the last which receive the patronage of phylosophy, or attain the favor of government. Mankind learned the distances and laws of planets, and even the periods of comets, before they conceived the mysteries of vegetation; and the fine arts were perfected in ages when agriculture, loaded with the superstition of centuries, was consigned to slaves. That this should have been the experience of other ages and other countries is easily explained. The powers of government have always been vested in classes or individuals farthest removed from the tillers of the soil; and ambition and pride have sought gratification in conquests and in the homage of the fine arts. But it must not, it cannot be so here, where the agricultural interest is sovereign, and as it furnishes all the means, rightfully supplies the motives, and directs the action of the government.

"Every acre of cultivated land could be made to yield, with the expense now bestowed upon it, products exceeding by one-third in quantity and value of its present fruits. The diffusion among the cultivators of the earth of the science belonging to their art would enlighten their minds, enlarge their views, elevate their motives, and refine their sentiments. Let it be remembered, that all this is necessary if we would not see the power residing with them steal away, as has always before been the case, to other classes, whose pursuits secure intellectual cultivation and superior wealth. Agriculture appeals to us as republicans, therefore, with peculiar earnestness, not only by our desire to increase the public wealth, enlarge the public intelligence, and elevate the standard of public virtue; but as we would preserve the ascendency of that policy of peace and improvement identified with the existence of democratic institutions.

"Among the plans of improvement which have been suggested, is the formation of a Board of Agriculture. I respectfully commend it to your favorable attention. Such a board might be usefully employed in introducing new species and varieties of productions, and improvements in implements of husbandry, and in carrying on a general correspondence with a view to promote the interests of agriculture.

I submit also whether it would not be well to require that a popular treatise upon agriculture should be contained in the district school libraries; and whether legislative sanction and patronage could not be so extended as to encourage the organization of agricultural societies, free from the defects which have hitherto proved fatal to their permanency and success."

Prof. Shepherd's Horticultural Address.

We have been kindly furnished with a copy of the address of Prof. Shepherd, delivered before the Horticultural Society of New-Haven in Sept. last, and have read it with great pleasure. It inculcates not only greater attention to the fruit and kitchen garden, as highly conducive to health and comfort, but it urges the culture of flowers, and the planting of ornamental shrubs and trees, as sources of intellectual pleasure, and as means of improving the public taste and promoting rural embellishment.

"The supply of fine vegetables, for the every day supply of the table," the Professor justly remarks, "has not yet received, in our country, all the attention it deserves. The people are every where too much engrossed by what they believe more pressing objects than the raising of vegetables. The farmer is too apt to sacrifice his garden to his staple crops. It is only after his heavy planting is finished, that he finds time to throw in his early crop of garden seeds; and these, when up, receive no care, except at odd moments, and on rainy days. Few vegetables with him, therefore, attain perfection; and these only when circumstances happen to prove propitious. The mechanic, the tradesman, and the professional man of villages and smaller towns, where garden spots are within the means of every person, bestow but little more attention than the farmer upon the culture of vegetables. The kinds produced, the modes of cultivation, and the quantity of supply, each admit of great improvement."

We believe but few persons, who have ever enjoyed the fruits and comforts of a good garden, are willing to forego them, or are apt to remit in their culture. In this respect, a taste for gardening is much like a taste for reading—the more it is cultivated, the more interesting it becomes, the more it grows upon us. The great point, in both, is to begin—to taste,—to realize the pleasures and the profits which they confer. If the farmer, or the village cit, would but *begin*, properly, to cultivate the garden, and persevere through one season, we might count upon his progressive improvement. But if the ground is but half prepared, a circumstance which often occurs, the seeds put in late, and the culture neglected, the product will consequently be trivial, and the quality inferior; and it is no wonder that the owner considers the garden unworthy his care, or meriting only his secondary consideration. In the garden, as on the farm, things should be done in time, and well done—"a stitch in time saves nine:" an *hour* spent in destroying *small* weeds, will often go as far as a *day* spent in destroying *large* ones; and the crop, if timely cleaned and thinned, may give a liberal reward to labor, while if left crowded, and choked with weeds, may fall far short of it. We pledge our belief, that if the farmer of occasional leisure, the mechanic, or the professional gentleman, be he even the clergyman, will spend one half of the time he can spare from his business, in the practical business of the garden, for one season, he will find his health improved, his mind enlarged, and the rational pleasures of life much increased. To the young, a taste for gardening may avert many evils, and lead to much positive good; to the middle aged, it will be a source of high intellectual enjoyment; and to the aged it will afford a healthful exercise to the body, and a pleasant recreation, without alloy, to the mind.

In its bearing upon health, which we all ought to cherish as one of the first blessings of life, the garden and its products, in the opinion of the Professor, have a benign influence.

"It is conceded," says he, "by those who express opinions upon the science of *hygiene* in the United States, that the very free use of animal food is a vice in the dietetics of our people. The fact I hold to be intimately connected with the poverty of our gardens. I do not indeed deny, that our supply of the cerelia is often inadequate; but bread, though called the staff of life, is not intended to be the sole vegetable accompaniment of our meals. Man cannot live by bread alone; and if you deprive him of other varieties of vegetable diet, he will inevitably indulge to excess in the use of animal food. In order to preserve that due adjustment of the vegetable to the animal diet, intended for us by nature, it is not enough to give him, along with the potatoe, an occasional taste of the common sorts of the leguminous and cruciform families of vegetables, but the variety must constantly be rendered as complete as possible, embracing productions the most widely asunder in flavor, as well as in the quality of nutricious matter which they contain."

Perhaps there are no people in the world, who consume so large a proportion of meat with their daily food, as the people of the United States—and very much, we believe, to the prejudice of their health. The mass of the population of Asia, as also of middle Africa, and of middle and southern Europe, subsist almost entirely upon vegetable diet. An erroneous opinion is entertained by many, that a great portion of meat is necessary to the laboring man.—And why? Not because meat affords the most nutriment. According to Vauquelin and other eminent chemists, as quoted in the Encyclopædia Americana, meat contains far less nutriment than many vegetable substances. One hundred pounds of bread is said to contain 80 lbs. of nutritious matter; 100 lbs. of peas 93 of nutrient matter; 100 lbs. of beans 92; and 100 lbs. of meat but 35 lbs. of nutrient matter; while the potatoe affords of nutrient matter 25 per cent. Thus showing that three pounds of potatoes are more nutricious than two pounds of flesh.

The Professor not only complains of the small proportion of vegetable food which we consume, but of the injudicious mode of preparing it for the table.

"Increased attention," says he, "must likewise be devoted to the preparation of vegetables for the table, which subject, I think, comes in (appendix-wise if you please,) among the objects of our society; and particularly recommends itself to the regard of those ladies of the association who occupy the very honorable station of heads of families. Already several delicious vegetables are becoming common in our gardens, which nevertheless but rarely find their way to the table, or when there, are found unpalatable, solely from defective modes of cooking.

"I trust, therefore, that one good result of our society will be the proper regulation of diet; for it appears to me, that well cultivated kitchen gardens and fruit yards are much more likely to effect the object, than the wisest dietetic rules, or the most stirring lectures, in the absence of such necessary provisions."

In speaking of the peach, Prof. S. says, "it is only necessary to plant the trees in a *deep rich soil*, where they will enjoy a shelter from cold winds, and to prune them *annually*, with a *bold hand*, in order to secure a constant and abundant crop." This location for the peach, with us, we should consider a very bad one, as the growth would not cease so early, nor the wood consequently ripen so well before winter, as on a light dry soil, and in a more unprotected situation. Nor can we agree with the Professor in recommending the pruning knife to be used *annually*, and with a *bold hand*, upon standard trees. The branches may be cut in to a thrifty sprout, after having fruited two or three seasons, but we believe the policy of close pruning, and especially of cutting young healthy laterals, has been thought wrong by professional gardners.

In recommending the cultivation of flowers, and ornamental trees and shrubs, Prof. S. pertinently asks—

"Need I speak of the inducement to cultivate such plants within and about our houses! While their delicious odors regale our senses, their form and beauty may be said to improve our taste. The inspection of [exotic] plants, so dissimilar to our native productions, is calculated to awaken in the minds of the young a curiosity in favor of botany; a science whose study has been found to be highly propetitious to early mental culture, —operating as it does to sharpen the habits of observation, to promote discrimination, and to impart, in a remarkable degree, the perception and love of order."

The Professor recommends, particularly, an attention to the domestication and culture of indigenous plants, and ornamental shrubs and trees, of which we can boast of many that are truly beautiful; he enumerates a great number of this description; directs the mode of mixing and grouping them; and recommends planting not only in door-yards, and in streets, but the vacant grounds in the neighborhood of the city. He complains of the neglect of the apple orchards, which have either disappeared, or exhibit a melancholy emblem of neglected old age. Without at all interfering with the temperance cause, the apple orchard is now found to be a valuable appendage to the farm. Giving a succession of fruit during the whole year for the dessert and kitchen, it is capable of contributing largely to the sustenance of the family; while every kind of farm stock, it is now satisfactorily shown, may be fed and fattened upon the fruit with economy and profit.

The Professor dwells with minuteness upon the policy of beautifying the streets and public grounds with ornamental trees, and he forcibly illustrates this policy, by referring to the monuments of past ages—the stately elms which embellish the college green, and which have been the admiration of all strangers who have visited New-Haven. The circumference of some of these trees is said to be from 12 to 18½ feet. One of them was planted by the Rev. James Pierpont in 1688. An interesting fact is also stated, viz: that five generations ago, the parishioners joined their gifts to erect for their pastor a dwelling.—One poor individual, who had no other offering to give, brought from the woods an elm tree, and planted it before the door of the parsonage. The last vestige of the mansion has been devoured by time, and the liberality of those who built it forgotten, while the tree lives and towers in majesty, promising to carry down to other generations the name of William Cooper, the poor man who plucked it from the forest, and planted it where it stands.

Hints for the Master.

Hay that is made in the shade retains its colour and its sweetness much longer than that which is made in the sun, but it requires a longer time to dry. * * * I have found hay which has been made in the shade, after being exposed to the free action of the air for three months, smell as sweet as on the day when the mass from which it was taken was stacked—*Smith on Improved Agriculture.* These remarks go to corroborate what we have often stated, that hay cured in cock, is much superior to that cured by being spread to the sun.

The same writer suggests, that fodder may be greatly augmented by mixing the hay from the field with dry straw in the mow or stack; and that where this is to take place, the hay may be housed much greener than otherwise. The straw is enriched by the surplus juices of the grass. We have practised this with the third cutting of lucerne, and the cattle apparently relished the straw as much as they did the hay.

EXPERIMENTS IN DRYING WHEAT.—"Taking three separate quantities of wheat ears, all of equal weight and cut the same day, the first exposed for seven days to the full influence of the sun, was found to be dry, thin and steely; the second, laid in the shade where the air would have its full effect upon it; this after laying twelve days was rather thin than otherwise, very dry but not steely—its weight was one tenth more than the first;—the third lay very near to the second in the shade, was moistened by having a little water sprinkled over it for the first six days, and then left eight days to dry; it was thin, dry, good body, very mellow, but not quite so bright as the second, although the flour was of quite as good quality, and its weight one-ninth more than the second.—*Smith on Improved Ag.*

The same writer affirms, that if wintered in comfortable warm and dry sheds, cattle will thrive better upon good straw, than those fed upon good hay, in a wet, cold and comfortless yard; that if the straw be cut and mixed with a small quantity of hay, it will all be consumed; and that by these two modes of improvement in feeding, the farmer would be enabled to winter more than twice the quantity of stock, that he can do under present existing circumstances.

OF THE ARRANGEMENT OF FARM LABOR.

The importance of order and system (says Loudon, Enc. Ag. p. 734,) has been already insisted upon, and the subject cannot be too often repeated.—To conduct an extensive farm well, is not a matter of trivial moment, or to the management of which every one is competent. Much may be effected by capital, skill and industry; but even these will not often ensure success without judicious arrangement. With it, a farm furnishes an uninterrupted succession of useful labor during all the seasons of the year; and the most is made that circumstances will admit of, by regularly employing the laboring persons and cattle, at such works as are likely to be most profitable. Under such a system it is hardly to be credited how little time is lost, either of the men or horses, in the course of a whole year. This is the great object, for each horse may be estimated at three shillings (66 cents), per day, and each man at two shillings (44 cents.) Every day, therefore, in which a man and horse are unemployed, occasions the loss of at least five shillings to the husbandman.

As the foundation of a proper arrangement, it is necessary to have a plan of the farm, or at least a list of the fields or parcels into which the land is divided, describing their productive extent, the quality of the soil, the preceding crops, the cultivation given to each, and the species and quantity of manure they have severally received. The future treatment of each field, for a succession of years, may then be resolved on with more probability of success. With the assistance of such a statement, every autumn an arrangement of the crops for the ensuing year ought to be made out; classing the fields or pieces of land, according to the purposes for which they are respectively intended. The number of acres allotted for arable land, meadow or pasture will thus be ascertained. It will not then be difficult to anticipate what number of horses and laborers will be required during the season for the fields in culture, nor the live stock that will be necessary for the pasture land. The works of summer and harvest will likewise be foreseen, and proper hands engaged in due time to perform them.

A farmer should have constantly in view a judicious rotation of crops, according to the nature and quality of his soil, and should arrange the quantity and succession of labor accordingly. Farm labor, when frosts and bad weather do not intervene, should be arranged for some months; and hand labor for some weeks, according to the season of the year.—"A general memorandum list of business to be done," may therefore be useful, that nothing may escape the memory, and that the most requisite work may be brought forward first, if suitable to the state of the weather. In this way the labor will go on regularly, and without confusion, while by a proper attention, either a distribution of labor, or an occasional consolidation of it, may be applied to every part of the farm.

The farmer ought to rise early, and see that others do so. In the winter season, breakfast should be taken by candle light, for by this means an hour is gained, which many farmers indolently lose; though six hours in a week are nearly equal to the working part of a winter day. This is a material object where a number of persons are employed. It is also particularly necessary for farmers to insist on the punctual performance of their orders.

The whole farm should be regularly inspected, and not only every field examined but every beast seen, at least once a day, either by the occupier or some intelligent servant.

In a considerable farm, it is of the utmost consequence to have servants specially appropriated for each of the most important departments of labor; for there is often a great loss of time where persons are frequently changing their employments. Besides, where the division of labor is introduced, work is executed not only more expeditiously, but also much better, in consequence of the same hands being constantly employed in one particular department.

Previously to engaging in a work, whether of ordinary practice or of intended improvement, the best consideration of which the farmer is capable, ought to be given to it, till he is satisfied that it is advisable for him to attempt it. When begun, he ought to proceed in it with much perseverance and attention, until he has given it a fair trial. It is a main object, in carrying on improvements, not to attempt too much at once; and never to begin a work without a probability of being able to finish it in due season.

By the adoption of these rules, every farmer will be master of his time, so that every thing required to be done, will be performed at the proper moment, and not be delayed till the season and opportunity have been lost. The impediments arising from bad weather, sick servants, or the occasional and necessary absence of the master, will, in that case, be of little consequence, nor embarrass the operations to be carried on; and the occupier will not be prevented from attending to the smallest concerns connected with his business, on the aggregate of which his prosperity depends.

OF DOMESTIC MANAGEMENT AND PERSONAL EXPENSES.

On domestic affairs, a hint may suffice. Young farmers beginning house-keeping, like most others in similar circumstances, are apt to sink too great a proportion of their capital in furniture, and furnishing riding horses, carriages, &c. and sometimes to live up to, and even beyond, their income. We do not mean that farmers should not live like other men of the same property, but merely that all beginners should live within their income. Even in the marketing expenses care is requisite; and the prudent farmer will do well, every penny or six-pence he lays out, to reckon up in his mind what that sum per day would come to in a year. The amount will often astonish him, and lead to economy, and, when practicable, to retrenchment. Saving, as Franklin has inculcated, is the only way of accumulating money.

In regard to house-keeping, it is observed in the *Code of Agriculture*, that the safest plan is, not to suffer it to exceed a certain sum for bought articles weekly. An annual sum should be allotted for clothing, and the personal expenses of the farmer, his wife and children, which ought not to be exceeded. The whole allotted expense should be considerably within the probable receipts, and if possible one-eighth of the income annually received, should be laid up for contingences or expended in extra improvements upon the farm.—*Enc. Ag.*

Pyramids of Butter.

Col. Meacham, of Oswego county, lately brought to this city, two pyramids of butter, the produce of his dairy, one weighing five hundred pounds, and the other nine hundred pounds. They were covered with fine white cloth, upon which were various devices and inscriptions. The Colonel had previously sent to Washington a *tub* of butter, weighing 1450 lbs! Col. Meacham's name was already favorably known to the public as the maker of the large cheeses which attracted much notice two or three years ago. But it is not the production of large cheeses, or pyramids of butter, alone, that gives to this worthy citizen a high rank for enterprise and usefulness. Col. M. is a self-educated, self-made man, and one of the best farmers in our state. His example has had a highly salutary influence upon all around him, and has tended materially to increase the products, and to enhance the value of the lands in his neighborhood, and to check, withal, the tide of emigration from thence to the far west. How highly should such a citizen be appreciated, who not only contributes largely himself by his industry and enterprise, to the public prosperity, but influences others, by his example and his counsel, to "follow in his footsteps."

Rearing of Cattle.

We would direct the attention of our farmers particularly to this branch of husbandry, as one that promises to be lucrative in more ways than one.—The scarcety of winter fodder for some years back, induced many farmers greatly to reduce their farm stock. The high prices which beef has commanded in our cities and towns, has been a further cause of the reduction of our farm stock. But there is another cause, of no inconsiderable magnitude, completely under the farmer's control, which good policy, and even humanity, imperiously require should be corrected. We allude to the practice among dairymen, of destroying their calves at two or three days old, *to save the milk* which they would require, if suffered to live. This has become an alarming, and is a growing evil, in our state, and unless it is abated, threatens the worst consequences. Thousands of calves are thus annually destroyed, we are told, in the dairy districts, from a short-sighted policy, which would sacrifice, to present gain, one of the most important branches of our husbandry. These causes, combined, have caused a comparative scarcity of neat cattle; and prices have consequently advanced fifty to one hundred per cent, until this branch of husbandry, especially since the wheat crop, from the effects of winter and the depredations of insect enemies, has become precarious,—until, we say, cattle husbandry has become the most certain, and we believe the most profitable branch of farming.

But it is not the price of cattle alone that should influence the farmer in this matter. To *keep up the fertility of the soil*, is the cardinal point in good farming. *Fertility* is the source of our profits; and the *interest* which we receive will ever be regulated by the amount of the *capital* from which it accrues.—Cattle are emphatically the cause of fertility. They manufacture the hay, the straw, the stalks, the roots, &c. of the farm into dung, and dung alone keeps up fertility. The more cattle, therefore, which are maintained upon the produce of the farm, the greater the ability to keep up its fertility—the greater the farmer's fund, and the greater the amount of produce, or of interest, which he draws from it.

We know that there are many persons who own rich new lands, who either do not believe in, or who do not practice upon, this doctrine. They say fertility is inexhaustible in their soils; and practising upon this theory, they have in a measure neglected farm stock, and directed their whole efforts to the exhausting culture of wheat. We tell them, that the first settlers in the valleys of the Hudson and Mohawk once held their doctrine, and practised upon it, till their sons have seen its fallacy, to their sorrow; and have been obliged to commence an expensive renovating process, and a more enlightened system of management, to repair the waste, and atone for the errors, of their ancestors.

Corn Stock Fodder

Is generally regarded, by northern farmers, as of secondary, or trivial importance, in the economy of feeding neat cattle; and in the usual way of harvesting, curing and feeding it, perhaps the opinion is pretty well founded. The mode of harvesting is either to top and leave the tops in the field till the corn is gathered, or to gather tops and buts, after the corn harvest. In the first mode, the tops are always laid upon the ground, exposed to all the vicissitudes of weather, for days, and perhaps for weeks. They are then bound and stooked till gathered to the barn or fodder yard, probably in Oct. or Nov. at which time those cut up after the corn is picked, are generally also brought it. Thus, after attaining to maturity, to their best condition as cattle fodder, they are exposed, for one or two months, to the scorching and deteriorating influence of the sun, winds and rain, till their nutritive properties are seriously diminished, and until a considerable portion is either spoiled or wasted. And finally, they are often pulled from the stack by the stock which have admission to them, or fed, uncut, in a dirty yard, and soon trampled under foot. Now we ask any farmer of common sense, what his hay would be worth under a like system of management? Exposed for weeks or months to the wasting influence of the weather, afterwards but badly protected, and finally fed to his cattle in a like reckless and slovenly way!—Would it not impair it half—two-thirds, of its value? Sugar, or its elements, constitute the great nutritive principle of cattle forage. This exists to a great extent in corn stalks, as is evidenced by the saccharine matter perceptible in chewing a piece of green stalk, but it is more fully demonstrated by the fact, that in our revolutionary war, molasses, for household use, was manufactured from the stalks of corn, in mills constructed for the purpose. All our hay grasses possess this nutrient property. The moment cattle forage is cut, be it grass or corn-stalks, the natural tendency is to decomposition—to separate into elementary principles—and heat, moisture and air being the agents in effecting this change—the change is accellerated in proportion as these agents are permitted to operate upon the vegetable mass. If exposed to them all, as in the meadow or corn field, the change is rapid, and the hay or straw consequently more decreased in value; but if partially or wholly protected from one or more, by being secured in stooks, cocks, stacks, or buildings, the tendency to change—to rot,—is either retarded or wholly suspended. We all know, that to expose hay for weeks, or for days, to the combined influence of these agents, is destructive to its good qualities. Precisely such, though perhaps in a diminished degree, is their influence upon corn-stalk fodder.

Let us then inquire, what mode we can adopt to secure the full advantage of this great auxiliary to the cattle yard. Fortunately the mode has already been suggested by intelligent minds, and its utility amply demonstrated in the practice of many of our best farmers. The mode of doing the thing is this:—cut at the ground the corn crop, as soon as the grain has become glazed, and while the stock is surcharged with saccharine nutricious juices; put it immediately into stooks, containing 20 to 25 hills each; secure these well with a band above the ears, and another on the bonnet, to exclude rain; as soon as the corn is gathered, which may be done in ten to fourteen days, bind and stook the stalks, and as soon as they are sufficiently cured, carry them to the barn or sheds, or secure them in stacks; and when wanted, cut them with a machine, and feed them to your cattle in a clean manger. Thus cured and thus fed, corn stalks are equal, if not superior, to hay, for the winter keep of neat cattle. In saying this, we speak from the personal experience of years—our neat cattle have been wintered,—and *well* wintered, upon them, several years; and we are happy to add, in another column of this day's Cultivator, the corroborating and unequivocal testimony of Mr. Foote, of Williamstown, in favor of the system.

There is another and important consideration we have to mention, and that is, a belief, that well cured corn-stalks constitute an excellent food, when cut, for horses. At the south, corn blades, we believe, are almost exclusively used for the winter keep of horses. During last summer, it was mentioned by a correspondent on Long-Island, that corn stalk fodder was an effectual remedy against that troublesome disease—the *heaves*. Our hack horse had for years been troubled with this disease, and it never appeared to be more oppressive to the poor animal than in October last. As soon as our stalks were gathered to the barn, we directed some to be cut and fed to him, and the practice has been kept up to this day. We will not say that this has cured him; but this we do say, that since he has been served with the corn-stalks, we have not discovered in him the least indication of the disorder.

Cultivator Premiums.

There are but three crops, two of Indian Corn and one of Ruta Baga, that have claims to the premiums offered by us in our March number; and all these, we are happy to say, are highly deserving of reward.

The estimated nett profits of these crops are $68.15, $87.71, and $134.50—products large enough, certainly, to satisfy the reasonable desires of any man, for the use, one year, of an acre of land—and probably exceeding its marketable price, in fee. The only fault we find with the accounts current of these crops, is the low estimates they make of the value of manure; and one gentleman, Mr. Osborn, has virtually considered it worth nothing, except the expense of hauling it out. These gentlemen must all be good farmers, and if so, they must know, that every load of manure, when judiciously applied to the corn or ruta baga crop, is richly worth one dollar—nay, that it adds two dollars to the value of the crop.

Of the corn crops, both are so meritorious to the cultivators, that we will not stop to inquire which is most so, but cheerfully award to each of the competitors a *first* premium.

The ruta baga crop is certainly highly meritorious, whether we regard the product or the example it holds out to others. We therefore award—

To William Ingalls, of Volney, and to Joseph F. Osborn, of Port Byron, each, a ten dollar premium, on their corn crops of 116 and 118½ bushels per acre. And

To John C. Mather, of Schaghticoke, a premium of ten dollars, on his crop of 1231 bushels of ruta baga to the acre.

The premiums will be paid in plate, on demand, in such articles as the claimants may select. And may these prizes, though small in amount, stimulate the gentlemen to whom they are awarded to persevere in the work of improvement and of usefulness, to their individual benefit, and to the manifest advantage of the public, through their excellent example.

We award the premium of five dollars, for the best plan of a barn and cattle sheds, offered in 1837, to C. N. Bement, of Albany.

On the Culture of Rape.

Our attention has been drawn to this plant by the letter of Mr. Kennedy, inserted under Correspondence; and from the experiment in its culture which he details, there is a strong probability that it may be profitably introduced among us as a farm crop.

Rape belongs to the *Brassica*, or Cabbage, genus of plants, and is cultivated extensively on the continent, and in some parts of Britain, principally for the oil afforded by its seeds. According to De Candolle and Von Thaer, the species cultivated in Germany, France and the Netherlands, is the *Brassica campestris oleifera*, while that cultivated in Britain is the *Brassica napus*. The former has hispid, or bristly leaves, is more hardy, and more productive than the latter, the product being 955 to 700 of the latter. The rape is a biennial plant, and perfectly hardy, we *now* believe, in our climate.

With a view to encourage experiments in the culture of this plant, we shall state somewhat in detail, the mode of managing the crop, its product, uses, &c.

The soil for rape should in the first place be dry—it should be rich, ploughed deep and well pulverized. Reclaimed swamps suit it well. Prepare as for turnips, or other fine seed. The seed may be sown at the same time as the common turnip, and indeed it is sometimes sown with the turnip, though the practice is a bad one—the turnips being gathered in the autumn, and the rape in July following, when the seed has attained to maturity. It may be sown broadcast or in drills. If intended to be fed off by sheep in winter, a practice recommended by Loudon, and followed in Lincolnshire, one peck of seed may be evenly sown broadcast upon an acre; but if the object is seed, or the drill culture is to be adopted, two to four quarts of seed will suffice for an acre. Resembling the turnip much in the properties of its top, it affords, in autumn and winter, a fine "bite" for sheep. It is scarcely surpassed, says Loudon, by any other vegetable, in so far as respects its nutritious properties, and that of being agreeable to the taste of the animals. The after culture of rape should be like that of the turnip, though we are afraid it would be apt to be neglected with us—that is, it ought to be kept free from weeds by the hoe, and the plants ought to be thinned to the distance of six inches.—In close crops the seed is only found on the summits of the plants; in wide ones it also covers their sides. As seed is the principal object, the thinning process should be particularly attended to. It comes to maturity in July or August.

The harvesting process is the most critical. The crop must be cut with a sickle or hook, and with care, to prevent the loss of seed, which wastes under careless management; and it should be threshed, in the field or barn without delay, and without being put into stack or mow. In moving it to the threshing floor, either a perfectly tight box to the wagon or cart is required, or a large cloth should be spread upon the bottom, and extended over the sides, so as to catch all the seeds that fall out. The harvesting should be made in good weather, and as many hands be employed as can work to profit.

The product, under favorable circumstances, is forty or fifty bushels, or more, of seed to the acre.—The seed is crushed for oil, in the same way as lint or flaxseed, and never sells for less, in England, than £30, the last of ten quarters, which is about $1.66 to $1.70 the bushel. Marshall says it may be considered as one of the most profitable crops in husbandry. There have been, says he, instances, on cold unproductive old pasture lands, in which the produce of the rape crop has been equal to the purchase value of the lands. The oil is burnt in lamps, and is used for various other purposes; but is liable to become rancid; but by being purified it is almost entirely divested of color, smell and taste, so that it will burn clear without any interruption.

Independent of the value of the seed for oil, and of the leaves as winter food for sheep, the rape crop affords other sources of profit. Rape cake constitutes a valuable material for manure. The English break it into powder, and sow it broadcast upon clover, or deposite it, at the rate of four cwt. to an acre, in drills with turnip seed. The Flemings throw it into their urine cisterns, where it dissolves, and adds materially to the fertilizing properties of the liquid. In Holland it is almost exclusively used for feeding milch cows and other farm stock; and, if we mistake not, quantities are annually exported to England, under the name of oil cake, for a like purpose. The haulm is burnt by the Flemings, and the ashes, which are alledged to be equal to potash, are employed as manure. The English condemn this practice, and say that the haulm or straw is as acceptable to cattle as hay; and the Lincolnshire corrected report adds, that when grown on fresh land, the stalk is as brittle as glass, and is superior to every other kind of food in fattening sheep.

Rape has been raised, on a limited scale, by some foreign emigrants in our neighborhood, to afford autumn feed for sheep, but never, as we can learn, for the seed. And indeed seed has been kindly sent to us for trial, but the multiplicity of our avocations have prevented our giving it a trial. A principal obstacle, at present, to its culture among us, would be the want of mills to crush the seed.

We tender our thanks to Mr. Kennedy, for calling our attention to the subject; and shall be happy to be advised of the further progress of the culture in his neighborhood.

The Calendar of Flora.

The following memoranda of the time of the flowering of the peach and apple, will show the comparative forwardness of the spring season at the different places noted, the latitudes of which are also noted. The data were collected by Prof. Bigelow, of Harvard College. The peach blossoms at all places, according to Humboldt, in the month when the mean heat is about 42° of Fahrenheit.

Places.	*N. Lat.*	*Peach.*	*Apple.*
Charleston, S. C.	32°44'	March 6 to 12.	April 4.
Richmond, Va.	37.40	Mar. 6 to Ap. 6.	April 10–18.
Lexington, Ky.	38. 6	April 6 to 15.	April 10.
Baltimore, Md.	31.21	April 9	April 14.
Philadelphia, Pa.	39.56	April 15	April 20.
New-York,	40.42	April 21–26	May 4.
Boston,	42.23	May 9	May 18.
Albany,	42.39	May 12	May 15.
Montreal, L. C.	45.35	May 12	May 25.
Brunswick Me.			May 29.

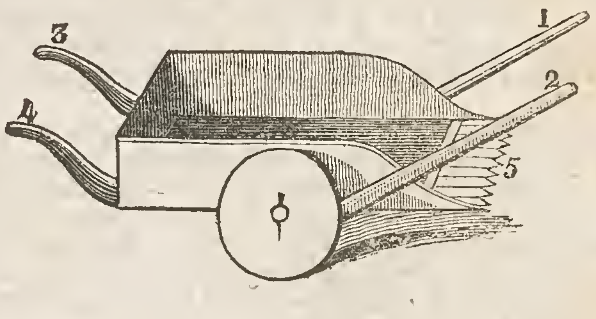
It appears from calendars of flowering in Europe, that in the average, vegetation is about a month backwarder in the United States, than in the same parallels of latitude in Europe. It appears from the above, also, that there is a difference in the forwardness of vegetation between Charleston and Albany, in a distance of nearly ten degrees of latitude, of about two months, or sixty days—averaging about six days to every degree. It is to be remarked that all the observations were made upon tide-water, except the one in Kentucky; and that every 300 feet of elevation above tide-water, in the same parallel of latitude, is equal to a degree, in the backwardness of vegetation. Thus the season at Albany would be six days earlier than at 300 feet elevation upon the neighboring Hellebergh, and 12 days earlier than at 600 feet elevation.

Clover and Clover Seed.

Clover is becoming of more and more importance, and the quantity sown is annually increasing, in proportion as the new system of husbandry progresses among us. Its tap roots penetrate and loosen the soil; its stems and foliage produce abundance of nutricious food for the neat stock of the farm; and both roots and stems, when turned over by the plough, are highly enriching to the soil. It is indispensable in alternate husbandry; and we feel justified in saying, that its liberal and judicious use, together with gypsum, upon many light soils, have added fifty, one hundred, and even two hundred per cent, to the profits of their culture. Yet there are a great many districts of our country in which its value is seemingly but little appreciated, and in which its cultivation has yet hardly been begun. There is hardly a plant grown upon the farm that returns to the soil more of the elements of fertility. There is almost a certainty, that its culture will continue to increase for some years, in a progressive ratio.

From this view of the subject it is apparent, that clover seed will continue to increase in demand, as it has continued to increase in price; and that the raising of it for market promises to be a lucrative business. The dwarf southern clover will afford a crop of hay, to be cut the last of June, and a crop of seed, to be gathered towards autumn. The price of seed is now from twelve to fifteen dollars a bushel; and suppose the acre to yield but five bushels, the profit will be enormous. Machines for cleaning the seed are already abundant, and others have been introduced for gathering the heads in the field. We give below the drawing and dimensions of one described by Mr. L'Hommedieu, in the transactions of the old Agricultural Society.

[Fig. No. 67.]



DIMENSIONS.

1. 2. The shafts, 4 feet 4 inches long, and three feet asunder.

3. 4. The handles, 3 feet long and 20 inches apart.

5. The fingers or teeth, 13 inches long.

The wheels are sixteen inches in diameter.

The machine is drawn by one horse, and guided by a man or boy. It simply consists of an open box, about 4 feet square at the bottom, and about three in height, on three sides. To the fore part, which is open, fingers are fixed, similar to those of a cradle, about thirteen inches in length, and so near as to break off the heads from the clover stocks between them, which are thrown back into the box as the horse advances. The box is fixed on an axeltree, supported by the wheels. The driver raises or lowers the fingers of the machine, so as to take off all the heads of the grass; and, as often as the box is filled with them, they are thrown out, and the horse goes on as before.

Specific Manures.

We have said, and repeated, that wheat cannot be depended on as a profitable crop, on primitive soils, without the application of animal matters and lime. The hopes of making New-England a wheat-growing country, always seem to us fallacious, from the absence, in all primitive formations, of these two essential elements, lime and animal matter. Lime is now generally admitted to be essential to a wheat soil; but as lime consists of 20 parts of the metal *calcium*, and about 7.5 of oxygen, it does not seem to furnish nitrogen. Upon this subject, we quote from the Edinburgh Quarterly Journal of Agriculture, the following, in support of our former opinions.

"On analyzing the *grain* of wheat, and the *bulb* of the turnip, (the parts for which the crops are cultivated,) it is at once found that both of them contain *elementary* principles not entering into the composition of "*common vegetable matter*," namely, *nitrogen* in the grain of the wheat, and *sulphur* in the turnip, beside which the *saline* matter is also found to be peculiar, but this last will be considered more fully hereafter. Having once, therefore, discovered that these elements are essentially necessary for the growth of the above-mentioned plants, we are evidently led to ask ourselves the question, Whence are they to be obtained? Dear bought experience has long since answered, *in animal manures.* Yes, all substances derived from the animal kingdom contain more or less of both nitrogen and sulphur, and hence the value, or, in fact, the absolute *necessity*, of such manures for the particular crops now under consideration. It may, indeed, be said by some, that 'however necessary animal manure may be for turnips, still there can be no absolute necessity for their application to the wheat crop, for, as nitrogen is the substance here wanted, surely the atmosphere will present a ready and never-failing reservoir of that element.' But it must here be remarked, in answer to such a statement, that it is exceedingly probable that the *higher* order of plants, at least, *never* obtain the nitrogen they possess from the air, but always from decomposing *animal* matter."

And what, we may be asked, are *animal manures?* Not mere vegetables, which have rotted in the yard, or passed through the cattle of the farm—not farm-yard and stable dung, in the ordinary mode of its management. The common vegetable matters consumed by the farm-stock do not contain nitrogen, this essential element of wheat. It, however, abounds in the urine of animals, and in all animal substances, as wool, hair, bone, horn, the dung of carniverous animals, or such as feed upon flesh; it exists in fish, in soap boilers' waste, impregnated with animal oil, and to some extent in shell marls.

We shall be told, probably, in contradiction to our theory, that the primitive formation of New-England has produced good wheat, and that it promises to produce it again. When first subjected to culture, even soils of primitive formation have a quantity of animal matters upon their surface, the accumulation of centuries, which may have sufficed for one or more crops of wheat; but these supplies being exhausted, the crop has failed. Art may in many cases supply the deficiency, by the application to the soil of one or more of the above enumerated animal substances; and these elementary matters may have been accumulating from ordinary manuring, until the soil has become sufficiently charged with the specific food of a wheat crop. We really fear that all attempts to raise good wheat—we mean the grain, not the straw—on soils of primitive formation, without the aid of animal manures, will be found to be rather an uphill business; and that even with this aid, it will turn out much like Franklin's whistle—will cost more than it is worth.

We will extract one other remark from the writer above quoted—which is, that "although *practice* has long ago shown the necessity of *animal* manures for the above-mentioned crops, [wheat and turnips,] still *chemical analysis* alone could ever have explained the *reason* for this necessity; thus placing the advantages to be derived from the science in a truly prominent and important light."

Properties of Wheat.

The following abstract is taken from Davy, to show, first, the difference in gluten, starch and bran, between winter and spring wheat; and, secondly, how seriously impaired the value of both is by mildew.

		Flour.	*Bran.*
Thin-skinned Sicilian wheat afforded of..	Gluten 239 Starch 722	=961	39
Middlesex wheat, (average crop,)	Gluten 190 Starch 765	=955	45
Spring wheat,........	Gluten 240 Starch 700	=940	60
Mildewed wheat of 1804	Gluten 130 Starch 520	=650	350
Do. of 1806, ...	Gluten 32 Starch 178	=210	790

Showing, in one instance, a loss of 31 per cent of flour in the mildewed, when compared with the average English wheat, and in the other of nearly 75 per cent.

It will be perceived that the spring wheat contained more gluten, the more nutritious portion of flour, than the winter wheat; and that the winter wheat from Sicily, a warm climate, contained a greater portion of gluten than that which was raised in England, a cool climate.

Education in the German States.

Some time ago, the Conductor received from the author, a pamphlet "On the establishments for public education in Bavaria, Wirtemburgh and Baden, &c. by John C. Loudon," editor of the Encyclopædia of Agriculture, &c. There are many facts embraced in the pamphlet, from which we may derive benefit, particularly from those which relate to new branches of instruction, which may properly and profitably be introduced into our common schools.

The kingdom of Wirtemburgh is represented as one of the most generally civilized in Europe. Elementary education is universally diffused. All can read and write. Schools are of course abundant. A college is established for the instruction of school teachers. The students undergo a rigid examination, and when properly qualified as teachers, they receive a certificate, which is indispensable to admit them to the head of the lowest school. Government fixes the amount of their salary, which is paid by a tax on the district.

Every child is required to be sent to school—males from 6 to 15—females from 6 to 13. An annual examination is had, at which the trustees award a certificate to those who are found to be competently instructed; and no person is allowed to be employed throughout the kingdom, who is under the age of 21, without such certificate.

In Bavaria, the system of education resembles that of Wirtemburgh. The elementary principles of agriculture, both the art and science, are taught in these schools. M. Hazzi, an enlightened patriot, has composed a Catechism of Agriculture, which the government has ordered to be introduced into all the schools. Every school has some two or three acres of land annexed to it, in which the scholars act as laborers—sowing various kinds of seeds—noticing the variety of culture, and the phenomena of vegetable physiology. A small garden is reserved for the female children to raise flowers. The elder scholars in the female academy at Carlshue study natural history, (and particularly botany,) astronomy, geography, the French and German languages, and music and drawing.

On the Winter Management of Manure

We make this preliminary remark, upon which what we have to offer is in a measure predicated, viz. that all the manure from the stables, yard and hog-pen, should be carried out in the spring, for the corn and potato crops.

The objects to be obtained in the winter management of manure, are,

1. To prevent waste by leeching and drainage;
2. To prevent its becoming fire-fanged; and,
3. To prevent more than moderate, or incipient, fermentation.

1. Where cattle yards are upon a slope, or are convex, or nearly upon a level surface, the liquid portions of the manure, which may be termed in a measure the cooked food of plants, continually pass off, and are lost. Heavy rains, and the drip from the barns and sheds, also, passing through the manure, in its escape from the yard, leech, and deprive it of its finest and most fertilizing properties.

The remedies against this evil, consist, *first*, in giving a concave, or dishing shape to the yard. The earth excavated from the centre being deposited upon the borders, which should be fifteen or twenty feet broad, with a slight inclination to the centre, a dry passage to the barn is secured, and a sufficient space of dry ground to feed the stock upon which run at large. *Secondly*, the yard should be bedded, after it is cleaned, with peat or swamp earth, if the farm affords it, six to twelve inches deep; or if this is not to be had, with any other porous waste earth—and afterwards should be kept well littered with straw, stalks, potato tops, and the coarse grass and weeds of the farm. The shape of the yard prevents the escape of the liquids, and the earth and litter absorb and become enriched by them. Even should the liquids of the yard be dried up, as they are in summer, the earth and litter will retain the fertilizing matters which they held in solution. By these operations alone, the quantity of manure will be double what it is where they are neglected. *Thirdly*, in endeavouring to prevent an excess of water in the yard, by catching in gutters, and conducting off, what falls from the buildings. And *fourthly*, by constructing a reservoir, under ground, for the reception of the liquids that unavoidably flow from the yard, and particularly for the urine from the stables. In this latter mode, a great accession may be made to the fertilizing resources of a farm, and a material ohtained, fitted for the immediate wants of a growing crop.

2. When dung is accumulated in large masses, either when thrown from the stables, or in the fields where it is to be applied, even if protected from the weather, a violent fermentation takes place, moisture is exhausted from the mass, and the dung becomes what is termed *fire-fanged*—dry, light and mouldy, and seriously impaired in its value.

To avoid this, in the yard, spread the manure from the stable, occasionally, over the yard. It thereby becomes blended with other matters less disposed to ferment, is trodden by the stock, and the air, one of the agents in causing it to ferment, is in a measure excluded. Under cover, it should not be suffered to accumulate in excess, without the admixture of earthy matters, which would retard fermentation and preserve moisture. It is often convenient to draw manure to the field in the autumn, or winter, where it is to be used. If such manure has not undergone fermentation, it should never be laid in heaps of more than three feet in depth, or six or eight loads together, the surface should be handsomely smoothed off, and then covered, when the frost will permit, with six or eight inches of sod or earth. This prevents violent fermentation, and the loss of the gaseous matters which fermentation always sends off.

With the foregoing precautions, there is little danger of fermentation proceeding to a wasteful or improper length before the manure is wanted for the corn or potato crop.

What farmer is there, who makes any pretentions to economy, who would not feel insulted to be told, that he carelessly wasted one half of his family food, or of his cattle food—one half of what his farm produced for animal subsistence? Where is the matter of difference, whether he wastes the food of his family, of his animals, or of his crops? His crops feed both his family and his live stock; and unless he feeds his crops, the others must ultimately suffer the penalty—for the earth, though a kind and prolific mother, cannot always give, when we withhold from her the means of giving. Return to her *what is no longer of use to us*, and she will requite us with her richest blessings. Let us bear in mind, that every animal and vegetable substance, which we return to her bosom, she will faithfully elaborate into new organized matter, for our pleasure and profit; but that if, like the prodigal, we exhaust the parental treasure, it can no longer supply us with bread or meat. Too many who occupy a rich virgin soil, may be likened to useless drones who waste their patrimonial wealth: they waste that which would benefit both themselves and their children.

The Oak the Emblem of our Country.

Our country may be likened to the oak—the three great business classes to the roots, branches and leaves, and the strong tough trunk, to society in mass. Agriculture may be compared to the roots, which provide food and the elements of wealth; manufactures to the leaves, which elaborate, and convert to useful purposes, the materials furnished by the roots—and commerce, to the hranches, or channel of intercourse between the roots and the leaves. Without the branches, the roots and leaves are deprived of their reciprocal aids. Without the leaves, growth must cease. Without the roots, leaves, branches and trunk must perish. The root can send forth a new stem, branches and leaves; but neither the stem nor branches, nor leaves can, ordinarily, either separately or conjunctively, produce new roots. All are, primarily, nourished from the soil, and all being in healthful condition, form a whole, which can, like the oak, buffit the storm, be it the local thunder gust, or the more formidable foreign north easter. Let us, therefore, cherish and protect all—and let us specially nurture the root, as the primary source of life, growth and usefulness, to the stem, branches and leaves. To carry out the comparison, we will liken the acorns to the "loaves and fishes" of office, and the moss, which feeds upon the oak, to the parasytic drones who live upon society. N. B. In our comparison of the farmers to the radi*cles* of the oak, we beg not to be misunderstood—they are not radi*cals politically*, but the radi*cles positively*.

Resources of Fertility in the South.

Throughout the entire oceanic deposite, from Connecticut to the Capes of Florida, or what may be called the flat sandy districts on the Atlantic border, new elements of fertility are daily being brought to light, and this will undoubtedly continue to be the case for years, as science is made more and more subservient to the purposes of husbandry. So that it would seem, that Providence has every where scattered the means, if man will but properly use them, of rendering the soil prolific, in all that is essential to the wants and comforts of the human family. The green sands of New-Jersey, Maryland and Virginia, abounding in potash, have already done wonders in imparting fertility to soils that were deemed barren and unworthy of culture; the shell marls, and immense banks of marine shells, which seem to increase in magnitude as we go south, are coming into useful action, chiefly through the instrumentality of E. Ruffin, whose excellent treatise upon calcarious manures ought to be in the hands of every farmer; and we see recently announced the discovery, by Dr. Cooper, of immense beds of calcarious matters, of uncommon richness, in the pine or sandy districts of South Carolina—a material exactly adapted to the wants of those districts. We have in our own state immense beds of marl, fitted to impart fertility to our soils, yet but imperfectly known, and less properly appreciated in value.

National Silk Convention.

A convention of 170 gentlemen, engaged in the silk and mulberry business, met at Baltimore on the 12th Dec. and held a session of three days, and formed the "American Silk Society." It was resolved in these meetings, to establish a national Silk Journal; to recommend the organization of state societies, auxiliary to the national society; to offer premiums to encourage the culture and manufacture of silk; to recommend the Piedmont silk reel; to recommend to the cultivators of the mulberry, *to turn their attention to the production of silk*; to solicit the states to pass laws to encourage the silk culture, and to protect plantations of the mulberry; and that another national Silk Convention be held at Washington, on the second Wednesday after the first Monday in Dec. next.

The Grain Worm,

Which is complained of in the west, and which has been particularly spoken of in the Genesee Farmer, we are induced to believe, is not identical with the insect which has for years devastated our fields. Will the editor of that Journal, or some other individual, describe the grain-worm of the west?

Boynton's Straw-Cutter.—This recently patented machine, of which a figure, &c. is given in our advertising sheet, is highly spoken of; but we are unable to speak personally of its merits, not having seen it in operation, or even seen the machine.

Root Culture.

Persuaded that root culture is ultimately to effect a great improvement in our husbandry, we propose to make it the subject of some remarks in this and subsequent numbers. The advantages which root crops offer to the farmer, are the following, viz.—they furnish the most food for animals, and the most food for vegetables in the form of dung; they are least exhausting to the soil, which they serve to divide and pulverize; they are excellent to alternate with grass and grain in convertible husbandry; and for these reasons they are the most profitable to the cultivator, on all farms which will admit of their culture. We intend to direct the attention of the reader to the different roots which are adapted to our field culture, to the best modes of managing the crops, the manner of preserving and feeding them properly, the expense of culture, the average product, and, so far as our data will justify, state their relative value as cattle food.

The roots we intend to notice are, the Potato, the Turnip, the Beet, the Carrot and the Parsnip. But before we proceed to consider them individually, we will offer some

PRELIMINARY REMARKS.

Five things are essential in the culture of the roots we have named: 1st. A dry soil; 2d. A rich soil; 3d. A deep worked soil; 4th. A well pulverized soil; and 5th. Good after culture. The crop will be abundant in proportion as these several requisites are present, and defective in proportion as they fail.

By a *dry* soil, we mean a soil that is not *wet.*—*Moisture* is beneficial to all crops, but *water* is detrimental to all root crops, though it repose upon the subsoil, or but occasionally saturate the surface.—Hence where roots are grown upon soils that are tenacious and flat, or upon those which repose upon an impervious subsoil, the land should be thrown into ridges, and the furrows kept open for the free passage of the water in heavy rains.

A rich soil is as essential to good crops as rich and abundant food is to the fattening of farm stock. We all know that short pasture and coarse fodder will *keep* cattle, though it will not *fatten* them. So with roots—they will *live* and *grow* upon a poor soil, but their product and profit will be great only on a *rich* one. The advantage to the crop, as well as the animal, will be in proportion to the quantity of dead organic matter which it converts into living organic matter—into vegetables and into meat. Ordinarily speaking, a good dressing of manure will double the products of a root crop. To illustrate this fact more fully, we abstract the following tabular statement from Arthur Young's experiments in planting potatoes. The preparation and culture were alike in all. The numbers to which the asterisk (*) is affixed were manured crops.

No.	Preceding crops.	Expense. £ s. d.	Product, bushels.	Profit. £ s. d.	Loss s. d.
1	Fallow, ...	3 19 1	104 at 1s.6d	2 18 5	0 0
2	Barley, ...	4 5 9	128 2 0	3 11 10	0 0
3	Wheat, ...	6 13 6	46 0 20	0 0 0	0 0
4*	Do	7 16 10	101 0 20	2 5 6	0 0
5	Do	6 2 6	39 0 20	0 7 6	0 0
6	Do	7 19 4	63 0 20	0 16 11	0 0
7*	Do	4 14 5	170 0 20	9 2 0	0 0
8	Do	8 9 3	30 0 20	0 0 0	15 6
9*	Do	4 12 1	201 0 20	11 2 9	0 0

The three manured crops, it will be seen, gave an aggregate product of 472 bushels, and an aggregate nett profit of £22.10.3, ($99.90, say $100;) the three adjoining plats, treated like the others in all respects but manuring, gave an aggregate nett product of but 132 bushels, and an aggregate nett profit of but 8s. 11d. ($1.96, say $2;) thus showing that the manure, in these cases, caused an absolute gain of $98, and that where it was not used, there was in fact only a nominal profit of *two dollars!* These facts will serve to show the reader, *first*, the great value of manure in farming operations, and to stimulate him to save and economise it; and, *secondly*, to show him the propriety of *always* manuring his potato crop, for which it is universally admitted the unfermented dung and litter of his cattle yard is *best* fitted.

A deep worked soil is necessary, that the tap roots of the beet, carrot and parsnip may not only penetrate freely, and enlarge their length and volume, but that their radicles, which are principally upon their lower extremities, may there find food for the plant. The fibrous roots of the potato and the turnip are equally benefitted by a deep tilth, from which they can draw nourishment, and find shelter from drought.

The pulverization of the soil is essential to the germination of the seed, to the easy extension of the roots, and to the free circulation of air and moisture, and the admission of solar heat, all necessary to prepare and transmit the food to the growing plants.

Thinning the plants and keeping them free from weeds, and the surface of the soil open to atmospheric influence, is of great importance. If the soil is dry, and rich, and deep, and well pulverized, the labors of the husbandman will yet not avail much, in root crops, if he suffers his plants to be injudiciously crowded, or to be choked and robbed of their food by rank growing weeds. And as prevention is better than cure, the thinning and cleaning processes should be commenced early, and rigidly persevered in, not only that the weeds may not exhaust the fertility of the soil, but that the latter growth may not mature their seeds, and thus perpetuate the evil.

In our next number, we shall treat of the culture, &c. of the root crops named in the commencement of this article.

Beet Sugar.

We notice by a letter from the Hon. H. Ellsworth to the editor of the New-York Observer, that important improvements have been recently made in France, and the neighboring countries, in the process of making sugar from the beet root. "The difficult and tedious process of ordinary evaporation, with all the concomitants of blood, animal carbon, &c. &c. are to be dispensed with, and instead of three, four and five per cent, *nine* per cent is surely to be obtained, in less time, and with half the expense: in addition to this, the common sugar is *refined* without any new solution, or even changing the moulds." "Experiments made before the French academy, show that there are in 100 lbs. of beet, 85 lbs. of water, 10 5-10ths pounds of sugar, 5-10ths of mucilage, and 4lbs. of fibrous matter. This was extracted by M. Becaud in eight minutes, by the aid of heat and pressure."—The beets are now sliced, dried, reduced to powder, and packed, and in this case will keep a long time. When used, a little water is put to the powder, which abstracts the saccharine matter, the liquid is evaporated, and crystilization formed. The sugar is now said to be made at an expense of five cents the pound, including the cost of the beets, and excellent refined sugar costs about seven cents. With such results, the production of this article among us, on a large scale, is rendered almost certain.

The Farmers' Garden.

ORNAMENTAL DEPARTMENT.

Start not at the caption, brother farm-rs. You all have your hobbies, which administer to your pleasure, without adding substantially to your purse, or your enjoyments. Flowers are the hobbies of the ladies, and of men, too, of refined taste. Flowers are the handy-work of the Creator, intended to gratify, not the animal appetite, which we possess in common with the brute, but the more refined sensations which belong exclusively to man. Their inimitable and diversified pencilings--their unsurpassed fragrance and beauty—are calculated to excite our admiration and to awaken our best feelings. "Behold the lilies of the valley; they toil not, neither do they spin; and yet Solomon in all his glory was not arrayed like one of them." We seldom if ever saw in the master or mistress of a choice flower garden, a person of bad passions or of bad habits. Accustom youth, therefore, to cultivate and to admire the flower garden, as a rational means of making them agreeable to others and happy in themselves.

The ornamental department of a garden consists of dwarf trees, shrubs, including woody creepers, perennials, biennials and annuals. These may be cultivated exclusively in a flower garden, they may be interspersed in a fruit or kitchen garden, and the trees, shrubs and perennials are peculiarly appropriate for court-yards and grounds about the dwelling. Our notice of them will necessarily be brief. We shall class them under the appellations of trees, shrubs, perennials, biennials and annuals.

DWARF TREES,

Suitable for a court-yard, or for planting about dwellings, are the mountain ash, European and American, the magnelias, the glauca and acuminata being hardy, and the macrophylla and tripetela being considerably so—the Siberian crab, of which there are several varieties—the double flowering cherry and peach, the double white and scarlet flowering hawthorn, &c. Evergreens may be intermixed, about the dwelling, more or less, according to the extent of the grounds, as may also fruit and forest trees. Of the former, the white pine, fir, arbor vitæ, spruce, Swedish juniper and red cedar, are all ornamental, and add to the diversity and beauty of rural scenery.

SHRUBS.

1. Althæa *Frutex.*—This is a handsome shrub, which flowers in August and September, rather tender for this latitude, but sufficiently hardy as far north as 42°. There are several sorts, having different coloured flowers, double and single; the single flowering are the hardiest. It may be propagated by seeds or suckers. Gather the seeds in autumn, and sow the spring following.

2. Almond, double flowering—*Amygdalis nana*—of dwarf growth, and one of the earliest and most beautiful flowering shrubs. It produces wreaths of flowers resembling small roses. Propagates rapidly from suckers.

3. Azalea, *wild honeysuckle.*—There are several indigenous kinds in our woods, all ornamental, and the white peculiarly fragrant.

4. Box, *buxus*—though not a flowering plant, is highly ornamental for edgings. It is a dwarf evergreen, propagated by cuttings and by dividing the roots. Requires some protection in northern winters.

5. Brier, sweet, *rosa rubiginosa.*—Though abounding in our fields, this is a pretty plant in the shrubbery, both on account of its fragrance and of its foliage and flowers. It is too common, like many other native plants, to be duly appreciated.

6. Bignonia *radicans*—Trumpet flower—a splendid climbing shrub. One variety, the *flammea*, has yellow flowers; another, *coccinea*, bright scarlet flowers. Propagated by suckers. Rather tender here, but requires no protection fifty miles south.

7. Cassia *Marylandica.*—Has pretty foliage, and produces many small yellow flowers. Propagated by seeds. Though the top is sometimes injured by the winter, it springs again from the root, and flowers the same season.

8. Clethera *alnifolia.*—A very common shrub, which produces fragrant flowers in clusters in autumn.

9. Cranberry, high—*Viburnum oxycoccus*—a shrub abounding in swamps and wet grounds. It wants nothing but a foreign origin to make it a desirable plant for the shrubbery.

10. Corchorus *Japonica*—Japan globe flower—will stand the winter in a protected situation, though it will not flower so well as when placed in a green-house. Flowers of a golden yellow, double, and much admired. Stem and foliage handsome. Propagated by suckers.

11. Fringe Tree—*Chionanthus Virginica.*—A beautiful American shrub, covered with white flowers in June. Hardy. Propagated by layers.

12. Fringe Tree, Venetian Sumac—*Rhus cotinus*—a singular shrub, loaded during summer with tufts of russet coloured down. Propagated by layers and suckers.

13. Glycine, *frutescens*—a perennial climber, with variegated flowers, much admired. A Chinese species *G.* (*sinensis*,) is less hardy, though not less beautiful.

14. Honeysuckle, *Caprifolium.*—This is a family of beautiful climbing shrubs. The scarlet and yellow monthly, the oak-leaved and the woodbine are hardy. Other species are less so. They are beautiful for arbors and walls.

15. Kalmia *latifolia*, commonly called Laurel, a beautiful evergreen flowering shrub of our mountains and forests, south of Catskill and Northampton. Like all other evergreens, it should be transplanted in the season of its growth—May, June and September being the best months to remove them, taking care to counteract evaporation, by spreading coarse litter over the roots when transplanted.

16. Lilac, *Syringa.*—Handsome flowering shrubs, of which we have the white, purple, Siberian, Persian and Chinese, the latter too tender for northern winters. They all readily propagate by suckers.

17. Lonicera.—A family of upright shrubby plants related to the honeysuckle, and perfectly hardy. The Tartarian and Siberian (or rather Iberian,) are beautiful flowering shrubs, easily increased by layers or cuttings.

18. Mezereum, *Daphne mezereum.*—A dwarf shrub and hardy, which is covered with pink flowers in March or April, before the leaves expand. Two feet high. Propagated by seeds.

19. Pæonia, *moutan*, or Chinese tree pæony. A diminutive shrub, but affording the most brilliant flowers. There are three varieties, the common, poppy-flowered and the rose coloured. They are of recent introduction, and have been generally cultivated in the green-house, but are found to be perfectly hardy in the open ground. Propagated by offsets.

20. Pyrus *Japonica*—Japan quince.—A thorny hardy shrub, covered with brilliant scarlet flowers in the spring, and also often flowering in autumn.—There is also a variety producing white flowers. This plant would make a strong and an ornamental hedge. Propagated, like horse-radish, by cuttings of the root.

21. Pyracantha, or evergreen thorn, is a pretty ornament in the shrubbery. Rather tender.

22. Rhododendron, *maximum*—rose bay.—A native evergreen of our state, of rich foliage, and clusters of beautiful flowers.

23. Rose acacia, *Robina hispida*—a hardy shrub that propagates rapidly, and produces handsome flowers

24. Rose, *Rosa.*—Of this favorite plant, botanists

enumerate some sixty species. The varieties are almost without number, and are annually multiplied by nature and art. The principal species for garden culture are, 1, the *spinosissima*, or Scotch rose, admired for its foliage as well as flowers; 2, the *Damascena*, or damask rose, embracing many termed perpetual roses, that is, blooming till checked by the frosts of autumn; 3, *centifolia*, Provens or hundred leaved, including the mossy varieties; 4. the *gallica*, or officinal, embracing the largest number of cultivated varieties; 5, *alba*, or white; 6, *rubiginosa*, or sweet brier; 7, *Indica*, or Chinese, including Bengal; and 8, *semperflorens*, or ever-blooming. The *moschata*, *Lawrenceana* and *Banksiæ*, are also cultivated, particularly in the green-house. The flowers of the rose are of all colours, from a pure white to a bright yellow and very dark red—some are dwarfs, some tall growers, and some climbers. A dozen plants, embracing different colours and varieties, are a great ornament in a court-yard or garden. Most of the varieties of the rose propagate by suckers, others require to be layered, and some are propagated by cuttings. Suckers may be planted in the autumn or spring, and should be cut down to five or six inches; and the ground should be kept clean and in good order. All the weak, dead or dying wood of roses should be carfully taken out, and it is the practice with many to cut them down in spring, to a certain height, say one or two feet, except climbing varieties, to produce strong flowers.

25. SNOWBERRY, *Symphorea racemosa*—is a small shrub, which produces clusters of white fruit in autumn, and is ornamental. Propagates freely by suckers. *S. Punica*, or crimson berried, which carries its berries in winter, is also ornamental.

26. SPICE-BUSH, *Laurus benzoin*—a native of our woods, is a desirable inmate of the shrubbery.

27. SPIRÆA.—Several species, with delicate flowers, which are indigenous, are worthy of culture.

28. STRAWBERRY TREE, *Euonymus*—white and red fruited, are highly ornamental, and are readily propagated from the seed.

29. SYRINGA, *Philadelphus*.—There are three species, all worth cultivating, admired for their flowers, and the *coronarius* (mock-orange,) for its fragrance. Propagated by suckers.

30. SWEET-SCENTED SHRUB, *Calycanthus floridus*—has flowers of a brown purple colour, of an agreeable odour, like spices—leaves fragrant.

Perennials, biennials and annuals in our next.

Blight in Grain caused by Barberry Bushes.

We find a strong confirmation of the correctness of Sir Joseph Banks, in saying that barberry bushes caused rust or mildew in corn crops, in a communication of the Rev. Dr. Singer to the Highland Society of Scotland. The Doctor states, that the loss annually sustained in Dumfriesshire, by this distemper on the crops, amounted to more than £1000, or 4,444 dollars; that Sir W. J. Hope, to test the correctness of Sir Joseph's theory, caused the total extirpation of the barberry bushes upon his estate; and that *since that was done, and for above twenty years, no such distemper has appeared in his fields.* And he adds, the same thing has been done in some parts of Ayreshire, and the same result has followed.

It is not intended to be understood, that the barberry bush is *the* cause, but merely *a* cause, of the mildew. The mildew, or rust, is known to be a parasite; but it is contended, that this parasite belongs to a genus of plants; that different species infest, exclusively, different plants, and that that upon the barberry bush is not the species found upon wheat, oats, &c. The mildew prevails where there are no barberry bushes; but if we admit the malign influence of this bush upon grain, we may with equal propriety admit, that other trees and shrubs which, like the barberry, are the home of rust, as the poplar, willow, and a great many others, have an equally malign influence upon the grain. Two contingencies must occur, it would seem, to favor the propagation of mildew—plants affording its seeds, and a suitable state of the atmosphere to waft these seeds to the standing grain.

Recipes for the Family.

Cement to mend broken china or glass.—Garlick stamped in a stone mortar; the juice whereof, when applied to the pieces to be joined together, is the finest and strongest cement for that purpose, and will leave little or no mark if done with care.—*Dom. Ency.*

Cement for stopping cracks in cast iron boilers.—Common salt by measure four parts, smithy slack one part, flower of sulphur three parts, flour one part, water to make the ingredients into a paste.—*Ib.*

Another which we have proved.—Beat up the whites of eggs, and add powdered unslaked lime to make a paste, and fill with it the cracks in iron vessels.—Though it does not reunite the iron, it will prevent the vessel leaking.

A cement that resists the action of fire and water.—Take half a pint of milk, and mix it with an equal quantity of vinegar, so as to coagulate the milk. Separate the curd from the whey, and mix the latter with the whites of four or five eggs, after beating them well up. The mixture of these two substances being complete, add quick-lime to them which has passed through a sieve, and make the whole into a thick paste of the consistency of putty. If this mixture is carefully applied to broken bodies or to fissures of any kind, and dried properly, it resists fire and water.—*Ib.* [We have tried it successfully to stop leaks around chimneys in the roof.]

Cement for a floor.—A very hard and dry, and also incombustible cement for floors, in lieu of boards or bricks, is, tar thickened with pitch, and while hot made into a plaster with common wood ashes, as much as the hot liquid will take up.—*T. Cooper.*

For Shoe Blacking.—Mix lampblack with a little sugar and the white of an egg: Then dilute with stale beer.—*T. Cooper.*

In grafting, Wilson, in the economy of the kitchen garden, recommends fresh cow-dung, instead of clay or composition, for covering the wound—merely tieing over it a piece of bladder or oil cloth to prevent its being washed off by the rains. From the known healing qualities of cow-dung, we have little doubt but it would prove an excellent substitute.

To make salt butter fresh.—Put four pounds of salt butter into a churn with four quarts of new milk, and a small portion of anatto; churn them together, and in about an hour take out the butter, and treat it exactly as fresh butter, by washing it in water, and adding the customary quantity of salt. This is a singular experiment. The butter gains about three ounces in each pound, and is, in every particular, equal to fresh butter.—*Dom. Ency.*

To purify Tallow.—When the tallow you are about to employ to make candles, is very dirty or rancid, an ounce of pearlash to about ten pounds of tallow, put into the water where the tallow is melted, is of service.—*Cooper.*

A cheap mode of preserving Plums and Grapes, has been communicated to us by a female correspondent. The process consists in alternating them in an earthen pot, the bottom of which should be previously covered with melted butter, with sugar—every three thicknesses of fruit to receive a slight sprinkling of sugar. The pot when filled, is to be covered, and set into an oven gently heated, so that the fruit will crack open, and kept there until the juice becomes thick or candied. The fruits may then be taken out, packed close in stone jars, covered with a little sugar, and kept for use, and will retain their natural flavor. When used they may be sweetened to suit the taste, and if wanted for pies or puddings, a little warm water put upon them will cause them to swell and become tender. The benefit consists more, we suspect, in retaining the natural flavor of fruit, than in the economy of sugar.

A Yankee desideratum—Pumpkin Pie, good Pumpkin Pie, without molasses or eggs! Accompanying the above, we have an assurance, that a new Shaker pumpkin, a cross of two choice varieties, is so rich and fine grained, that it requires neither sugar nor eggs to convert it into first rate pumpkin pie. Nor is this all, the pumpkin does not require to be divested of its rind, but merely scraped, ere it is boiled.

Remedy against Moth.—Our furs, and our woollen apparel, &c. are liable to be seriously injured by moth, in the summer season, when they are not in use.—We give the following simple preventive, which, although known and practised by many, may be new and servicable to some. Put your furs and wollen apparel into linen or hempen bags, and sprinkle the bags with spirits of turpentine—moth will not touch them.

A Butt Hinge Manufactory,

Is now in operation at West-Troy, the first we believe in the United States, and on an improved principle. With half a dozen boys and a couple of men, it will turn off a hundred dozen pair of door butts in a day, of a quality superior to those ordinarily imported, and at as low a price.

The best Manure for Clay Soils,

Is sand and ashes, or sand and lime: also plough deep, and expose it in the autumn in ridges, throughout the frost of winter, as the brick-makers are accustomed to do.—*T. Cooper.*

Stone Walls in Ireland,

Are built, says the Roscommon Report, without mortar, by dry wall masons, with nearly the closeness and accuracy of house walls. They build by a frame, nearly two and a half feet at the bottom, and eighteen inches at top. These are the dimensions suitable to a permanent wall six feet in height, which is usually coped by two substantial sods of three inches in thickness. The first is laid with its grassy side down, on about an inch of level mould, on the top of the wall; and the second inverted upon that, with the grass uppermost. This species of fence, with very little attention paid to it, will be safe at the end of fifty years. The expense of such a wall in Ireland, including quarrying and drawing the stone, is but 5s. 7d.—about $1.20—per running perch. In proportion to the diminution of height—and five feet would be deemed high enough with us—will be that of width and expense of building.

A table of various Foreign Coins, &c. with their value in Federal Money, as established by an act of Congress.

	$	d.	c.	m.
Pound sterling,	4	4	4	0
Pound of Ireland,	4	1	0	0
Pound of the Canadas,	4	0	0	0
Pagoda of India,	1	9	4	0
Mill-rea of Portugal,	1	2	4	0
Ruble of Russia,	0	6	6	0
Rupee of Bengal,	0	5	5	0
Guilder of the Netherlands,	0	3	9	0
Mark Banco of Hamburgh,	0	3	3	5
Livre of France,	0	1	8	5
Real of Spain,	0	1	0	0

A table of the weight and value of certain Foreign Coins.

Names.	Standard weight.		Federal value.				
(*Gold.*)	*dwt.*	*gr.*	*E.*	*D.*	*d.*	*c.*	*m.*
A Johannes,	18	0	1	6	0	0	0
A Half Johannes,	9	0	0	8	0	0	0
A Doubloon,	16	21	1	4	9	3	3
An English Guinea,	5	6	0	4	6	6	7
(*Silver.*)							
English or French Crown,	19	0	0	1	1	0	0
The dollar of Spain, Sweden or Denmark,	17	6	0	1	0	0	0
An English shilling,	3	11	0	0	2	2	2

Economy of Health.

We had forgotten our promise to give occasional extracts from this admirable work of Dr. Johnson, till reminded of it by a friend. We now proceed to make some extracts from the seventh septenniad—from forty-two to forty-nine years.

"SEVEN TIMES SEVEN! Awful multiple!—This is the crisis of human existence; for, however we may conceal it from others, or even from ourselves, the decline of life commences with the seventh septenniad. At that period the tide of existence has swelled to its utmost volume, and its last and highest wave has left its mark on the craggy rock and golden sands. It is true that, while contemplating the ocean, for some time after the ebb-tide has commenced, we do not remark the subsidence of the waters—unless we watch the shores from which they recede. Then we will perceive indubitable proof of the turn of the tide. So it is with human life. For some time after the meridian of manhood, we recognize not the decadence of the stream—until we reluctantly and sorrowfully remark certain changes for the worse in our corporeal—perhaps also in our mental powers! There are, even in this early period of declension from the meridian, certain admonitory phenomena that cannot be wholly overlooked by the most thoughtless individual. A grey hair will obtrude its unwelcome presence, and, if plucked out, will return soon, with half a dozen companions! Pleasures of all kinds, but especially of a material nature, begin to lose something of their exquisite relish, and are succeeded by something more than mere satiety. Bodily exertions begin to be, not only curtailed in their range or amount, but the period of recruit becomes proportionally extended. Impressions on mind and body are less vivid. Our wine excites us less; and even the delights of convevialiaty and intellectual intercourse experience a diminution of intensity!

"It is in the seventh septenniad, too, that the three master passions of the soul, love, ambition and avarice, come nearer to an equipoise than at any other epoch. These passions are never, indeed, exactly equipotent. One is always more powerful than either of the other two—sometimes stronger than both together. Thus, in youth, love predominates—in manhood, ambition—in age, avarice. Still it is in the seventh septenniad that the antagonism of the three passions come nearest to an equilibrium. Ambition has, generally, the mastery. Love has lost much of his influence—and avarice, under various masks, as domestic economy, desire for providing for a young family, &c. &c. begins to pull against the other passions, with augmenting force and confidence. Having once gained strength, this passion never quits the field till it overcomes, and finally extinguishes one or both of its antagonists.

"It is towards the close of this septenniad, also, that the GRAND CLIMACTERIC of woman takes place. Forty-nine is an important epoch in female life—an eventful crisis, which often turns the balance between weal and wo—between steady health and dangerous disease!—If woman passes this period unscathed, she stands a good chance of a serene and quiet descent along the slope of existence in the vale of years, where the last debt to nature is to be paid! But it behoves her to be on her guard during the whole of the seventh septenniad, and not to allow fashionable dissipation, late hours, and gossamer dress, to render her grand climacteric the crisis of her fate."

Our author next proceeds to speak of what he denominates the "Patho-protean malady," as occurring in this septenniad, and as a *master-malady* of recent origin. "No name, no description of it," he remarks, "is found in the records of antiquity, or even of the middle ages. It is clearly the offspring of civilization and refinement—of sedentary habits and intellectual culture—of physical deterioration and mental pertrubation—of excitement and exhaustion." * * * "Though millions have felt it, no one can describe it—though thousands have studied it, no one has been able to frame for it an accurate definition. And no wonder. It is a PROTEUS which assumes the form, and usurps the attributes of almost every malady, mental and corporeal, that has scourged the human race since the creation of the world."

* * *

"There are numerous causes of this modern scourge, which cannot well be classed under the heads of either the MORALE or the PHYSIQUE. They partake of both. Such, for instance, are the habits and pursuits of a people. In this country commerce and manufactures preponderate over agriculture and pasturage—and therefore sedentary predominate over active habits. The factory and the counting house are not only more unhealthy, in a *physical* point of view, than the hills and the vales, but they are much more detrimental to the *moral* constitution of man. The labor is thrown on the head and the hand—and that in bad air—rather than on the body and legs, under the canopy of heaven. This difference contributes largely to the support of the PROTEAN malady, especially when aided by the competition of trade, the animosity of politics, and the rancor of religious bigotry. These and various other moral and physical agents have, unfortunately, increased since the termination of a long and sanguinary conflict with the common enemy, during which internal dissentions were swallowed up in national enthusiasm, and redundancy of population was kept in check by the waste of war! Peace, therefore, with all its blessings and comforts, is not without its alloy. Our gigantic struggles with foreign foes are now transmitted into fierce contentions between opposing factions. Every evil passion is enlisted in this domestic strife.—The forum, the bench, the hustings—nay even the pulpit—pour forth, like volcanoes, the destructive elements of discord, hatred and animosity, among all ranks and classes of society."

"The pith of nearly all that has been written on HYGIENE, or the prevention of diseases—and of the protean disorder among the rest, might be included under two heads—almost in two words—TEMPERANCE and EXERCISE. But temperance means much more than mere moderation in eating and drinking. It comprehends moderation in all our pleasures and enjoyments, mental and corporeal—it prescribes restraint on our passions—limitation of our desires—but, above all, limitation of our ambition.

"Our physical wants, like the trade winds, vary not materially, in direction or force; not so the passions.—They are the tempests of life, which too often set at defiance the sails and the rudder, driving the vessel upon shoals and quicksands, and ultimately wrecking her altogether!"

* * * "But it would be wrong to pass over the various miseries rusulting from the "PLEASURES OF THE TABLE." The intellectual and sensual banquet has too many charms for soul and body, not to lead into almost daily excess, every class of society, from the savage to the sage! Even here the immaterial tenant seduces its material tenement into woful sufferings. We hear a great deal, indeed, of "the feast of reason and the flow of soul:" but, for my own part, I have too often observed this intellectual festival to take place where

'Malignant CHEMIA scowls,
And mingles passion with the nectar'd bowls.'

It is more curious than consolatory to scrutinize, with philosophic eye, the workings of turtle, champaign and conviviality on those fierce faculties with which metaphysicians have invested the immortal principles of MAN. Without diving into these mysterious and dangerous investigations, I shall only remark, that *every* faculty of the mind, as well as every function of the body, comes under the influence of the above mentioned material agents, and in a manner that is well worthy of investigation, in regard to the immediate subjects of this essay—HEALTH and HAPPINESS.

"In the '*Feast of Reason*,' as it is called, which is generally accompanied by food of a grosser kind, we find the energies of the mind called forth—one would almost say *created*—where they were previously dormant. Sallies of wit and humor—sentiments of noble philanthropy, exalted morality, and even fervent religion, spring forth at the festive board, which lay in abeyance till that hour! It is then that friendship opens our heart,—the miser his purse,—bigotry widens the circle of its charity—the debtor forgets his creditor—the creditor forgives his debtor—the slave breathes the air of freedom—penury becomes possessed of temporary or, at least, ideal wealth—and stranger still, riches are invested with momentary happiness!

"Are these remarkable phenomena of the *mind*, unconnected with, or independent of, any corresponding phenomena in our physical organization? Far from it! Savory viands and generous wines stimulate the material organs, accellerate the circulation, and call forth the mere *animal* spirits, before they elicit the *intellectual* corruscations. And as excitement of the body produces excitement of the mind, so passions of the mind kindle up excitation in the corporeal fabric. On the stage and at the bar, passion is more frequently feigned than felt; but in the pulpit and the senate, religious fervor and political disputation will call forth the most violent agitation of the body through the medium of the mind. Painting, poetry, music and oratory, cannot raise emotions in the mind, till they have first excited certain nerves of *sense*, and, through them, the very brain itself—the organ or instrument of the mind. This is the grand consideration, as far as health and happiness are concerned. It establishes this important axiom,—little understood or attended to by mankind at large—namely, that whenever the stream of life, whether moral or physical, mental or corporeal, is accellerated in its course beyond the nominal or medium current, it must experience a corresponding retardation in turn—and these inequalities in the speed of the stream must inevitably damage, sooner or later, the banks between which it is enclosed. There is not an axiom in physics or physiology more certain than this—that the even tenor of the stream prolongs life, preserves health, and maintains happiness; while, on the other hand the strong excitements, whether of body or mind, afford temporary enjoyment, at *the* expense of permanent sufferings. It is true that the elasticity of youth and health, renders the penalties of indulgence short at the beginning, and amply repaid by the pleasures of the feast, whether intellectual or corporeal. But the periods of enjoyment gradually shorten, while those of pain are protracted, till at length a balance is struck that awakens the delinquent to a frightful survey of the real condition in which he is placed! It is then, in general, too late to retrace our steps.

"Now the besetting sin of the present generation is not that of intemperance in eating and drinking—but rather in that of reading and thinking. And why is this? When the intellectual powers are much exerted, the physical powers, and more especially the powers of the digestive organs, are weakened. Hence we have neither the relish for gluttony nor inebriation, nor have we the ability to bear their effects. Add to this, that the exercise of the rational faculties dissuades from intemperance, independent of withdrawing the power of indulging in it. In rude states of society, where the higher functions of the mind are but little employed, the sensual gratifications of the palate and stomach constitute the principal pleasures of life—and the organs being strong, these pleasures are exquisitely enjoyed, and borne with comparative facility. The coal-heaver, on the banks of the Thames, whose brain is nearly as inert at the sable load under which his muscles crack, will drink ten or twelve quarts of porter, besides gin, in one day, and go home as sober as a judge at night. But let the JUDGE himself, whose active brain absorbs all energy from his muscles, try this experiment!

"Here, then, is the true solution of the problem—the real causes why the present generation are more temperate than their ancestors—namely, disrelish for, and inability to bear intemperance, as compared with those of the olden time. But the effects of intemperance have not diminished in proportion. On the contrary, they have multiplied prodigiously. What was ultra-abstemiousness a hundred years ago, would now be destructive excess. The habits and manners of the hardy Highlanders, in the days of Waverly and the wassail bowl, would ill suit the natives of Glenco and Tobermory in the present day. Tea, politics and steam, have wonderfully impaired the digestive organs of the Celt and Sassenach laird since the days of Bradwardine and Tully-veolan, though, some of their descendants appear to have, even yet, their stomachs lined with copper, and proof against the fiery impressions of the most potent Glenlivit!

"Thus, then, a nervous temperament—a morbid sensibility—pervades the whole frame of society, more or less—a supersensitiveness that inflicts pains and penalties on trifling and occasional indiscretions, which used formerly to be levied only upon habitual and excessive indulgence! There are many millions in this country to whom food is physic of the bitterest kind—and to whom physic is daily as indispensable as food! To the luxurious epicure it may seem incredible that, within the boundaries of the British isles, there are millions, among the opulent classes, who would give half their wealth to be able to do without food altogether—who would gladly give up the pleasure of *eating*, for an immunity from the misery of *digesting*. Incredible as this may seem, it is nevertheless strictly true.

"I wish I could state, consistently with truth, that the punishment falls exclusively on the intemperate—that the gourmand is the only victim, in the end, of indigestion, and all its indescribable horrors. But I am compelled to aver that this penalty falls far more frequently on the innocent than on the guilty—on those who labor with their heads for the good of society, rather than on those who consume the fruits of the earth in luxury and idleness—on the unfortunate far more often than on the offender."

We invite the tillers of the soil, who have the healthiest employment given to man—who may, without prejudice, blend the pleasures of intellect with the healthful robust labors of the farm—to peruse the preceding article with attention—and to remember that it comes from one of the most eminent physicians of the day. How many young men, whose health is considered too delicate for farm labor—are sent to studious and sedentary employments—the very situations, above all others, calculated to aggravate the malady, and to shorten life! How many are there, who, under a mistaken notion of adding to their happiness in life, are sent from the farm to the counter, the bar, the pulpit, &c. with the almost moral certainty of rendering them the premature victims of disease and wretchedness! Study, it is here seen, is deleterious, when its effects are not counteracted by due *exercise in the open air*, and by *temperance* in the indulgence of the appetites and passions. The farm—the farm—is the place, above all others, where the blessings of health, and the pleasures of intellectual enjoyments, are to be found most happily combined.

EXCULPATORY.—From the information we have received, we feel bound to exculpate the Rev. Mr. Abeel from any sinister motives in the part he has taken in getting up common school libraries. On the contrary, we are assured, that he has devoted much time and money to promote the undertaking, without the expectation of ultimate reward.

CORRESPONDENCE.

Cutting Corn Stalk Fodder—the Grub Worm—Doctoring Fruit Trees—Root Culture.

Williamstown, Mass. Dec. 20th, 1838.

Hon. J. BUEL—Dear Sir—I have not the happiness either to bear the honorable title, or to share the enviable labors, of the *professional farmer:* yet, having been accustomed in early life to the occupations of the field, for which I still retain a relish, and having made it for several years my relaxation to supervise the general conduct of a little farm, whose details are carried out by proxy, my sympathies are in a measure with the cultivators of the soil, and I feel a sufficient degree of interest in whatever pertains to the *improvement* of any branch of the great agricultural economy. That material advances have been made within the last few years in this most ancient and important of all the arts, I think, admits not of a doubt; and that the most considerable agent in effecting such a change, has been the prevalence of *mutual information* during this period, I hold to be alike unquestionable.

Entertaining opinions like these, it will not be thought strange if I feel an inclination to contribute *my "mite,"* (if indeed I turn not out to be more *miteless* than the "widow,") towards the still further promotion of what has been by some denominated "book-farming." It is in compliance with such an inclination that I submit to your inspection the following items, the "raw material" of which I find in my "Farmers' Journal." If you deem them of consequence enough to merit a place in your columns, please to present them to your readers; if otherwise, give them a place among such other "crums" (unfit for "the dogs,") as you cast under your table, and pardon me for inflicting upon you the misery of giving them a bootless perusal.

Item First—Cutting Corn Fodder for Cattle.

Having occasion, about the middle of November, 1836, to pass through your city, and stopping for an hour at Bement's Hotel, I had an accidental opportunity of witnessing the operation of a "Green's Straw Cutter;" and so well was I pleased at first sight with its execution, that I proceeded immediately to Thorburn's and made a purchase. Feeling a *little bit streaked*, as "Slickville" would say, after getting it home, lest some of the more "knowing ones" among my neighbors, should take it into their "bump of self-esteem" to underrate my wisdom in parting with "thirty round dollars for a little machine," which Sampson would have pocketed just in the way we common folks do a jack-knife, I made some haste to get it into effective operation, working up hay and straw for my horses, and stalks for my cattle. Of this latter article, I had on hand the produce of some 4½ acres, heavy growth, and I directed my man to prepare of it daily a quantity sufficient for the *keep* (your pardon, Dr. Webster,) of five cows; which quantity proved not to vary much from ten bushels, and occupied in the preparation from one to one and a half hours per day. On this allowance, with pretty uniformly a little oat straw in the yard at noon, my cows were kept until some time in April, when the supply was exhausted. I never wish to have my cows winter better. Of the fodder thus prepared, (cut simply, and neither brined, salted nor steamed,) and fed to them in mangers in their stalls, they consumed, by measure, five parts out of six; the rejected portion consisting entirely of the largest *buts*. These were thrown daily into the yard, as refuse; a measure to be placed entirely to the score of mismanagement, for had they been left in the mangers, and the allowance shortened a little, I am since convinced, they would have totally disappeared.

At one and a half hours per day, for four months, the *time* consumed in preparing the fodder amounts to seven and a half days; which, at four shillings per day, will make the *expense of cutting* $5. The *saving in the fodder* cannot be fairly estimated at less than one-third of the whole, or the entire keeping of 1⅔ cows (so "Colburn" cuts up cattle,) for four months. This being equal to the keeping of one cow for 6⅔ months may be quickly set down at the current value of two tons of good hay, say $20. Clear profit, $15. But this is not *all*. The *improvement of the manure*, consequent on this mode of feeding the stalks, instead of casting them *whole* into the yard after the common practice, is of itself almost an equivalent for all the extra expense.

The 1st of December, 1837, I commenced in the same way, on the produce of four acres, (very heavy growth of the large Dutton,) except that I fed it to 20 two year olds. These had previously eaten no hay, and I instructed my man to keep them rather close for the first few days, in order to induce them to clear their mangers. In this I succeeded so completely, that at the end of feeding the stalks, I could say without hesitation, I did not believe, that of the whole supply, *a pound to the ton* had been wasted by *rejection.* From beginning to end, a single shovel full of leavings had not been removed from the mangers, and *at* the end, a shovel full could not have been obtained from them. These cattle were also allowed a little straw once a day in the yard. A short time previous to their commencing on the stalks, they were purchased in the neighborhood, at $17½ per head. When they had finished them, some two months after, I could have readily sold the whole of them at $25 per head. Advance on their aggregate value, $150. I have not yet been *laughed at* for purchasing the Straw Cutter; and should I, by any accident, be deprived of the one I now have, I would run the *risk* of being laughed at, and pay $100 for another, could I not obtain it cheaper. I understand, however, that the price of the article is getting *reduced,* in which I very much rejoice, as I should like to see it introduced *generally.*

I should have remarked before, that my stalks are uniformly cut *at the ground,* which practice of course I fully approve. The largest buts are cut without difficulty, and in no way injure the knives of the cutter.—These I have hitherto been under the necessity of sharpening no oftener than once in twelve months, though the amount of work done by them, in hay, straw and stalks, has amounted to not less than from ten to fifteen or twenty tons per year. To facilitate the operations of the machine, I annex to it a *false* apron for the purpose of receiving the stalks, the *true* one being of insufficient dimensions, and occasionally *clear the spaces between the knives,* with an instrument kept at hand for this purpose.

Perhaps, from what has been advanced above, I may be thought by some to have a *strong motive* for recommending "Green's Straw Cutter." I certainly have, sir; and an equally strong one for speaking in favor of any *other* cutter that will do the same execution, and consequently afford the same profit to the owner. The only inducement I have to say a word in favor of *any* machine of the kind, is to be found alone in the results of the above detailed experiments.

Item Second—A great Enemy to Corn,

as many a desolated field of the last season can bear me witness, is the cut worm, or black grub. To prevent the depredations of this unwelcome visiter last spring, I caused each hill of my corn. immediately after planting, to receive a common handful of good *live ashes,* and another immediately after weeding. This proved, however, to present no obstacle to the progress of the enemy, and I soon discovered that my whole field was more than decimated, and the work of destruction advancing briskly. I therefore ordered my men, as a last resort, to "prepare for *war*"—to "sharpen their finger ends," and set at once about exhuming the marauders. For several days it seemed as if "a whole procession came to each one's funeral," but at length victory wreathed the brow of perseverance; and the precaution having been taken to replace each foe dislodged with a suitable quantity of good seed corn, I soon had the pleasure to see my field restored, in a good measure, to its original order and beauty, there being seldom a vacancy in a piece of four acres. The latest planted came to maturity, (the white flint being the variety used for replanting,) and the produce of the field was estimated at 45 bushels to the acre. Had I not pursued the course above indicated, I am confident that the average of the crop would not have exceeded 30 bushels to the acre.—By the process of "grubbing," then, I secured an increase, in the produce of the four acres, of 60 bushels of good sound corn. The time consumed in the operation was probably equal to about eight days. Eight times five Yankee shillings is $6.67. Sixty bushels of corn, at ninety cents per bushels, is $54. Difference, $47.33. From this deduct the further expenses of harvesting, &c. &c. (not forgetting, however, that the *stalks* are worth something,) and there will still be left a remainder well worth pocketing by any small farmer. I would therefore recommend it to "the profession," whenever annoyed by the above-mentioned enemy, to "go and do likewise."

Item Third—"Doctoring" Fruit Trees.

Very often does it happen that a valuable young fruit tree is sacrificed for want of a little "doctoring." Some time in the latter part of June last, a street-running cow, through the inadvertence of a lad on the premises, gained admission, just at evening, into my fruit-yard.—Attracted by the appearance of a fine Bolmer plum-tree, five years from the nursery, full of luxuriant foliage and young wood, and richly laden with its first offering of fruit, she made a rude attack upon it, broke it down to the ground, and before the mischief "got wind," succeeded in stripping it entirely of its young wood, one of its largest branches, and nearly all of its fruit. My vexation on discovering the accident was extreme. It was a favorite tree, and I had watched over its growth for years, with an unusual interest: it had now come forward into full bearing, and already had my "mouth watered" in anticipation of its exquisite fruit. But there lay my "castle," in pitiful ruins. I had no hope whatever of repairing the misfortune. So with a length of visage that bore no mean comparison with that of the luckless cow, I turned me away to comfort myself as well as I could with that wonderful nostrum "What cannot be cured, must still be endured." By the next morning, however, I had made up my mind to *attempt a cure.* "There is nothing like trying." I accordingly commenced by examining the wound. The tree was broken quite down, about two inches from the ground, and all that held the root and stock (or "soul and body") together, was a thin slip of wood, not larger, to speak safely, than my smallest finger; and even from this, *the bark was severed* for nearly three inches. A pretty bad patient, surely; however, I proceeded, raised it up to a little more than a perpendicular position, and confined it firmly, in different directions, by several thongs, made fast to stakes which I had driven for the purpose. By placing the tree in this position, I brought the bark into the closest possible contact with the slip from which it had been dissevered; and by confining it thus in different directions, prevented the winds from racking and twisting it, and frustrating my intention of reuniting the parts. I next proceeded to lay over the entire fracture a thorough coating of grafting wax, to exclude the *air,* and finished the operation by raising a cone of fresh clay loam, to the height of eighteen inches about the stock, to avert the influence of the *sun,* not only from the wax, but also from that part of the stock contiguous to the wound. To my surprise, I discovered within a week, that it was putting forth fresh leaves and new wood. This it continued to do, and even to *ripen a number of plums,* which I had left upon its mutilated branches. At length, by the middle of October, I had the pleasure to see its new wood pushed, in numerous instances, to the length of six or eight inches, and to *taste of its fruit completely matured.* Having taken the further precaution to give it another good dressing of loam, I am now fully confident that it will outlive the winter, and another spring "go on its way rejoicing."

Item Fourth—A peep at Root Culture.

On the 18th day of October last, I took from 108 feet of ground, in my garden, 7½ bushels, large measure, of mangold wurtzel, being at the rate of 3,025 bushels to the acre; and from 90 feet, four bushels of carrots, being at the rate of 1,936 bushels to the acre. This teaches me what I, J, K, or any body else, *might* do on a larger scale. Respectfully,

ASAHEL FOOTE.

English Potato Oats.

Having unexpectedly met with a small quantity of *English Potato Oats,* in Baltimore, (of which the Irish make their oat-meal bread,) and for which, I paid $3 per bushel, I tried them on my land in Westmoreland, and realized a most surprising increase. The oats I obtained from my land, are far superior to any other in *quality, quantity and straw.* A friend of mine procured *one gallon* of the oats, sowed them in drills, on a *very rich soil,* and obtained about *eight bushels from the gallon,* with an abundance of excellent straw.

G. GLASCOCK.

Westmoreland C. H. Va. Dec. 1838.

Cultivation and Profits of Potatoes.

Warren, Herkimer co. Dec. 26, 1838.

J. Buel, Esq.—Sir—Being a constant reader of your very valuable paper, I have noticed with thrilling interest the various improvements and experiments which have been made in the different departments of agriculture, and I rejoice to see such a growing interest in many, to become more intimately acquainted with the best methods of cultivating the soil, as also erecting the most convenient buildings for housing its products, so that the business may not only become pleasant but profitable to those already engaged in it, but shall induce others to embark in the same healthy and pleasant business. That I might cast in my mite into the scale of valuable experiments already published, I have been induced to send you my experience of about twenty years, of the best method of cultivating that most valuable root, the potato. When I say the most valuable, I mean as I say, especially in this region, I think it takes the preference of all. By this, I do not mean to despise any of the other varieties; they are all valuable in their place.

My way of raising potatoes is to have, first, a good fence; then clear the land from stone, and either fall plough, or plough early in spring, as soon as the frost is sufficiently out. Here I would remark, that very late fall ploughing is not as good, in general, after my manner of preparing land, as early spring ploughing, for this reason—whatever you turn in late in the fall, when the weather becomes cold, settles down in a hard state at bottom, and there remains dead, but not rotten, until it is turned up to the air. If I fall plough for the potato crop, or any other, where it is to be ploughed again in the spring, I choose to plough the fore part of September, when the ground is yet warm, so that the process of decomposition of all the vegetable matter, may at least be commenced before cold weather; then when you turn it up in the spring, it is in a suitable state to be food for the plants. I am much pleased with the mode of keeping debt and credit with certain crops, and I shall take the liberty of sending you a statement of the profits from a piece of ground planted with potatoes; and herein your readers will see my manner of cultivating the potato in full, which mode, as I said before, I have practised about twenty years, and shall continue to practice, until some of your numerous readers point out a better method, or I find out such, by actual experiment. If any of your readers should be willing to try the experiment, and will give the result in your valuable publication, I shall be richly paid for all my trouble:—

Potato Field,	*Dr.*
To 1½ days ploughing first time,	$3 00
To 1 day with team dragging,	2 00
To 2 men, boy and team 2 days, drawing and spreading manure,	5 00
To 70 loads long manure at 2s	17 50
To ploughing 2d time,	2 00
To 2 hands and team fitting ground and planting,	2 50
To bushing, cultivating and ploughing, 1 horse,	1 25
To 2 days hoeing,	1 25
To 7½ days harvesting,	5 62
Interest on land at $50 per acre, 1½ acres,	4 25
	$44 37
Cr.	
By 600 bushels potatoes at 25 cts	$150 00
Deduct cost,	44 37
Profits,	$105 65

This piece of ground, my neighbors tell me, had been under the plough ever since the land was cleared, say 25 or 30 years, and was apparently completely exhausted, or worn out, as some of my neighbors told me, and as the crop told previous to its coming into my possession, five years last spring. I cleared off the stones, ploughed very deep, sowed with barley, without any manure, had a tolerable crop; seeded with clover and timothy, mowed it for hay, year after year, till last year, when I fall ploughed a part, and the rest early in spring, let it lay till some time in May, then harrowed it thoroughly, then drew on my manure, spread it and ploughed it in; then dragged the ground until well pulverized; then about the first of June, planted. My method is first to take my corn marker, with three teeth, two feet eight or ten inches apart, mark the ground one way, so that the rows may not only be straight, but all at one exact distance, then furrow with a light plough in the same marks, then take my marker and cross the furrows, so that every hill stands at an exact distance. When the ground is thus prepared, commence dropping the potatoes the same way the ground is furrowed, observing the cross marks, so that the rows are straight both ways, at the same time treading on every potato, to prevent them being removed out of the place by the horses; after two or three rows are dropped, I take my team and plough and commence covering, by turning a furrow each way on to the potatoes; in this way, two of us with one team, furrowed and cross marked, dropped and covered, the 1½ acres I have described, in one day, taking all the potatoes at the same time from the cellar.—Here I would remark, by the by, that land that lies high and dry we calculate to furrow to about half the depth of soil broken up; but on flat land that lies rather low, furrow very shallow. In this way of planting, there are several advantages over that of covering with a hoe; first, the labor is much less; secondly, you stir all the ground; thirdly, you cover them much better; fourthly, you throw all the soil and manure on the rows, and fifthly, if your ground is wet, these furrows receive all the surplus water, and leave the hills dry.—In this way we have never suffered any loss when we have planted on flat low ground, while I have known many of my neighbors suffer very much by having their potatoes immersed in water, and rot in the ground.—Another advantage over that of covering with a hoe is, in after tillage, when covered with a hoe, there is no way of cleaning the hills from weeds but with a hand hoe; but in our way, you will observe, there is a ridge thrown over the row, and just before the potato shoots through the ground, we take a good heavy bush and cross the ridges, which sweeps off every vestige of weeds, grass, small stones or lumps of earth, and drops them in the furrows between the rows, leaving the hills perfectly clean, and at the same time leaving the ground light and mellow. As soon as the potatoes are up, so that we can follow the rows, we cross the rows with a cultivator, or, if destitute of one, take a one horse plough and go as near the potato as possible, without disturbing it, so that the ground may be kept light and mellow; after six or eight days, we go through with the same process the other way; after six or eight days more, we take our two mould-board plough, or horse hoe, as some call it, and go one furrow in a row, or between the rows, leaving them thus till the potatoes are of a suitable size for earthing for the last time, and this must be done before the tops begin to fall, or set for blossoms; then we go through the other way with the plough for the last time, and the tilling is about accomplished. We generally go over them lightly with a hand hoe, but this part of the labor is soon accomplished. In our field, this year, we left three rows without using a hand hoe at all, either in planting, or hoeing for an experiment, and when harvesting, we dug two of the rows where the hand hoe was not used, and two of the others adjoining, measured them exact, and found there was no difference perceivable, except in a few hills falling a little short, in consequence, as I suppose, of laying through a small piece of quack grass. On the whole, however, we think it best to go over the ground with a hand hoe, and just haul up the earth from each side of the hill lightly, leaving it flat and broad, so that the potatoes may have all the advantage of dews and light showers. The manner in which some hill their potatoes, we think very injurious; in some seasons, the earth being thrown up in the form of a coal-pit, such as we used to make when we were boys, very sharp at top, gathering the tops or vines into a small compass, and thereby retarding their growth, and barring them from receiving any benefit from dews or showers, unless they come in copious effusions.

And now I have given you, in as concise a manner as possible, my manner of cultivating the potato, which I think has the decided preference of any other way, that I have ever learnt, both in labor saving as well as in product and tillage. One thing, in preparing the ground, slipped my mind, that is, when I spread my manure, I sow on plaster before ploughing in, at the rate of 1½ bushels to the acre, which I think very beneficial where your manure is very long, and in that way it helps in some way or other to decompose it, so that it more readily mixes with the soil, but how I am unable to tell; but that it does, in some way, I am pretty certain. I have practised it several years. Two years since, I omitted sowing any, for an experiment, and I do not wish to try it again, as it gave me much trouble in clogging my plough, and when I have used plaster, I have had none of this trouble.

If, sir, you should think this worthy of a place in some corner of your valuable paper, and will in any way benefit the agricultural interest, I should be pleased at some future time to give some further experience on the same subject. Respectfully yours,

EBEN. W. FRENCH.

Remark.—We are free to say, that we think the management of the potato crop, as described above by Mr. French, is the cheapest and best mode that can be adopted; and although the details may to some appear tedious, they are well worth reading and being treasured up. The effect of fall ploughing, Mr. F. remarks, is to cause the land to settle down into a hard state at bottom. We suspect Mr. F. turns a flat furrow. If he would lap his furrows on to each other, in an angle of 45°, every furrow would form a drain for the water, air would come to the sod, and the bottom would not become hard; yet it would not rot, with air and moisture, until aided by a warm temperature.—*Cond.*

Salting Calves.

J. Buel, Esq.—Dear Sir—Early in autumn, I visited Mr. Samuel Look of West Schuyler, Herkimer county, N. Y. who showed me many things connected with his large farming establishment, which are worthy of record, and to be practised by others. Mr. Look is well known to be a skilful agriculturist and herdsman; but it is as the latter that his qualifications are pre-eminent. Among the many useful contrivances, is his method of *salting calves.*

As soon as his pumpkins become sufficiently ripe for the purpose, he takes a quantity equal to half the number of his calves, divides them through the middle with a knife, and lays them on the pasture ground where the calves run, with the core uppermost; into these, he sprinkles as much salt as the calves require at one time. This kind of trough is not recommended for its durability; it will not generally last longer than two or three days; but Mr. L. says this should be no objection to their use, as they are easily replaced, and he adds, he never knew calves to be injured by devouring troughs of this kind; on the contrary, he thinks the more of them they swallow, the better they appear. A large portion of his stock consists of the improved short horn breed. Mr. Look, at this date, has some half a dozen bulls, and a few heifers of this sort, all bred from some of the best families ever imported, which he would sell.

Yours, &c. N.

Butternuts, Dec. 31, 1838.

Brining and Liming Seed Wheat.

Trenton, Oneida co. Dec. 14, 1838.

J. Buel, Esq.—Sir—Having observed in the Cultivator, some difference of opinion as to the effect of brining and liming seed wheat to prevent smut, hoping by stating to you the little experience, I have had on the subject, I may do no harm, but be of some benefit, is my excuse for addressing you at this time.

It has been the practice among farmers in this region for something like forty years, to wash and lime their seed wheat to prevent smut. Having noticed in a newspaper, nearly thirty years since, an account of a vessel loaded with wheat having been sunk on the coast of England, and before it could be taken out was so saturated with salt as to render it unfit for bread, some of it was used for seed, and where that was sown, it was observed there was but little or no smut, while in the same neighborhood, where other wheat was sown, the wheat was quite smutty, which circumstance led to the practice of using brine for seed wheat. Seeing that lime and salt, when separately applied, were beneficial to prevent smut, it occurred to me, if both were applied at the same time, the remedy might be effectual. I accordingly adopted the practice of washing my seed wheat in a brine as strong as can be made, stirring it until thoroughly wet, say from five to ten minutes; drain off the brine and spread the wheat on a floor; put on slaked lime that is dry, (when a sufficient quantity of wheat is washed,) four quarts to a bushel is sufficient; work it over with the hoe and shovel until each kernel is covered with a good coat of lime; then spread it over the floor to dry several days before sowing—the drying is necessary to prevent the moisture of the ground causing the lime to cleave from the kernel before the harrowing is finished. There is no danger of injuring the wheat by its lying after being limed—have had it lie two weeks or more—and have never been troubled with smut since the above mode of preparing seed was adopted, and am firmly of the opinion, when the seed wheat is well prepared as above stated, the remedy against smut will be found effectual. The circumstances stated by J. Hathaway, Esq. last spring, of his neighbor having sown some of his wheat soon after liming, and was prevented from sowing the remainder for several days on account of rainy weather—the former being some smutty, while the latter had little or none—I think goes to show the benefit of letting the wheat dry before sowing.

Others may have prepared their seed wheat in the manner above stated before me, but I had never known an instance. After having prepared seed wheat as above for several years, and being satisfied of its good effects, I sent an account of the above mode of preparing seed wheat, to the editor of a newspaper in Utica, Mr. Maynard, I believe, which he published about twenty years ago. Yours very respectfully,

JOHN STORRS.

Mode of Curing the Hoof-Ail.

Paine's Hollow, Jan. 12, 1838.

Mr. Buel—Sir—In the current volume of your Cultivator, at page 55, you have said something on the subject of the poison of the ergot on rye and the grasses, both to man and brute, which would be of great use to the farmer, if he would follow your suggestions in alternating his crops and seed down thick with the more healthful grasses. There is no doubt but the ergot on the grasses produces the hoof-ail in our cattle. I will here give you my treatment of that complaint, which I have never known to fail in a single instance. When I find one of my cattle has this complaint, I put it in the stantials in the stable, then take a mallet and a carpenter's chissel, and set the chissel on the toe of the hoof, three-fourths of an inch from the point of the hoof, then with a brisk blow of the mallet, repeating the blows until the hoof is cut off; if it does not bleed freely, take a thin shaving more, and so continue until the blood runs freely; no matter if the small artery in the point of the toe is cut off, the blood will stop in fifteen or twenty minutes; if the creature should prove refractory, let an assistant take and hold up the opposite foot, which will make it stand firm on the floor, and stand still through the operation; this being done, it is only necessary to keep them in stable two or three days, to keep them out of wet and mud, and in six or eight days the creature will walk about as well as ever. I have never failed in a single instance of effecting a cure on any of my cattle. The sooner it is done the better, as there will be less danger of their freezing, which is worse than the hoof-ail to cure.

In 1836, I raised from one seed of the potato ball 26 potatoes, 14 of which were as large as eggs; last spring I planted the same, and last fall dug a crop of more than two bushels, of a round white potato. How many years will it take to bring them to full maturity?

Yours respectfully, THOMAS PAINE.

Brining Seed Wheat—Cure for Stifle.

Lawrenceville, Tioga co. Pa. Dec. 27, 1838.

Mr. J. Buel—Dear Sir—I think I may safely say I have discovered the cause of Mr. Hathaway's brined spring wheat not coming up well, to be owing to the smut machine and brining also. This fall, my wheat being some chessy, I took it to the mill to have it screened, and as that and the smutter were connected, the wheat had to pass through both; after which I brined the most of it, from 12 to 18 hours, then limed and sowed immediately.

Not brined or limed came up well, though it had been through the smutter.

Brined 18 hours, then limed, came up badly if smutted.

Brined 18 hours, and having passed the smutter twice, not one kernel came up.

Brined 12 hours and once smutted, came up pretty well.

Brined 18 hours but not smutted, all came up fine.

Inference—the smut mill opens the grain in some way so that the brine kills it.

The grain worm has made its appearance here the past season, though not extensively.

I will here give you a receipt for curing a stifle, which I consider invaluable, and as for its being infallible, I think no man can gainsay it. At any rate, I have cured many horses, and sold the receipt for many dollars, thus:—

A handful of sumach bark and a handful of white oak bark, boiled in a gallon of water, down to two quarts; bathe the stifle with this lotion twice a day for three days; then put on a salve made of the white of an egg and rosin, and bathe the same in with a hot shovel two or three times, and the horse is cured. Yours with esteem and respect,

W. KILBURN.

Experiment in the Culture of Rape.

Hill-Side, (near Meadville,)
Crawford co. Pa. Nov. 29, 1838.

J. Buel—Sir—By referring to vol. 3, p. 110, of the Cultivator, you will find the following remark, in reply to a Mr. Davis, of Saratoga, on the culture of "Rape, colze, or cole seed," viz:—"An important article in Flemish husbandry, &c. though not at all cultivated in the United States." * * * "As rape is biennial, it is doubtful whether it would withstand the cold of our winters." If of interest to you, I take pleasure in communicating as follows:

Mr. Frederick W. Kockler, of this county, lately imported from Holland, some rape seed; he sowed three-fourths of an acre in August of last year; the produce in seed this year, amounted to twenty bushels, although the seed was not taken at all clean from the stalks, and the land was very illy tilled for this crop, as well as for the previous crops taken from it. The produce would have been thirty bushels undoubtedly, had the crop been properly harvested. The crop was taken in on the 12th day of July. The rape stood the effects of the last severe winter well; it was uninjured, although grown in an exposed situation. According to Mr. K. who is an experienced cultivator of the article, the rape seed is committed to the ground on the 24th August, in Holland—the 12th of August, he thinks late enough for this climate. He thinks that in rich, dry and well wrought soils, no crop could be more profitably cultivated in this country, and in the western states especially. In Holland, they have hard winter freezing, but not much snow, which characteristic corresponds with the climate of some of our western country. The cultivation of this crop, has been successful in some parts of Ohio, and only discontinued from want of oil mills convenient sufficiently to make its culture profitable. The above communication would have been made to you by Mr. K. himself, but he feared that his slight acquaintance with our language, would have made his communication somewhat unintelligible to you and your readers.

If I recollect right, the subject of rape culture is treated of by that enterprising gentleman, Col. John Hare Powel, of Philadelphia, in a communication to the Pennsylvania Agricultural Society, some years since. You probably have the volume of "Transactions," and can by reference discover whether it is of sufficient import to copy. I will mention here, (although foreign to Mr. Kockler's expectation,) that a few bushels, say eight or ten, of the seed, can be had of him, delivered in Meadville, at four or five dollars per bushel, which announcement, I hope, will not injure the usefulness of the intelligence contained in the general statement.—His object in dictating was not to bring his seed into market, but simply to make public his experience, in a branch of agriculture comparatively new in this country, but of great importance to our agricultural interests. Mr. Kockler will take pleasure in communicating his experience in this matter, in both Holland and this country, to any who think it of sufficient consequence to address him on the subject. Respectfully,

JOS. C. G. KENNEDY.

☞ See our remarks under editorial head.

Making Pork.

The business of fattening pork for sale is practised to some extent by many farmers, and when performed economically, it is a source of profit; yet all will admit, when carried on in the manner it often is, it drains instead of replenishing the farmer's pocket. To make fattening swine profitable, it is necessary, in the first place, that the breed of swine should be good. There is a vast difference in swine in the respect of fattening, proper proportion of bone, weight, &c. There are several good breeds of pigs now in the country, and any farmer who is willing to make the effort, may have a lot of fine looking pigs, as well as to have long-nosed, slab-sided fellows. The time has gone by when a pig must be kept four years to weigh four hundred. The business of fattening swine is little understood, and poorly attended to. Pigs a year and a half old should come up to that, and some have exceeded that weight. Next to a good breed, it is necessary that they should be kept in a thriving situation. There must be some foundation for fattening, when the process commences, or much time will be lost, and food consumed, in making a carcass to cover with fat. Swine should have a field allotted to them, so large in proportion to their numbers, that their grass feed will be fresh. They should have the slops of the kitchen, whey of the dairy, &c. in addition to their grass feed through the summer season. The manner in which their food is prepared and given, has a decided influence on the fattening process, and of course on the aggregate profit. If given out raw, much of the value of the article is lost. Grain is much improved by grinding, but the full value is only brought out by cooking. Corn is the best article for fattening swine; yet there are but few who fatten their swine altogether on corn. I will now inform you of my manner of fattening swine the year past.

My swine were kept in a fine growing state through the summer season; and in the fall I enclosed in dry warm places ten pigs, a year and a half old, with the exception of one two years and a half old. I commenced feeding potatoes boiled dry, and then added the dairy slops. This I continued through the month of September. Then I mixed oats and barley, equal quantities, had it ground into meal, and mixed this with the potatoes boiled, and continued this through the month of October; and then I added corn with the oats and barley, equal quantities, ground together, added to the potatoes, and continued this food until I slaughtered them, which was the 26th of December, and the weight of each was as follows:

1	sow	2½	years old,	535lbs.	raised 10 pigs this season.	
1	do	1½	do	564lbs.		
1	do	1½	do	625lbs.	raised 5 pigs this season.	
1	do	1½	do	485lbs.	raised 3	do
1	do	1½	do	383lbs.	raised 3	do
1	barrow	1½	do	445lbs.		
1	do	1½	do	425lbs.		
1	do	1½	do	519lbs.		
1	do	1½	do	456lbs.		
1	do	1½	do	516lbs.		

Total pounds weight, 4,953

NEWTON WILCOX.

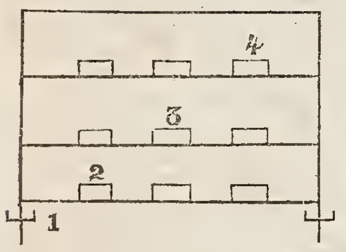
West Winfield, Herkimer co. N. Y. Jan 4, 1839.

Kentucky Bee-House.

Pleasant Hill, November 30, 1838.

Mr. J. Buel—Dear Sir—As I have sufficient room in this letter, I will give you a description of my father's Bee-House, which I think preferable to any I have seen, on account of its cheapness and convenience, and if you think it worthy of a place in your excellent periodical, it is perfectly at your disposal. The building is twelve feet long, eight wide, and seven feet high from the floor to the plate or ceiling, (the floor being eighteen inches from the ground,) and consists of four posts eleven feet six inches long, let in the ground three feet, which is weather-boarded round, and covered in, so as to prevent the bees from getting in the house, they being confined in six boxes, three on either side of the house, placed fifteen inches one above another. This drawing (Fig. No. 68,) represents one side of the house, viewed from the outside.

[Fig. No. 68.]



[Fig. No. 69.]

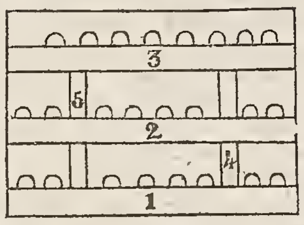


Fig. 68, No. 1, 1, are copper troughs running round the post, half way between the floor and ground, which are kept filled with water, to prevent ants or other insects from getting in the house. No. 2, 3 and 4 are tubes eight inches wide, one-eighth of an inch deep, to convey the bees through the wall into the long boxes, and entering them at bottom, there being three to each long box.

The drawing, Fig. 69, represents one side of the house, viewed from the inside. No. 1, 2 and 3 are long boxes, eighteen inches wide and twelve deep, extending the whole length of the house, with eight holes, four inches square, in each box, upon which is set two gallon caps, with two half inch holes in each, one near the top, the other about the centre of the cap, in which the smoke of a burning rag is blown to drive the bees from the cap into the long box, which can be known by striking the caps. When they are all in the long box, a knife or wire should be drawn under the bottom of the cap, to separate the comb from the box, when the cap of honey may be removed, and an empty one put in its place. No. 4 and 5 are tubes three inches square, to convey the bees from one box to another, that one swarm of bees may do the whole, or if one or more swarms be put in each box, that they may become as one, as they will not permit more than one king when put together, by which they are prevented from destroying themselves by fighting.

A house of this description, when the long boxes are filled, will afford, at a moderate calculation, ninety-six gallons of honey in the comb annually.

F. S FISHER.

Matters of General Interest.

Hartford, Dec. 27, 1838.

My Dear Sir—Minutes, hours, months and years, seem to me much shorter than they once were; formerly, I had leisure enough, or at least thought so, for I have wasted many an hour impatiently waiting for the coming time, and now all my industry avails me little; my good intentions unperformed accumulate from day to day, till nothing short of an expunging process can set me free. I however took good care to wipe away no part of my debt to you, as it involved too much of interest to myself to be otherwise cancelled than by a letter. It is scarce necessary I should express my regret at not meeting you—my endeavours to do so will best testify on that point; that pleasure must now be deferred till February, when I have made my arrangements to be present at the State Agricultural meeting, together with one or two gentlemen from this state. This reminds me of your half promised circular which I have expected with some impatience—I hope you do not feel discouraged, but that an Agricultural School will, ere long, be established; it seems to me the next step to be taken in the path of improvement—its effect will be most beneficial and enduring; and if it be slow it will be silent as well as irresistible in its influences, for they will flow through channels that are less jealously watched and freer from suspicion than any legislative act; for what can be done for the man who cries out "I will die and nobody shall help me"—a blunder, I allow; but not a greater or more fatal one than the Farmer's, when he declares, "I will be ignorant and no one shall instruct me;" and then becomes vociferous about rich and poor, aristocracy and democracy, until the question of his own improvement is dragged into the *political* arena and becomes a question for the people; a field in which ignorance and prejudice can out-number, and therefore successfully array itself against intelligence and science; then comes the damning cry of, "taxing the many to gratify the few," &c. &c.—What profound ignorance! what deep cause of regret, that so *important* and so large a part of our community are so much below the standard of intelligence, found throughout every other portion of the American people. And it does seem to me that the evil cannot be reached through any of the agricultural periodicals; I continually regret that the excellent essays I there find come under the eye of those *only* who *do not* require them, for whom they are *not* intended; while the ignorant and prejudiced never see them, scarcely ever hear of them. Now it does strike me that some more certain and direct way *might* be found of addressing these truths to those who most stand in need of them, for it is not the *readers* of the Cultivator who require to be taught the value of its contents, nor the necessity of such modes of interchanging intelligence, in order to advance the general science and improved practice of agriculture. Enough then, perhaps, has been written *at* (for I cannot say to) the farmer who "don't believe in reading." And I would now rather see some inquiry made, and some suggestions offered, as to the duty of those *who do* see the columns of your valuable paper, whether we are doing our endeavour, each according to his individual capacity, to elevate the agricultural character by a friendly and frequent intercourse with our farming neighbors, however widely they may differ from us in opinion, however much they may despise our book-knowledge? Are we promoting, *all in our power*, exhibitions, meetings, clubs, and other social occasions friendly to that frequent interchange of opinions and views so necessary to progress? Do we make ourselves useful by examples of good culture, by *liberal* interchanges, and by permitting to others the *free* use and trial of such means, implements, and animals as we ourselves are employing for the improvement of our lands, our labor and our stock?—and very much else I would ask if we do, that lays fully within the compass of every individual. Or, do we pursue our own way in *manifest* disgust at the ignorance around us, feeling as though we had nothing in common with them, and making no effort to break down the partition walls of prejudice and contempt that they are every where building up? A quantum sufficit of zeal, with a little liberality towards the necessary funds of societies you wish should prosper will do much towards the desired end.

I often observe comparisons made between the agricultural spirit of this country and England; but to me they seem unfair, in as much as there is an important link not found in this country which in that connects the practical farmer with the very sources of science; I allude, of course, to the large landed proprietor of highly cultivated estates under the management of a numerous tenantry, on whose successful farming and improvements their income depends; there, there is a fostering, and tho' perhaps a selfish, care continually extended towards the cultivator of the English soil, unremitting in its assiduity, and highly influential in its character, the landlord and tenant having one and the same interest. Not that I covet, by any means, the same state of things here; I would merely draw your attention to the unfairness of comparison, and inquire how far we may obtain the same results by different and more desirable means. Take from them this powerful link, and let them drop off from the great chain, and become as the American farmers are, a part and portion by themselves, and you would soon find them even behind us as a community; for it is within my knowledge, that the then called intelligent farmers in England, who were prejudiced against the short horns, held and promulgated the opinion that crosses of the short horns on other breeds produced animals as incapable of breeding as the mule! &c. &c.

Thus you see I would extend, as far as may be possible, to the American farmer, all the *advantages* and *kindly feelings* of an English landlord, without subjecting him or his lands to any of his claims. Should you see with me in this matter, *you* may perhaps be induced to address those who *do* read the Cultivator, and by exciting *them* to greater activity in their respective spheres, at length obtain a reading from *those* who now despise book-farming; and I am strongly disposed to think, that if a farmer will once read, prejudice will give way.

I attach much consequence to the manuals of farming for which premiums have been offered, and I sincerely hope they may be what they ought to be, *and if so*, that such a fund may be raised as will afford them very cheap to the farmer; and from my observation, and I may almost say, intimate knowledge of the unreading farmer, they should be written in that simple plain style that will remove as much as possible all difficulty in reading.

When arranging our premiums, I suggested offering some of our agricultural periodicals as rewards, which was at once acceded to by the society, and I think no less than 20 copies of the Cultivator and Genesee Farmer, were included in the list; but I was sorry to find, that though we had no less than eighty well filled pens, yet there were not claimants for the lower premiums of many of the classes, consequently but three copies of the Cultivator for 1839 were claimed. We preferred awarding a *current* volume, because it would then be received in parts, be more certainly read, and more surely missed at the end of the year. Farmers have but little time to read, and often find that little reading difficult, and a volume would be laid aside while a paper would be read by snatches and at odd times. F.

Remarks—Although the above is extracted from a private letter, not designed for publication, we nevertheless feel justified, after suppressing the writer's name, in applying it to public uses. We will only remark, that it admonishes our great men—be they statesmen or landlords—of the importance of giving THEIR attention to the improvement of our agriculture—as a means both of promoting their individual and the public interest—and it shows the importance of having, in our common school libraries, books upon agriculture, as the best means of eradicating prejudice against useful improvement, and of laying the foundation of substantial usefulness in the the rising generation.—*Con. Cult.*

The Advantages of Capital on worn-out Lands.

Greene county, Va. 17th Dec. 1838.

To get rich, is to enrichen my land.

The above, Mr. Buel, is my motto. Instill this in the minds of the farmers, and the work is half done. And to the present period my motto is pretty well developed. Nine years ago, I came in possesion of my farm by purchase, which is situated at the base of the Blue Ridge. The then state of it was most chilling, but the situation much to my taste; the place, for then it could not be called a farm, no way the eye could be turned, but presented galls, gullies, broomsedge, briers, bushes, and some forty acres of wet land. The latter first engaged my attention. Within the first two years I expended $400 in ditching, and about the same amount since, which has fully come up to my expectations—having put the land in a high state of production. Secret ditches I mostly use in draining, leaving no more open than necessary, which is governed by the length of the ditch, and the quantity of water to be conveyed: if too long—and they should get choked about the source, the work will be all to do over—but this I have never had to do yet. At all times a secret ditch should convey the water; for when all of the chinks of the ditch become full, the water will spout to the surface, and drown the crop, which sometimes happen in long wet spells. My mode of secret ditching, is with rock. All other ways, such as with poles, brush, &c. are ineffectual or but temporary; but I have not yet done draining; the want of means only has retarded this improvement as well as others on my farm. Within the first four or five years of my maiden farming, the expense considerably exceeded the income, so much so, that about the end of that period I had sunk about $1200, more than half of the prime cost of my farm, which is 400 acres. At this time I was much dejected—I endeavoured to make sale, but no body was willing to add the improvements to the first cost, and the consequence was of course no sale. By this movement not a link in the chain was broke. I renewed my efforts, and have the pleasure to say, the sunk fund is all discharged, as well as some eight or ten hundred dollars worth of property acquired besides.

No person that knew my farm at the time I purchased it, but will now agree it is worth four times as much as the prime cost, and I think six times. The galls, gullies, bushes, briers, broomsedge, have all disappeared; also the rock taken off, and put into fencing and secret ditches. Not a spot, of 200 acres in cultivation, but what will produce a good crop of corn or wheat, and a good portion that was literally exhausted, will produce a good crop of tobacco; but that plant I have not yet cultivated, but notwithstanding, I am well satisfied I have increased my property much faster than the largest tobacco growers within my knowledge, in proportion to capital employed. The improvement of my farm now, is much more rapid than a few years past, and under the same management, of course, will annually increase, as well as the profits. This year it clears me about $700, from three hands; you no doubt from the above, and a self made farmer, will think it is coming on very well—and besides I will add, this farm was located upwards of a hundred years previous; of this, there is no doubt—for on a chimney I pulled down, the date of 1746 was marked upon it; and this chimney as tradition tells it, was put up by the second or third settler, and since the builder of that chimney sold it, it has passed through several owners, and all have been compelled to abandon it; and notwithstanding it has been located such a period, not an individual as yet has died the owner of it.

With these few preliminaries I stop and refer to your decision. If they prove fit for your valuable paper, more anon—if not, I will no more mix a goose quill with my ploughing, manuring and clovering, for upon these three things rest my life. Your obedient ser't.

T. G. GARTH.

Experiment in planting corn—Alternation of crops —Mode of applying Gypsum—of fattening Hogs.

Rockingham county, Va. Dec. 25, 1838.

Sir—A friend of mine, last spring, planted a part of his corn at the depth that corn is usually planted in this part of the country, and in another part of his field, he run his planting furrows unusually deep. The land was of uniform quality, and the corn in both parts covered with the common quantity of earth, so that the only difference in planting, consisted in the different depths of the planting furrows. In the early part of the summer, the corn planted in the shallow furrows, grew the best, and promised to make the best crop, but in the latter part of the summer, the season became dry, (the drought was severe,) and then the shallow planted corn began to wither, whilst the deep planted corn kept green, and continued to grow after the other was almost killed by drought, and made in the end greatly more corn. These facts have brought to my attention the question, whether corn should be planted deep or shallow? And by the question, let it be understood, that it is not a question about the depth of earth with which corn shall be covered; but a question about the depth of the furrow. And to this question, I would invite the attention of agriculturists, and request the communication of facts from all who have had any experience in the two modes of planting; as it is by a comparison of many facts only, that we can come to any safe conclusion in agricultural affairs. I have understood, that it is settled, that in the sandy lands and warm climate of South Carolina, deep planting is best. And if it shall be found that in our more northern climates and clayey soils, deep planting will yield the best crop, there is another advantage attending it, that will recommend it to those who cultivate this valuable grain. Corn that is planted deep is not so easily blown down by winds, and will not be bent and tangled at cutting time, like that which is planted on the surface. As this is a question involving no depth of reasoning or scientific knowledge, it may perhaps be passed over, with less attention than it deserves. But if it be duly considered, it will be found to be a question of interest, and it is hoped that all who can communicate facts, will contribute their aid to a correct settlement of the question. In the case mentioned above, the corn was planted in a sandy soil, of but moderate fertility, and it will occur to all that in experiments which may be detailed, the character of the soil should be given.

Another question of interest to myself, is now forcing itself upon my attention; and I would be glad to hear the opinions of those, whose experience may enable them to speak upon the subject. To state the question more clearly, I will premise that for near twenty years, I have been cultivating a small farm upon the four field system. When it first came to my hands, a part of it, though originally fertile, had been greatly exhausted by bad management, and all my efforts were directed to its improvement. My crops have been corn, wheat, clover, clover, and by a free use of plaster, and some degree of economy in saving manure, my farm is now greatly improved and may be said to be in good heart. The soil is a tolerably stiff clay, based upon what we call blue slate, the rock lying at a good depth below the surface. I have preferred mowing to grazing, and as the hoof is injurious to clay lands, the stock have been kept off the fields as much as possible, when the ground was soft. But little has been sold off the farm except wheat, clover seed, cattle and hogs.

Having but a small farm, and being desirous of cultivating more land than my farm will allow, upon the four field system, I am inclined to divide my land into three shifts, and this forces upon my attention the question, whether I can preserve the degree of fertility which my land has attained, by cultivating corn, wheat, and clover, and letting the clover stand but one year, instead of two. By letting the clover stand two years, the land has improved; and now if it shall stand but one, will the land deteriorate, and will the crop be reduced? Let it be supposed that the corn shall be fed upon the farm; that the clover shall be in part mown, and in part grazed by hogs; and that a reasonable degree of economy shall be used in saving manure.

As he who asks information from others, should be willing to communicate any which he may have, and thereby show his readiness to contribute to the common fund, I will mention, that my practice, has been to sow plaster broad-cast upon corn, instead of putting it on the hill, believing, that at earing time, which is the most important, the roots have spread over the whole surface, and that the plaster being sown broad-cast, will then be in a situation to contribute more to the growth of the corn, than it would be if placed immediately at the stock, as it is the ends of the roots that take up nourishment: and believing, too, that when sown in this way, the plaster will benefit the succeeding wheat crop, and the young clover which shall be growing with the wheat. I have indeed thought, that sometimes the young clover is thereby saved from being killed by drought.

For some years past, my attention has been turned to hogs, and having been successful in my efforts, I will give you my opinions upon that subject. The more common practice with us, is, to let our hogs shift for themselves, or to feed them but sparingly the greater part of the year, and then during the fattening season, to feed them to excess. We then attempt to do that by force, which might previously have been accomplished by an easier and cheaper process. By feeding too sparingly during the winter, the hogs are kept alive only; they do not grow; become stinted, are worth no more in the spring than they were in the fall, frequently not so much, and of course what has been fed has been wasted; and then, during fattening season, they are fed to excess, and loss is sustained by undigested corn. My plan has been to feed well, to start my pigs fat, and to keep them in uniformly good condition. They are always growing and increasing in value; are fed a small quantity of grain when running in clover pasture, and by cutting up corn for them as soon as it is in good roasting ears, they are ready for market, as soon as the weather is cold enough for slaughtering. They are, in this way, fattened during moderate weather, and all agree that hogs fatten faster in moderate than in cold weather. I prefer fattening in a field, to a close pen, and from my observation, I am satisfied the field is the best. The field is used that is intended for the corn the following year. The grass and clover roots which they get, contribute to their health, and save corn, as any one may be convinced, by observing that they will feed a part of the day on the clover, however plentifully they may be fed with corn. If hogs be well fed, and kept *dry*, and *clean*, and *warm* in winter, and be furnished with shade and plenty of water in summer, they will, I think, be always profitable. A good breed should be selected, as some breeds are certainly more profitable than others. The feeding of hogs presents another question of interest, and we ought to inquire, whether clover grazed by hogs, will improve the land as much as if it be grazed by cattle; and whether corn fed to hogs upon a field will improve it as much as if it were fed to cattle. These are questions which I would not undertake to decide from my experience, and upon which I would like to hear the opinions of others. If these inquiries shall receive any attention from the correspondents and readers of the Cultivator, I may be encouraged to trespass again upon your attention.

GEORGE H. CHRISMAN.

On Ashing Seed Wheat—The Poppy a Protection against Insects.

J. Buel—Sir—While living in the State of New-York and being a mechanic, I was a subscriber for the first volume of the Cultivator with which I was much pleased; and now having moved to Michigan, and commencing a new business with which I am unacquainted, I feel the need of instruction in this, (to me) a new branch of business: therefore I have taken the fourth, and am taking the fifth volume, and I want you to send me the sixth, and also, the second and third volumes. I think that I have been more than paid for all the expense in taking the Cultivator, in one small crop of wheat, in as much as that paper instructed me to soak seed wheat in brine, and roll it in lime; but as I had no lime, and as it was impossible to obain clean seed, I soaked it in a strong brine, and then rolled it in wood-ashes, as a substitute for lime, and to my great satisfaction, after sowing very smutty seed, I harvested a clean crop.—And I am convinced that wood-ashes is better than lime to prevent smut; and more, if wheat is soaked in salt-water and rolled in good strong ashes, I venture to say, it will never be troubled with the insect.

And now, Sir, as the grain-worm is spreading its devastation through many parts of our country, and as you have offered a premium of fifty dollars, and the editor of the Yankee Farmer, a premium of thirty dollars, for a preventive of this great destroyer of our wheat crops, I will venture to give the farmers of our country, through your columns, a preventive, or what I think will prevent the wheat-fly from hovering around our wheat crops or any other crop. If the farmer will either in the fall, or early in the spring, sow the common poppy among his wheat, he will not be troubled with the wheat-fly, unless they are invincibles indeed; for I have for twenty years sown poppies in my garden, and where they were, I have not been troubled with fly, bug, nor insect on any vegetable, even in my field among my wortzel and ruta bagas. The common poppies have prevented the ravages of all flies, bugs and insects.—And now, Sir, if I am not entitled to the above premiums, let no man look for them, for if the above is not a preventive, nothing but that power that dispersed the flies in Egypt, will disperse the wheat-flies in America.[*]

SMITHFIELD BEDEN.

Hadley, Michigan, Dec. 24, 1838.

[*] Mr. Beden's prescription shall have a fair trial.

EXTRACTS.

[*From the (London) Farmers' Magazine.*]

Essay upon the Breeding of Live Stock, and on the Comparative Influence of the Male and Female Parents in Impressing the Offspring.

By John Boswell, Esq. of Balmuto and Kingcausie.

CONCLUDED.

I would next look a little at the influence the male has in the *ox*. Here, although I still see the male have by far the greatest influence, I would say that there was a shade of difference, perhaps five per cent. less than in the horse. The cow appears to be an animal whose progeny is often much affected by her imagination during the time of conception, or rather during the period when she is in season. We have the most ancient as well as the highest authority for this in the peeled rods of Jacob: and from what my own experience, as well as the information of trustworthy men, has taught me, I am inclined to think that the calf very often takes after the beast that has been jumping on the cow (whether ox or cow) previous to her being taken to the male: One of the most intelligent breeders I have ever met with in Scotland, Mr. Mustard,[*] an extensive farmer on Sir James Carnegie's estate in Angus, told me a singular fact in regard to what I have now stated. One of his cows chanced to come into season while pasturing on a field which was bounded by that of his neighbors; out of which field an ox jumped, and went with the cow until she was brought home to the bull. The ox was white with black spots, and horned. Mr. Mustard had not a horned beast in his possession, nor one with any white on it. Nevertheless, the produce of the following spring was a black and white calf with horns. I have twice had pure Ayrshire cows, which are uniformly what is called red and white, with horns. The first of those I put to a brown bull without horns; the produce was very dark red, without any white, and polled. The next cow was put to a jet black bull with horns. The first produce was dark red, without any white, and the next was jet black, and also without any white; and in both cases the make of the progeny took greatly after the sire. On settling in the North of Scotland as a farmer, I soon perceived that one of the greatest defects in the cattle was a tendency to be knock-kneed behind, and in my endeavours to get rid of this, I procured a bull from the South of Scotland free from that defect, and with him crossed the best looking cows of the country. I instantly got rid of that narrowness behind observable in all cattle where no attention has been paid to the breed; and, in a few years, by drafting such queys as did not please me, and breeding only from good shaped ones, I made a breed for myself, which I had done before I knew it, for, having one season lost almost all my own calves, I was, in consequence of this misfortune, forced to buy in calves. These were treated in the same way as to food, &c. as my own, yet those from my own cows soon shot far a-head of them, both in size and condition; and on examination of the two sets of animals, an evident superiority of form existed in those of my own, especially in the smallness and beauty of the head, with a prominent eye; and, a fact not hitherto mentioned, that of the tail being one-half less as to thickness than in the unimproved breed, while a wide chest (that unerring sign of a good and quick feeder) was very conspicuous.[*] It would seem that horns had been given to the cow by Nature, and that the polled breed have been procured by selection of some of those varieties we so often see, as I observe that it more frequently occurs, when a polled bull is put to a horned cow, that the produce resembles the mother in that particular, than when a horned bull is put to a polled cow, when horns are almost always the consequence.[†] A great many years ago, the present Sir Alexandar Ramsay, of Fasque, brought a few of the Lancashire cattle to Scotland, a breed then much in fashion, and, as every one knows, remarkable for having uncommonly wide spreading horns, and all with some white, especially on the back. These cattle were intermixed with the cows of the country; and when Sir Alexander came to his estate, the cattle were all horned. About that time the polled or dodded cattle came greatly into vogue in Angus; and Sir Alexander purchased, from time to time, jet black polled bulls, so that in a short time all his cows were of this sort. Nevertheless, every year, even to this day, one or two of the calves "cry back" to the Lancashire, having white, and horns; and, what is singular, it is almost invariably in the male that this takes place.

An instance of the influence of the male in the progeny of the cow is narrated by Bewick, the natural historian. He is treating of the original breed of wild cattle which still exists in a few parks belonging to noblemen in the north of England, and in one or two places in Scotland. They are uniformly pure white, with black, or sometimes red ears and noses, and always extremely wild and fierce. At Chillingham Castle, in Northumberland, says Bewick, cows used frequently to be turned into the park when in season, which were covered by the wild bull; and what is strange, the produce from all those cows were uniformly white, with red ears and noses, and greatly partook of the character and qualities of the wild bull. Here, then, is a very strong proof of the influence of the male parent, and others equally strong could be quoted, did I not think it better to pass on to another animal, the *sheep*.

Here the influence of the male parent is most striking. I have stated in a former part of this essay, that I have been in the habit of purchasing a couple of scores of Highland ewes every year, to put to the Bakewell ram. Let us look a little at the characteristics of every breed in a wild, or at least nearly wild state. We find them muscular, active, restless in quest of food, ever in motion, and refusing to lay on fat.[‡] Such I found the Highland ewes; they were all small, with black legs and faces, and had horns. On being put to the Bakewell, they produce lambs of a totally different breed from themselves, all having the greatest tendency to get fat, the wild wiry appearance of the Highlanders being entirely gone; and in its place we have a round fleshy animal, resting peaceably in the fields, the desire to break over fences having likewise disappeared; and what is remarkable, not a single lamb is to be found with black legs or a black face, and scarcely one with any sort of horn,[§] while all are of a very large size. They thrive remarkably well, any that I have allowed to grow up as an experiment; and I have always found them much more free from disease than either the Bakewell or the black-faced sheep, particularly the rot of the liver, which makes dreadful havoc amongst the Bakewell; nor does it spare the Highlander, especially when put on high keep. I cannot speak much of the appearance produced by a Highland ram with the Bakewell ewe. Being fully convinced of the power of the male on the offspring, I have always accounted it as loss to put a bad male to a high bred female, and have never done so. I have, however, observed, where the country people have purchased high-bred sheep at any sale of mine, and bred from them with the ordinary rams, that the breed very quickly got bad; whereas when a Bakewell ram had been purchased, I have seen a most remarkable change on the quality of the sheep; and in several instances where the ewes had been tolerable from which they had bred, the cross was so nearly resembling a new Leicester, as to deceive any one who was not a thorough judge. As I wish to confine myself to facts which have come under my own observation, I shall forbear to mention circumstances which tend to prove the great power in the male as to influence in the progeny of the ewe, as I have them from others; and shall conclude with the *sow.*

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[*] This gentleman's stock are all jet black and polled, and so remarkably alike, that they show much care in attending to the breed.

[*] "An observation which Dr. Jenner made to me about ten years ago (the truth of which has been since confirmed by my own experience) that no animal whose chest was narrow could easily be made fat, applies particularly to the Merino sheep, which are in general contracted in that part, and is well worth the attention of those who wish to improve this breed."—*Sir J. Sebright.*

[†] An old French writer on agricultural subjects imagines that polled cattle are degenerated. He says, "Meme en Ecosse on trouve la race tres petite, et fort souvent sans cornes."

[‡] Look at the hare and the goat, however well fed, they refuse to lay on fat.

[§] Some few have a sort of shrivelled horn, which drops off, or more commonly they rub them off in the autumn.

The influence of the male in this animal is as great as in the sheep. A few facts will show this. A friend of mine, soon after I commenced farming (thinking, no doubt, to do me a great kindness) made me a present of a sow of the wild species, in pig to a boar of the same sort. She was sent to me by sea, and during the voyage she broke out of the crib into which she had been put; and when the crew attempted to replace her, she attacked them with open mouth, and forced them to take shelter in the rigging. I put her into a high walled field, where she showed every mark of a wild animal, starting off at the least noise, and running very swiftly to some concealment. When the time of littering came near, she set to work, and carried in her mouth great quantities of withered grass and rushes, till she had a heap the size of an ordinary hay-cock. Here she had ten young ones, so concealed that no trace of them could be seen. When the heap was approached, she made a noise something like the bark of a dog, ran furiously to attack the person who had the temerity to invade her abode. In a short time the young ones made their appearance, they were all perfectly alike, being of a red or dark yellow colour, with regular black stripes, like a tiger or zebra, down the sides. As they grew old they became darker, till they resembled the sow, which was of a port-wine colour. When it became necessary to take them, the mother was secured by a noose thrown over her, and the young ones were hunted down by a number of men. When escape was impossible, they gave battle, and offered to bite very furiously.

I now put the old one into confinement, where she had a second litter to one of the pigs, which were in all points like the first. I next put her to a boar of the Duke of Bedford's improved breed. At once the litter had a totally different appearance; the pigs were all different from each other; some had a slight kind of stripe, some none, some were light, some dark. Those which had stripes when littered lost them, and grew lighter in the colour as they grew up. The leg had become shorter, as had the snout. They soon inclined to come out of the inside sty to the feeding trough, when the feeder put meat in it, and would feed while he stood by; and, lastly, they proved much better thrivers, getting very fat, which the old one and all the former pigs refused to do. I gave a neighbor a boar of the first litter which he put to several of the Duke of Bedford's sows, where the change was equally manifest; the zebra stripe, the long snout, and the length of the leg appearing in the whole of the young ones. I was now very sick of the sight of them, and sold them all off.

My stock now consisted of a cross between the Duke of Bedford's and Squire Western's improved Essex, and were as fine as any I ever saw, being as remarkable for tameness and good nature as the sort I have been speaking of were for the contrary. After breeding from these for some years, they at last got such a tendency to get fat that they were entirely lard, and almost useless from being too fat. Pork at this time had declined so much in the market, and the prices were so far from remunerating ones that I parted with my whole stock but one sow at what they would fetch, thinking the first loss the best. From this sow I had two litters (previous to reducing my stock) by the full bred boar. They were like herself, short in the snout, had very small ears, hardly any legs, and were so tame that they would eat a few oats out of the man's hand who fed them. Having now no boar of my own, I had to look out for one; and being informed that a gentleman and neighbor of mine had a pretty good one, I sent a man and cart to beg the loan of him. I chanced to be in my yard when the man returned. My surprise was great when I found he had a beast muzzled and tied down with a quantity of ropes: and, on his being turned into the sty, he proved to be a beast raving and foaming at the mouth, with long legs, a long snout, ears twice the size of the sow, and a long shaggy coat covering lank sides. In short, it looked as if my man had got a hyena out of Mr. Polito's caravan, rather than a boar from my neighbor's farm-yard; and, when put together, they by no means answered to the words of the old song—

> "Oh, sure a pair was never seen
> So justly formed to meet by nature."

The offspring of this alliance was exactly what I expected; the cross had greatly increased the size, the pigs being longer than either of the parents, while much of the boar was to be discovered in them; the snout had considerably lengthened, as had the ears and legs. The whole of my breed were pure white, with hardly any hair on them. The pigs were some black, some spotted and had a sufficient supply of bristles; and above all, they were lively, active, wild things, refusing to come near their food while any one stood by, and had lost much of the tendency to get fat.

I have thus produced facts of the influence of the male on the progeny in the horse, the cow, the sheep, and the sow, and in all I have endeavored to show to the Society, that, whether that parent be the high bred one or not—whether to improve or to deteriorate—it is the *male* which has by far the greatest influence over the offspring. I would still quote one fact more, which has come under my own eye; it is in the common fowl. In the year 1810, I procured a breed of the Malay or Chittagong fowls, and those I crossed once or twice with cocks of the same breed, got from different quarters. In spring 1824, they had been bred from cocks reared at home for three or four years, and were then all dark-coloured, without a white feather, having either black or yellow legs. Most of them resembled a partridge. At this time I learned there was in a farmer's possession a breed of fine Malays, which his brother (a surgeon on board an Indiaman) had brought home. I sent and purchased one. He was what cock-fighters termed "pied," or in other words, had numerous white feathers all over his body, with white legs. From this cock there were bred, in summer 1824, about seventy-eight chicks, of which number seventy-three were either pied or had a great deal of white on them; and a great proportion of them had white legs. Nothing but the influence of the male parents could have done this, for the hens were all gallant hens, not a white feather was to be found amongst them; nor could it have been owing to their ancestors, for they had all pedigree as long as Sir Watkin Williams Wynn.

Thus far have I stated facts which are known to myself and friends only; I would now mention some which are within the reach of all. Let us call to mind the offspring from the mare and the jackass. Is it not obvious to all the influence the male parent has on the mule? Colour, shape of head, ears, and whole body, constitution, even temper, are all derived from the male parent. I had an opportunity of observing the very same effects in the colt from a quagga and a mare, in the possession of the Earl of Morton, at Dalmahoy.—And his lordship, I believe, observed that the same mare, afterwards covered by a horse, retained in the progeny a resemblance to the quagga,* a fact of the most extraordinary nature.† I have been frequently told that a mule got by a horse, with the female ass, is a far superior animal, and retains the mane, with the ears much less, &c; but this is a fact I never could get to the bottom of. I only know it is believed by the Spaniards.‡ Nothing can be more striking than the power of the male in birds. It is well known that bird fanciers, as they are called, put a cock goldfinch to a hen canary, and that way get a strong, beautiful mule-bird, having the greater part in plumage, song, and total appearance of the goldfinch, and showing, to the most trivial observer, that the male had the greatest influence in the progeny. Every one knows that the hen of any bird will lay eggs although no male be permitted to come near her; and that those eggs are only wanting in the vital principle which the impregnation of the male conveys to them. Here, then, we see the female able to make an egg, with yolk and white, shell and every part, just as it ought to be, so that we might, at the first glance, suppose that here, at all events, the female has the greatest influence. But see the change which the male produces. Put a Bantam cock to a large-sized hen, and she will instantly lay a small egg; the chick will be short in the leg, have feathers to the foot, and put on the appearance of the cock; so that it is a frequent complaint where Bantams are kept, that they make the hens lay small eggs and spoil the breed. Reverse the case; put a large dunghill cock to Bantam hens, and instantly they will lay larger eggs, and the chicks will be good sized birds, and the Bantam will have nearly disappeared. Here, then, are a number of facts known to every one, or at least open to be known by every one, clearly proving the influence of the male in some animals; and as I hold it to be an axiom that nature never acts by contraries—never outrages the law clearly fixed in one species, by adopting the opposite course in another;—therefore, as in the case of an equilateral triangle, on the length of one side being given, we can with certainty demonstrate that of the remaining; so, having found these laws to exist in one race of animals, we are entitled to assume that every species is subjected to the self-same rules—the whole bearing in fact the same relation to each other as the radii of a circle.

Now, then, to the point of expediency. Let us suppose that I have formed an erroneous opinion, and that other essayists bring forward counterproof, to shew the power of the female. What difficulties arise in changing the whole females on an extensive farm, while with what ease a new male is procured! Sir John Sebright says, "Many females throw progeny unlike themselves, and it would be wise to try them with a male whose stock is known previous to breeding from them." How should we manage if we found it necessary from this cause to put away a set of females, which we had procured from a great distance, for the very purpose of improving our breed? If proof were required in a thing so plain to common sense, the enormous prices given for males in comparison of females, would show the advantage of getting that sex which can give the breeder a hundred of his offspring in a season in place of one. Another advantage is the letting out the males to hire for the season, a thing greatly to be wished the society would encourage, and give premiums for. The system is productive of the best consequences, a few of which it may be well to bring before the society; and be it remembered that it is only by the male, for a thousand obvious reasons, that it can be done. When a person has bred or purchased a male, he not only does not like to put him away, although he perhaps has found out that he is not well calculated, either as to cross or selection, to suit the females he has to put him to; but from the partiality which we all have for our own, it is ten to one but we think an animal, which, in truth, is of no value, to be a very fine one; and thus the breeder patters on with an inferior animal, instead of year by year selecting such a male for hire as he sees would be best suited to correct the faults of his stock. Look to the good arising in our breed of horses from this system, which in fact public stallions exemplify. Look how the districts in England where the practice of letting bulls and rams by the season exists, have far outstripped the rest of the island in the excellence of the stock which they possess; and let any one say if the benefit resulting from it is not self-evident. If such a thing were to be introduced in Scotland, and I shall hope one day to see it introduced under the patronage of the Highland Society, it ought decidedly to be in the shape of shows or competitions. Then a spirited farmer, or a few neighbors, could join and procure a fine animal at an easy rate: then the ignorant pretending judge would be told the truth by the verdict passed on his property by the public, who would not spare either his veracity or self-conceit; comparison would teach all a better taste and judgment; fine animals would be brought from England, and all parts of the country; and rewards not only of fame, but of emolument, would be conferred on the man who paid the greatest attention to his trade, and consequently brought forward the finest animals. I do not think I can better conclude than by quoting the words of Sir John Sebright, whose ideas on the subject altogether coincide with my own. "There is, perhaps," says he, "no means by which the breed of animals can be so rapidly and so effectually improved, as by its being the particular business of some breeders to provide MALE *animals* for the purpose of letting to hire. No trouble or expense will be spared by those who expect to derive profit, not from the quantity but from the quality of the animals which they breed; the competition which must always exist between breeders of this description will be a never-failing stimulus to exertion.—The common farmer, who seldom sees any stock but his own or that of his neighbors, generally concludes that his have arrived at the summit of perfection. But the breeder, who lets for hire, must frequently submit his own male animals to the inspection of the public, and to the criticism of his rivals, who will certainly not encourage any prejudices he may entertain of their superiority. Thus each, besides the improvement of his stock, will receive a fair remuneration; and every breeder have the means of selecting the male he thinks best calculated for the females he may happen to possess."

I have now, I humbly conceive, shown not only that it is the male parent which is capable of most speedily improving the breed of live stock connected with agriculture, but that *the male is the parent,* from motives of sense and sound polity, which we can alone look to for the improvement of our breed of live stock.

[*From the Journal of the American Institute*]

To the Committee on Silk, American Institute:

GENTLEMEN—The vast importance of the silk culture to our country, and the eagerness of the public to obtain information respecting it, make it the duty of every one engaged in producing a "silk crop," to furnish his quota of knowledge, that thus a mass of practical information may be collected, from which we may go forward with confidence, and gather in the rich harvest which is before us.

With these views, and in compliance with the solicitation of my fellow-citizens, I give you the result of my experience during the past summer. I would first premise, that in making a trial of the silk culture, it was my desire to adopt a mode which could be followed by our agriculturists at large, rather than to show the greatest possible quantity of silk that could be produced from a given portion of land. Such an experiment, made under peculiar advantages of soil and culture, yielding a large product, might be viewed with admiration, but the means being beyond the reach of the mass of our citizens, the same results could not be attained.

The field from which the experiment was made, was situated in East-Hartford—the soil, of a light sandy nature, of a quality termed in that quarter, good corn land. It was ploughed about the middle of May, and harrowed and furrowed in the usual manner. The roots and trees (Morus Multicaulis,) were now laid down, and covered from two to four inches, the tops having a slight upward inclination; they were placed about twelve inches apart in the row, the rows three and a half feet apart, having been previously moderately manured.

After the field was planted, a section comprising one eighth of an acre was marked off, to be subjected to a more particular experiment. It was stocked with 780 roots and trees, all of one year's growth, having had their tops partially or wholly killed by the severity of the past season. One-third were two feet high, one-third one foot, stripped of their limbs, and the remainder were roots without tops. By the first of June, the new shoots began to show themselves, and by the first of July, they numbered 4,800, and had attained the height of twelve to eighteen inches.

A family of 4,000 worms was now started, which wound up on the 23d July, having consumed 131 lbs. leaves. Three other lots, amounting in all to 28,000, were now put out at intervals of several days, in order to favor the increasing growth of the leaves. By the 10th of September, the last had finished their labors.

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* The quagga is the species which links the zebra and the ass.

† An account of the circumstance alluded to by the author is given by the late Lord Morton, in the Phil. Trans. for 1821, p. 21.—(EDIT.)

‡ If a mule be remarked in Spain as particularly neat and handsome, the muleteer will always say, "Si, signor, caballo estavo, padre:" Yes, sir, a horse was his father.

Weight of leaves consumed in August, 701 lbs. and in September, 332 lbs.

Total weight of leaves gathered,......	1,164 lbs.
Total number of worms fed,..........	32,000
Producing nine bushels cocoons.	
Yielding (so far as reeled,) 1 lb. of silk per bushel.	
Weight of cocoons,................	95 lbs.
Waste silk and floss,................	1 lb.

Twenty-seven thousand of the worms were of the two crop kind, requiring 4,000 to make a pound of silk, and consuming 144 lbs. of leaves. The remaining 5,000 were of the long crop six weeks worms, 2,500 of which produced a pound of silk, and consumed 90 lbs. leaves. It was my intention to have fed the long crop worms entirely, as they are known to be much the most productive of any other kind, but they could not be procured.

Business now calling me away, the feeding was discontinued, and the trees were immediately removed from the ground, having attained an average height of 4½ feet, well rooted and with heavy limbs.

The produce of the one-eighth of an acre, as above, it appears is nine bushels cocoons, or nine pounds silk; being at the rate of 72 lbs. per acre, from the feeding between the first July and the 10th September. It is easy to see, that had the 1,164 lbs. leaves been fed to worms of the six weeks kind, the yield would have been 13 lbs. of silk, or nearly—and from the rapidity with which the new leaves were developing when the trees were removed, it is presumed that had they remained during September, enough more might have been added to have swelled the product, so as to have made the crop at the rate of 125 lbs. per acre.

During the period of feeding, the safety and even advantage to the tree of frequent defoliation was fully proved. The trees from which this experiment was made, were stripped of their leaves four different times, yet at no time were they inferior to others that were untouched; on the contrary, it was remarked, that where the leaves were removed, the limbs shot forth with greater vigor—care being taken to leave the tender leaves at the ends of the branches.

The very great advantage of this species of mulberry over standard trees, was manifest; while such trees are difficult of access, and from the small size of the leaves, requiring much labor to gather any quantity, it was easy for a child to take from the Morus Multicaulis 15 to 20 lbs. in an hour.

The plan of retarding the hatching of the eggs by keeping them in an ice-house, was found perfectly successful; the worms which wound the finest cocoons were thus kept back until the 3d of August.

It may be useful to new beginners to know, that the large six weeks worm, either white or sulphur coloured, is altogether preferable to the two crop; for, not only are they more productive of silk, but from their superior length of thread, the reeler is able to produce silk of better quality, and with less labor.

The convenience of a shrub tree, where the farmer wishes to change his crop, may be seen from the fact, that with the use of a plough, the trees on this section of land, 4,800 in number, were turned out of the ground in 30 minutes. An hour more was sufficient to cart them from the field.

Every one who takes up the culture of silk, is surprised at the ease and certainty with which it is produced; and of this experiment it may be observed, that none of the persons who took care of the trees, gathered the leaves, or fed the worms, had ever seen a a tree or a silk worm before.

I am not acquainted with the comparative merits of the Morus Multicaulis, and other kinds of the mulberry; but large as has been the estimate of some cultivators, of the produce and value of the former, I believe its astonishing power of reproducing foliage, its tenacity of life, and the great ease with which it is multiplied, have never been overrated. A friend informs me, that a field of roots, deprived of their tops last fall, remained in the ground during winter, and that from the new shoots, which started as early as any other vegetation, he was able to feed from one to two months earlier than from others planted the following May.—From these collected facts, we may form an idea of the quantity of leaves, and the consequent weight of silk that may be obtained from the Morus Multicaulis, when it shall have attained greater age, even in this latitude.

I am not able to name the cost of raising silk; but an intelligent culturist of my acquaintance, from a proof of three successive years, rates it at $2 per lb. exclusive of the cost of trees and the tillage; respecting the latter, I am of opinion the labor bestowed on a field of mulberry, need not be more than on a field of Indian corn.

It appears, therefore, that nearly all the labor of raising silk, viz: plucking the leaves, feeding the worms, and reeling it into sowings, may be performed by the females of a family, and thus the product be considered a clear gain, like that of any other collateral branch of farming. The growing of silk needs but to be looked into, to be appreciated; and if 100 lbs. can be produced the first year of planting, worth $5 the pound in raw silk, or $9 when in sewings, what other crop, it may be asked, can be named coming near it for profit?

I will only add, gentlemen, that it is cheering to see the interest the American Institute has taken in this all-important subject, and to express the hope, that the coming exhibition, from our silk growers, and the increased patronage of the Institute, may give to it a fresh interest. Yours respectfully, J. DANFORTH.

Hartford, Sept. 19th, 1838.

New Publication.

We have received from the respected author, W. H. Ellsworth, of Lafayette, Indiana, a pamphlet of some 200 pages, entitled, "The Valley of the Upper Wabash, Indiana, with hints on its agricultural advantages;" illustrated with a map, engravings of labor saving machines, &c. Mr Ellsworth is a gentleman every way competent to the task he has undertaken, and his book has conferred a signal favor on the northern part of the flourishing state of Indiana. Hitherto the northern part of that state has been a terra incognita, and while the stream of emigration has flowed along its borders to Michigan and Chicago, few comparatively, owing to difficulty of communication, have found their way into that fertile section of the west, the Wabash Valley.—That difficulty is now overcome, or will be so in the course of the next year, by the completion of the Erie and Wabash canal, which commences near Toledo, at the mouth of the Maumee, and terminates at Lafayette, the head of steamboat navigation on the Wabash.

Mr. Ellsworth has drawn his picture of that section of the great west, in strong and bright colours, but perhaps not stronger than facts would fully justify. It is a country in which corn, the sugar beet, and the mulberry, can be cultivated with as great success as in any part of the United States, and its general agricultural advantages, can scarcely be exceeded, when fertility of soil and ease of cultivation are considered. The excellent report made by Mr. Ruggles to our legislature at its last session, has furnished Mr. Ellsworth with valuable matter for his appendix, and he has also furnished extracts from the letters of other gentlemen, on points that had not fallen under his personal notice. Mr. Ellsworth gives tables and statements showing conclusively that the great thoroughfare to the west, both for travel and trade, lies through New-York; but at the same time demonstrates that this great state must not relax its exertions in the cause of internal improvement, if she would maintain her present high vantage ground. We may refer to Mr. Ellsworth's book hereafter, in the mean time we cordially recommend it to the notice of emigrants to the Mississippi Valley.—*Genesee Farmer.*

An Address

Delivered before the Rockbridge Agricultural Society, at its Annual Fair, Oct 11th, 1838, *by* George D. Armstrong, A. M. *Professor of Natural Philosophy and Chemistry, in Washington College, Lexington, Va.*

Communicated for publication in the Farmers' Register.

Gentlemen of the Agricultural Society—The subject which I have selected as affording a theme suitable for the present occasion, is—the value of natural science to the farmer. The practical rules of agriculture, and the best methods of cultivating the great staples of our country, would have afforded a more appropriate subject, had I felt myself competent to the task. But with my imperfect acquaintance with those matters, any attempt to communicate information to the members of this society, must have proved worse than useless. The importance of agriculture to the prosperity of our country, and the honor which is due to the independent American farmer, would have afforded a theme in the highest degree grateful to my feelings; but its discussion could not have been of any real value. In such a country, and in such a state of society as ours, where the farming part of the community are acknowledged to be "the bone and sinew of our strength," that class upon whom more than upon all others, our national prosperity depends, the poor tribute of my praise, could neither make them more honored in fact, nor to feel themselves so. Precluded as I am from the discussion of either of these subjects, which would have been most appropriate to the occasion, I will be pardoned for selecting a theme, which in other circumstances I should have left untouched.

The system of agriculture pursued in this section of country has, within a few years, undergone a change for the better. Whilst a country is new, presenting a deep rich soil, which has never been vexed for the support of man, it makes comparatively little difference in what manner it is tilled. All that is necessary is, to bury the seed in the earth, and in due time to gather home the golden harvest. But if a careless system of agriculture be pursued for a time, the soil becomes gradually exhausted. Instead of gathering an abundant crop almost without labor, the farmer is compelled "to eat his bread in the sweat of his brow." From year to year, whilst the amount of his necessary labor is increased, the return for those labors becomes more and more scanty; until at length a point is reached at which the only alternative left him, is to change his system of cultivation, to emigrate, or to starve. There are portions of our southern country which have nearly reached this point—and the tide of emigration is fast sweeping off their old population to the new countries of the west and southwest, those lands of promise. Accustomed for many years to a certain routine of farming operations, they either would not, or they knew not how to change it for a better. The valley of Virginia, possessing as it does a soil which it is difficult if not impossible entirely to exhaust, has never become impoverished to such an extent; yet, even from the valley of Virginia, not a few have sought a home in the distant forests of the west. Far be it from me to call in question, either the policy of such a movement, or the patriotism of those who have made it; doubtless they have found a richer soil; and having carried our free institutions with them, wherever they have gone, they still possess all that which most endears his native state to the bosom of a Virginian. But those who remain behind, have a work to perform. By long cultivation, the soil has become so much exhausted, that it is necessary for our systems of cultivation to be improved, if we wish still to see "smiling plenty reign in the home of our childhood." Instead of making it the one absorbing question, how can I get the largest return from my lands this year? our farmers must inquire, how can I get the largest return in a series of years? how can I permanently improve my lands? This I suppose every one is ready to admit; but then the question arises, how is this change for the better to be effected? in what way are our lands to be improved? in what respects ought our systems of cultivation to be changed? It is not difficult to mention some way in which lands may be improved, and some particulars in which our systems of cultivation might be changed for the better; but to give a correct and full answer to these questions, to state in what manner lands may be permanently improved to the best advantage, and how our systems of cultivation may be changed, so that a given portion of land shall yield the largest return, with most certainty, least labor, least detriment to the soil, is a task which it is impossible to perform at the present day; and we can hope to do it only after long-continued and careful study of the subject.

It is at this point that natural science may be advantageously introduced to assist us in our labors. I know that in time past, while men have acknowledged the importance of applying science to the arts, and in fact to almost every thing else, they have doubted the value of its application to agriculture. Is this a reasonable doubt? What do we mean by natural science? As I understand it, we mean nothing more nor less, than our knowledge of nature arranged and generalized. Our knowledge on all subjects is, in the first instance, a knowledge of individual facts. After a stock of facts has accumulated, we perceive that many of them are of the same character; these we class together, and include them under a general statement. Again, we observe that some of these facts bear to others the relation of cause to effect, and we arrange them in accordance with this observation. This once accomplished, our knowledge has become science. By this process, the form, and not the nature of our knowledge is changed. Scientific principles are nothing more than human knowledge packed up in a portable form. Founded as they are upon our observation of nature, their application to the affairs of life, is one of the very best methods of testing their truth.

To the arts, and to almost every other business of life, natural science has been applied with the happiest result; and is there any thing which forbids the hope of its being applied to agriculture with equal success?—There are departments of physical science, which apply as naturally and as directly to the business of the farmer, as mechanical or chemical philosophy do to the business of the artizan. Such are mineralogy, geology, and vegetable physiology. One great object of mineralogy and geology is to enable us to determine the character of soils, to ascertain the elements which enter into their composition, and the proportions in which they severally enter. No one has ever doubted that the difference between a fertile and barren soil, lies in a difference in their composition. There are some combinations of the elements of soil, which seem particularly adapted to the growth of plants, whilst there are others which will scarcely support a scanty vegetation. A piece of land may be rendered barren, either by the absence of some one or more of the elements of good soil, or by the presence of some noxious principle. If the former is the case, it is to the interest of the possessor to supply the deficiency; if the latter, to remove the noxious principle. But how shall he set about this work, unless he know whether it is the absence or the presence of an element which renders his land barren, and also what that element is? Lime and vegetable matter are our two most common manures. To make it a general question, as has sometimes been done, whether lime or vegetable matter is the best manure for land, is very much like making it a general question, whether fire or water is the best agent for doing work. Unless the nature of the work to be done is specified, it is impossible to answer the question. For smelting iron, fire is the best, and water is good for nothing; for removing a stain from linen, water is the best, and fire is good for nothing. So it is with respect to manuring; it is necessary that we should know the nature of the soil, before we can determine the proper method of improving it. It is (as I have already mentioned,) one great object of mineralogy and geology to enable us to ascertain the nature of soils; the former, teaching us to distinguish them by their external characters, the latter by their position.

Let this suffice for mineralogy and geology—I wish to direct your attention mainly to vegetable physiology; a department of natural science, which has hitherto been little valued and little understood; and yet one which applies more directly to agriculture than any other. Under the title of vegetable physiology, is comprehended whatever is known respecting the structure of plants, and the history of vegetable life; embracing our knowledge of the nature of the organs of plants, the offices these organs perform, the manner in which they perform these offices, and the changes which they naturally undergo, or which they may be made to undergo by the art of man. Its object is to lay open the machinery of vegetable life, and to explain the manner in which that machinery operates. In order the more distinctly to illustrate the application of such knowledge to practical agriculture, I will select that which concerns one subject, viz: the circulation of the sap. We all know that plants are nourished by their sap, just as animals are by the blood which circulates through their veins.

If we inquire for the point at which the sap enters a plant, we find it to be the root, but not all parts of the root alike. There is a peculiar class of organs whose office it is to absorb nourishment from the soil; and these are situated along the fibres or smaller subdivisions of the root; of course it is at these points and no others that the sap enters. Let us see if we can make any practical application of this knowledge. If we wish by manuring, to assist the growth of a tree, we should place the manure at some distance from the point at which the trunk enters the ground, so that it may lie as nearly as possible over the fibres of the root. If we wish to plant a vine so as to twine around a tree and be supported by it, we should plant it very near to the point at which that tree enters the ground, rather than at the distance of several feet from it; because in this way the two will interfere least with each other's growth. If we wish to transplant a tree, we should be more careful about the extremities, than about the main divisions of the root. If the root have several branches, it is better to cut off all those branches excepting one, and retain that with all its subdivisions perfect, than to cut off the ends of all the branches, as is the common practice.

Again—if we trace the course of the sap during the different seasons of the year, we find that in such trees as the oak, the hickory and the chestnut, it circulates principally in the sapwood during the spring and summer, but during the autumn and winter it retires to the heart-wood, and not to the root, as is generally supposed. In order to satisfy ourselves of this, nothing more is necessary than to take a part of the body of a small tree cut in the spring, and of another cut in the winter, and lay them on the fire. The sap will be seen to exude in the first from near the surface; in the second from the heart. Let us see if we can make any practical application of this knowledge. It is generally acknowledged that, that most destructive disease in timber called the dry-rot arises from the presence of the sap. It is generally the heart-wood which we use for timber, whilst the sap-wood is considered of little value. If then the situation of the sap at different seasons is such as I have just mentioned, in order to get our timber free from the sap, we should cut it in the summer and not in the winter. The course thus indicated is, I know, in direct opposition to the common practice of men. As this is a matter of some practical importance, permit me to cite one fact in confirmation of the rule which I have laid down. The fact is mentioned in connexion with many others of a similar character, in a communication from a very intelligent ship-carpenter to one of our scientific periodicals. "In accordance with the common practice of ship-carpenters, I was in the habit of cutting my timber in the winter.—During the summer of 1810, when engaged in framing a vesssel, I found I had no piece which was suitable for a certain place in the frame. It was necessary that the work should go on, and as the only alternative left me, I sent immediately to the woods and had a suitable stick cut; this I framed in with the others. After several years the vessel was sent back to me to be repaired.—On examining her side-timbers, I found them all more or less affected with the rot, excepting this one, whilst it was perfectly sound."

Again; if we inquire into the nature of the sap, we find that as it enters the vegetable system, it consists mainly of water holding carbonic acid gas in solution Water has the power of absorbing large quantities of certain gases, whenever it is brought in contact with them. Strange as it may seem to those who have never thought much on the subject, water is porous, and absorbs these gases just as a sponge absorbs water.—The great object of manuring, in most instances, is to supply carbonic acid gas to the growing plant. A large portion of this gas is liberated from vegetable matter during its decay; and hence the value of such matter as manure. The gas furnished by the manure, must be absorbed by the water, as it sinks down into the ground. Of course, the water should meet the manure before reaching the roots, and not after it has passed beyond them. This would suggest that the manure could be placed to the best advantage upon the surface, because then the water must pass through it before meeting with any of the roots. But, then, there is a difficulty arising from another source. The valuable material furnished by the manure, is furnished in the form of a gas. If the manure is placed upon the surface, it soon dries, and whilst in that state, as the gas is liberated, no water being present to absorb it, it is soon dissipated in the atmosphere. The two facts taken in connexion, suggest that the manure should be placed as near the surface as is consistent with its being kept in a moist state, and in every instance, above the roots of the plant which it is intended to benefit. Where manure is spread upon the ground in the fall to benefit a winter crop, it should be placed very near to, if not upon the surface; where it is spread in the spring or early part of summer it should be always covered with earth.

Our knowledge of the nature of sap, enables us to explain the manner in which clover improves land.—Had we no experience on the subject, it would seem, to say the least, improbable that any crop could improve land. We would naturally suppose that plants were nourished by the ground itself—that they fed upon the soil. If such be the case, when a crop is ploughed under and decays, it can give nothing but what it has first taken; and how then can it improve land?—Yet we find that growing clover upon land, and then ploughing it under and suffering it to decay, is one of the very best methods of improving land. Bearing in mind the nature of the food of plants, this admits of a simple explanation. We will suppose that clover is sown upon a perfectly barren spot. The atmosphere which is above this spot, contains a portion of carbonic acid gas, for all atmospheric air contains a greater or less portion of it. A rain comes; as the rain falls, it absorbs a portion of this gas, and in this condition enters the ground. No sooner does it come in contact, with the seed in the first instance and with the root afterwards, than it is absorbed and its materials used for increasing the size of the vegetable structure. When the portion of air above the spot, has in this way been exhausted of carbonic acid, a supply is obtained from the neighboring portions, in consequence of that strong tendency which gases manifest, to intermix and diffuse themselves throughout each other. This process is repeated again and again, and thus the clover increases in size. Perhaps some one may ask, from whence is this gas obtained in the first place? From many sources, but principally from decaying vegetables, such as are found in the woods and along the fence sides. The quantity of the several elements which enter into the composition of our globe, is fixed; it is impossible for man either to increase or diminish this quantity, and it is equally impossible for him to convert one of these elements into another. All he can do is to make an economical use of that which already exists, to gather up those portions which subserve no valuable ends, and apply them to use. This is what the farmer does in sowing his land with clover. He impresses the very wind into his service, for every wind that sweeps over a field of clover, laden as that wind is with the materials of vegetable structures, is made to contribute to its growth. After a large portion of vegetable matter has, in this way, been collected upon the once barren spot, it is ploughed under and secured for future use.

Again; in absorbing nourishment from the earth, the roots of a plant do not seem to exercise any choice; but drink up every thing, presented to them in a sufficiently fluid state. This we learn from actual experiment. Almost any substance which is soluble in water, may be made to enter vegetable systems. After a heterogeneous mass is thus taken up by a plant, such portions as are suited to its nourishment are retained, whilst such as are not suited, are returned to the roots, and by them again deposited in the soil. From observation, we learn that the matter thus rejected, is thrown back in such a state as to be not only unsuitable to the nourishment of the plant (rejecting it) but positively deleterious. It has also been ascertained, that the substances rejected by different plants differ from each other; and this to such an extent that the matter rejected by one plant, is well adapted to the nourishment of another. With a knowledge of these facts, we can assign the reason, why it is not a good plan to sow the same crop upon the same piece of land for several years in succession. It will not do to say (as is often done) that a second crop of wheat will not grow as well upon the same spot, as the first, because that spot has been so much exhausted by the first. This is, it is true, one reason; but if it be the only reason, or even the principal reason, why is it that a crop of corn succeeds so well? The failure in the second crop of wheat, arises not so much from the exhaustion of the soil, as from that soil's containing a portion of matter positively deleterious to the growth of wheat, and which was deposited by the first crop. At the same time this matter is not injurious to the growth of corn, and hence the crop of corn is almost as good as it would have been, had wheat never been sown upon the land. If we could ascertain the precise character of the matter which is retained, and of that which is rejected, by each of the several crops commonly cultivated, it would be an easy matter to determine the best order in which crops can succeed each other. Perhaps too, if this subject was better understood, we should find that the way in which some manures benefit crops, is not by supplying nutritious matter to them, but by removing this deleterious matter from their roots. If this matter possess the character of an acid, as it is more than probable it does in some cases, lime would act in this way. Being a salefiable base, it would unite with the acid and neutralize its properties.

I might go on and multiply instances such as these, did the occasion call for it: but as my object is, not to give a lecture on vegetable physiology; but by illustrating its application to agriculture, to show its importance to the farmer, these will suffice. Perhaps some one may ask, if scientific principles are nothing more than facts, arranged and generalized, why is it, that knowledge in this form, is more valuable, than in the form of unconnected observations; the form in which this knowledge is at first obtained?

There are several reasons. Knowledge in the form of science is more easily retained, and is more perfectly at the command of the possessor, than it can possibly be, in the form of unconnected observations. I doubt not that the experience of every one here will confirm the statement, that it is easier to remember fifty effects, when we can trace them to one common cause, than it is to remember five, when we can trace them to no cause. A knowledge of the cause of any number of effects, serves as a band, by which they are bound in one common bundle, and thus secured from being scattered and lost. It is one of the characteristics of science, that the relation between cause and effect is distinctly traced out.

Another reason why it is desirable to have our knowledge in the form of science is, that in this form it will serve to direct us in our course of experiment and observation. Such is the constitution of nature, so intimately are the various parts of creation interwoven, that a cause generally gives rise to several effects.—When we have traced an observed effect back to its cause, we can generally infer other effects, which will spring from the same cause; and these often of a character entirely different from the one first observed. To illustrate my meaning by an instance. In attempting to sink a pump to an uncommon depth, it was found that the water could not be raised by it, to a height greater than thirty-two feet. The cause of the rise of the water was ascertained to be the weight of the atmosphere. The reason why the water would not rise to a heighth greater than 32 feet, was that the weight of a column of our atmosphere was only equal to that of a column of water of the same diameter, and 32 feet high. It was at once inferred, that as the weight of the atmosphere was fixed, it must sustain columns of different liquids at heights, inversely proportioned to their specific gravities. And again; that as we rose from the level of the sea, leaving as we must, a part of this atmosphere behind us, the height at which a column of any liquid would be sustained, must diminish in proportion to our rise. Thus by tracing the refusal of a pump to act in certain circumstances, to its cause; we ascertain, in the first place, a method of determining the specific gravity of liquids; and in the second place, a method of determining the height of mountains. The effects by which we determine these things, spring from the same cause as the refusal of a pump to act, and yet they are of such a character that we never should have dreamed that there was any connexion between them, had we not traced them to their common cause; and more than this, we should probably have remained long in ignorance of the two last mentioned effects, had we not traced the first to its cause. Thus it is, that throwing knowledge into the form of science, is like putting it out at compound interest.

Another reason why it is important to have our knowledge in the form of science, is that in this form it will greatly assist us in observing facts, and collecting information. When the attention has been directed to any particular subject, facts connected with that subject are observed and remembered, which, in other circumstances, although they might have passed before the eye, would have made no impression on the mind.—Let a farmer and an architect travel together, through the same country, you will find that although they must have seen the same things, yet they have brought home with them entirely different kinds of information. The farmer can give you an account of the soil, the condition of the crops, the methods of cultivation, &c.; whilst he can tell you little or nothing of the structure of the buildings which he has passed. The architect, on the other hand, can give you a minute description of every principal building on the way, whilst he can tell you little or nothing respecting the crops. The difference arises entirely from the fact, that these two men have had their attention previously directed to different subjects. By throwing our knowledge into the form of scientific principles, we get a number of subjects worthy of attention, distinctly out before the mind, and each of them will be a nucleus around which knowledge will naturally collect.

Such are some of the arguments, which urge a study of natural science upon the farmer. The want of success, which has in many instances attended the efforts to apply science to agriculture, may be brought forward as an objection, by some. To such I would answer, this want of success is to be attributed, in part to the present imperfection of those sciences which most naturally apply to agriculture; and in part also, to the visionary character of many of those who have hitherto made the attempt. If you will consult the history of the application of science to those of the arts to which it has been most successfully applied, you will find that this has been a misfortune which has happened to them all, in their infancy. Visionary men being the lightest part of society, seem always to rise to the top; and rising science, like the rising sun, is forced to shed its first rays upon those barren spots, where it is impossible that any thing should grow. Let it rise higher, and pour its flood of light upon the rich valleys below, and if it cause not these to spring with life and verdure, then may you fairly call its claim in question. If the attempt has failed hitherto, in consequence of having been made by visionary men, the greater is the necessity that sober, substantial, practical men should now take the matter in hand.

Much has already been done in Virginia for the advancement of the interests of agriculture. A geological survey of the state is now in progress. An able periodical, devoted exclusively to diffusing information respecting the best methods of cultivating and improving land, has been established, and thus far well sustained. And last, though not least, societies such as that whose anniversary we to-day celebrate, have been established in many parts of the state. Thus far it is well. There is yet another, and, as it appears to me, an important step to be taken. The nature of that step and my reasons for believing it important, I have presented before you. "I have spoken as unto wise men, judge ye what I say."

Every inducement is held out to the farmer of the valley to improve his land and his system of cultivation.

Who that looks upon the inexhaustible water-power of our state, and at her vast mineral resources; the iron and the coal, which the hand of a bounteous Creator has so lavishly bestowed upon her, can doubt, that she is yet to become one of the principal manufacturing states of the union. Thus will she possess within herself a market for all that her farmers can produce by the most skilful cultivation. The James River improvement will soon open a grand highway, from the valley to the very centre of this market. Our climate is well adapted to the growth of every species of grain; our soil is already good, and susceptible of the highest degree of improvement. What then is there to forbid the hope, that the valley of Virginia may yet rival in fertility the fairest portions of the west? Let our farmers but improve the advantages which they have; let them engage in earnest in the work, and this hope must soon become a reality.

The traveller as he rests for a moment on the top of yonder mountains, will cast his eye over a broad land of golden harvest. As he descends and mingles amongst us he will receive the hospitality of an intelligent, a blest, a happy people. The inhabitant of the valley has already much to rejoice in. He trembles not before the chill wind of the north, neither is he stricken down under the oppressive heat of the south; surrounded by a scenery so grand and beautiful, that no part of the country can boast of a superior; possessed of a mount-girt home, such as has always been the strong hold of the freeman, let him but add to these, that fertility which he can bestow upon the soil, and with an honest pride may he exclaim, my own, my native valley, is the fairest spot on which the sun shines.

Science of Gardening—CONTINUED.

[*From the Alphabet of Gardening.*]

SCIENTIFIC PRINCIPLES OF DIGGING AND RAKING.

It must be evident that a soil having a hard crust on the surface, will neither admit water and air, nor allow the water and air already below the surface to escape and circulate freely—circumstances indispensable to the healthy growth of plants. It is with such views, as well as to render it more easy for plants to extend their roots in search of food, that digging is performed. The extraordinary effect thereby produced is strikingly shown by the experiments of Mr. Curwen, who found that the quantity of water which rose in the form of vapour from an undug surface was exceedingly small, whereas from an acre well labored there were no less than 950 pints carried off into the air in one hour.

So great a loss of water might, however, be in many gardens injurious, by rendering the soil too dry, and, in that case, it might be useful to employ the roller when the plants would admit of this, or place fern leaves, or the like, so as to prevent too rapid a loss of water.

Raking very smooth will have a similar effect, by diminishing the extent of the surface exposed; and hence where there is too much moisture, smooth raking must be bad practice, and rough digging or trenching the best for sending off the superabundant moisture into the air.

When a soil is what is popularly termed *sour*, that is, too moist in consequence of water lodging in it without free circulation, it is often advantageous to turn it over by repeated rough digging, going as deep as it may be advisable, according to the quality of the under soil. This indeed is always of importance in regulating the operation of digging; for otherwise, if the upper soil is rich in the materials of the food of plants, it may be turned too deep for the roots to feed upon it, while if the under soil is the richer in the food of plants, it will be useful to bring it up from some depth to the surface. The testing of the soil to be dug, at various depths, will therefore be always important before proceeding. Dr. Home, as we have seen, found barren under soil or *till* usually impregnated with iron.

ACTION OF FROST ON SOILS.

Very erroneous notions, it would appear, are commonly held respecting the action of frost upon soils, which it may be well to examine here. Even scientific men have concluded, that frost, by crystallizing the water retained in clay soils, tends to loosen it, by separating the particles; all which seems very plausible, but plain facts and experience demolish the theory. Instead of being expanded, and the particles separated from the swelling of the ice accordingly, it is found, that wet clay squeezes out the water to the surface, while the particles of the clay become more tenacious, solid, and close; the process being similar to what takes place upon freezing salt dissolved in water, in which case, all the salt is forced either into the centre, or into separate solid masses surrounded by ice. This view is farther proved by the well known fact of newly transplanted strawberries, and the smaller pebbles on a garden walk being loosened and thrown out by the frost squeezing the soil more firmly around their lower bevelled parts, from the action of which they escape gradually upwards; whereas the larger pebbles on a gravel walk will, in slight frosts, be seen to sink a little, from the pressure caused by the frost not being below them. It will hence be injudicious to rough dig a stiff or watery clay soil with the view of mellowing it by frost, and still more to expose clay intended for composts to freezing. An ample dressing of fresh farm-yard dung, containing much straw, or of wood or coal-ashes, will answer much better with such a soil, from the straw facilitating the introduction of air, and the circulation of water, and the ashes separating the particles of clay. Dressing clay with sand, at least in any small quantity, which has been recommended, will only tend to stiffen the clay, as must be evident from the processes of brick and porcelain making, in which sand is indispensable to mix with clay to harden the goods. In order to be beneficial, the sand must be in proportion of at least one half, or more, to the clay.

I may mention here, also, that the common notion of frost tending to kill insects, is far from correct.

LEVELLING AND DRAINING.

One of the most important things effected by digging is the levelling of the surface in cases where the soil is very light, and liable to become parched for want of a sufficient supply of moisture; for the sun, having less effect upon a level surface, because the rays of light run in straight lines from the sun, will not carry off so much water as from a slope. By the same principle, when a soil is too wet and cold, the forming of the garden into a slope, if the expense can be afforded, will be of great advantage.

Although draining is rather extensively practised, I question whether its principles are sufficiently understood; for it is obvious, from what I have already detailed, that this will not depend altogether on getting rid of superfluous water, but upon the circulation thereof which is effected, and also upon the circulation of air that must be consequent upon all under ground drains formed with potsherds, broken slates, or brush-wood. I even question whether such drains might not, on this account, be of advantage in gardens, in which the soil was dry enough not to require any lodged water to be carried off.

SCIENTIFIC PRINCIPLES OF SEED SOWING.

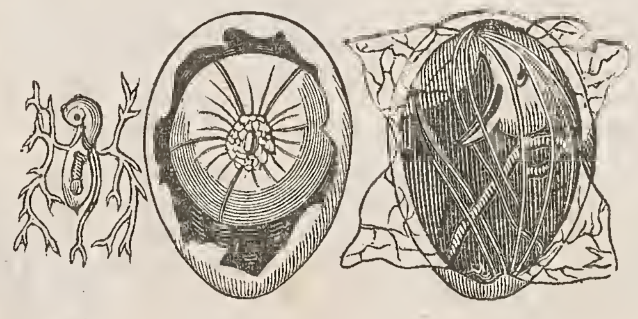
I have already hinted, that the food of young plants, when they first germinate, or begin to *braird*, as it is provincially termed, is very different from that of full grown ones; for, instead of taking up the ordinary food, they depend in a great measure upon the materials stored up in the seed, in much the same way as the chick, before it breaks out from the egg, depends in a great measure upon the food stored up there. I have used the qualifying phrase, "in a great measure," both in the case of the young plant, and of the chick, though it may appear, at first view, to some that the chick enclosed in the shell has no means of obtaining any food not included in this form without,—but two other principles are indispensable; I refer to heat and air.

Heat, if it do not form a portion of the food of the chick, and of the plant, is indispenable, either for exciting and stirring up into activity the vessels which carry the nutrient materials to the parts where they are wanted, or, as all fluidity depends on heat, for rendering the food sufficiently liquid to pass into and along these vessels.

Such is the theory, and it accords with the established facts, that a chick cannot be hatched in a heat less than one hundred and four degrees of Fahrenheit, while seeds require heat from forty to eighty degrees, above or below which they will not germinate well. As we have seen, however, that buds once roused into growth, will go on to grow even when cold recurs, so seeds, after germinating in artificial heat, may have the plants thus produced planted with success in the open air.

[Fig. No. 70.]

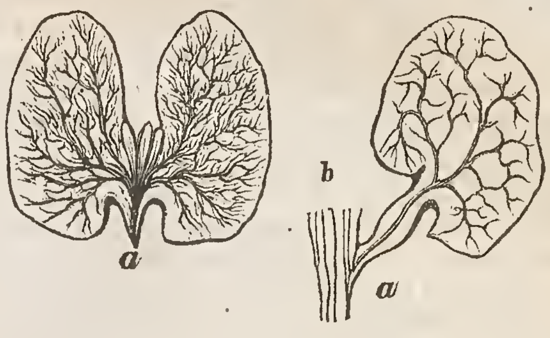
Eggs during the process of hatching, broken open to show the vessels supplying nutriment to the chick, which is shown separate from the egg on the left.



Air is supplied to the chick in the egg through the minute pores, or holes, in the shell, and probably to the seed of the plant in a similar way, though this is a point not well known. It is the oxygen of the air which is the indispenable material, both to the chick and the plant, for when confined in carbonic acid gas, or in azote or hydrogen, they both die. Too much oxygen, however, like too much heat, will excite growth too rapidly, and disease, and at last death, will be the consequence.

[Fig. No. 71.]

The nutrient vessels in the seed lobes of a germinating bean, magnified.



EFFECTS OF WATER AND STEEPING.

So far the chick and the seed have a close resemblance; but water, so indispensable to a grown fowl, would, in the smallest quantity, kill the chick in the egg, while it is equally necessary for the evolution of the plant from the seed, as it is to the full grown plant. Seeds that appear to have germinated without water, must have derived moisture from the air.

The principal effect of the water, when introduced within the shell of the seed, appears to be that of dissolving or, at least rendering more liquid, the portion of it whose use is similar to the contents of a bird's egg. The starch also, which is generally, if not always, in this portion of the seed, is converted into sugar, a process that can be imitated artificially.—Along with this some mucilaginous matters are observed rendering the food of the embryo plant not much unlike, in chemical qualities, to animal milk. The contents of the seed, thus changed into a sort of milky pulp by the addition of water, swell by degrees, and the first point of the future root having formed, breaks through the shell in a downward direction (*a*) and about the same time, the first point of the future stem comes forth in an upward direction (*b*,) as may be seen in the figures.

It will be an obvious inference respecting water, that, like the oxygen and the heat, if it be in too great quantity it will render the contents of the seed too thin, and weak, and will also increase their quantity so much that the vessels of the embryo plant will be gorged, and disease or death will follow. When the quantity of water again is not enough to produce this effect, still it may be in such large proportions as to push the growth too rapidly for the health of the plants, which will in that case be too pale on appearing above ground. Hence the importance is clear, of sowing in dry rather than moist weather.

Hence also the practical error, at least in most instances, of steeping seeds; which is chiefly useful in separating the infertile seeds that may swim on the water. All steeps which contain any thing but water and oxygen gas, are unnatural, and must be injurious; such, for instance, as urine, or drainings of dunghills loaded with humic acid, which embryo plants cannot feed upon, any more than a new born infant could drink strong ale or wine with impunity. Some strong infants might survive taking such drink, as some strong seeds may survive the steeps, but these survivals would not justify the practice. Steeps are recommended with a view to destroy the eggs of insects, but I am not acquainted with any destructive garden insect that lays its eggs upon seeds, and I am quite positive, supposing them to exist, that no steep would kill such eggs which would not at the same time kill or greatly injure the seed.

I am not aware of the effect of light upon the hatching of the eggs of birds, though with respect to the eggs of many insects, light certainly does not prevent them from being fertile. On seeds light acts so powerfully in retarding their germination, that though they have a due degree of heat and a due supply of oxygen and water, they will not grow, at least healthily, unless in the dark. The reason is that light causes the oxygen which is indispensable for their growth, to be carried off, and fixes in them the carbonic acid gas which is yet as improper food for the embryo plant as beef would be to a new born infant; whereas in the dark, the carbonic acid gas escapes into the soil, while the oxygen is taken up into the embryo plant.

Hence the importance of putting seeds deep enough into the soil to exclude the light, taking care at the same time not to put them too deep to be out of the influence of fresh circulating air. From half an inch or less to an inch, is about the average depth for garden seeds.

TIME OF GERMINATING.

Some seeds, such as those of the coffee plant, require to be sown immediately on being gathered, otherwise the nutrient matters contained in the shell become too hard to be dissolved in water. Others, as holly berries, require to be kept for about twelve months to mellow. It is said, and I believe in many instances proved, that seeds, such as those of the balsam, if kept for several years, are more apt to produce plants with double flowers, in consequence, it would appear of their nutrient matter being more condensed.

The period between sowing and germinating is very different according to species. Mustard, for example, will germinate in one day, or less if stimulated with chlorine; cress in two days; turnips in three days, lettuce in four days; parsley in about six weeks or two months; the peach in one year; and the rose and filbert in two years.

It has been proved by experiment that seeds gathered before they are quite ripe, germinate sooner than very ripe ones, obviously because the nutrient matter is less hard and more easily diluted with water; and on the same principle, I have proved by experiment, that potatoes, when saved green for planting and kept in bran, will come several weeks earlier than others. It would be worth trying the roots of the dahlia and marvel of Peru on the same principle. Though seeds, when gathered before they are quite ripe, germinate sooner, it does not follow that they will produce the best plants.

SCIENTIFIC PRINCIPLES OF TRANSPLANTING.

The removing of growing plants from one part of the garden to another is done for various reasons, and the science of transplanting will consequently depend on the intention of the gardener in the operation. The principal facts to be recollected are, that every plant takes its food by the tips of the root fibres, and that the sap thence carried up into the leaves has much of its water and oxygen carried off by exposure to light, particularly to sunshine. It follows that if part or all of the tips of the root fibres be broken off or bruised, the plant will be kept hungry or starved, just as an animal would be with its mouth much injured or blocked up; while if a plant in such a state is placed in the sunshine, the water and oxygen carried off thereby will very soon cause it to flag, wither, and die.

TRANSPORTING.

If the gardener's object then be simply to move plants from one place to another without affecting their growth in any way, it will be important to preserve every root fibre entire; and even, when this can be done, to take it up with part of the soil in which it has been growing, or with a large ball of earth, as it is termed. When this cannot be done, the root fibres ought to be placed in their new station as nearly as possible in the manner they were at first, and hence dibbling, where the soil is at all stiff, will be bad practice, from its being certain to confine and crush the root fibres within the walls of the dibbled hole.

It is partly upon the principles here laid down, that Sir Henry Steuart, of Allanton, has succeeded in removing the largest trees without heading down the branches, as was wont to be practised.

If it be found impossible to preserve the root fibres from injury, or to replant them exactly as they were, then, in order to diminish the loss of water and oxygen, the plants ought to be shaded from the light, or if that cannot be done, they ought to have a suitable proportion of their leaves or branches cut off. De Candolle says this practice was wont to be so universal on the continent, that the gardener's maxim was, "if you plant your own father, you must cut off his head." Sir Henry Steuart has proved the bad science of such universal barbarity.

Without taking up the soil in an undisturbed state, it is difficult to transport, uninjured, plants having few root fibres and large leaves, such as the poppy, because the few spongelets of the fibres which supply the sap are apt to be obstructed in a new soil even when free from injury.

PRICKING OUT SEEDLINGS.

The object in what is termed pricking out seedlings, is different from simple transportation. In the case of early lettuce, for example, or early annuals, such as balsams and coreopses,* it arises from the necessity of sowing the seed under the influence of artificial heat, in order to get plants of some size sooner than they could be had by sowing in the open air.

The lettuces cannot be improved and are almost certain to be injured by the operation, in consequence of their small number of root fibres (not quite so few as in the poppy) and the largeness of their leaves. Accordingly, lettuces, when pricked out under the most favorable circumstances of moist cloudy weather, always flag more or less, and hence the leaves are apt to be checked in their growth so as to be less juicy, their juiciness depending on the most rapid and unchecked growth that can be effected. Rich soil, however, and plentiful watering, may overcome the check in the growth from pricking out.

In the case of the balsams and the coreopses, the check in growth from pricking out is advantageous, because the leaf pulp becoming much thickened by the great loss of water and oxygen, when it returns to the stem and to the life knot or crown of the root, it lays the basis of fresh branches terminating in flower buds. Whereas were a seedling plant to remain unmoved in a rich soil well watered, it would probably send up more sap than the light could readily deprive of its water and oxygen, and thence would push out new leaves to carry off the superabundance, while there would be no pulp formed thick enough and containing enough of carbon to produce flowers.

It is important not to plant the roots too deep, so as to be out of the reach of air, or too shallow to expose them to drought. By a natural proces an ash will send its roots across a deep ditch, keeping always under the soil about six or ten inches and rising again on the other side. In a dry season, the roots of trees will dip down in search of moisture into a bad under soil.

For the same reason, either kidney or broad beans if taken up and transplanted when only a few inches high, will have their growth checked, and will flower and fruit sooner, though they will not grow so tall, as those which have not been transplanted. It is on the same principles advantageous to transplant brocoli, Brussels sprouts and cauliflower, which will make them head more readily, though care must be taken that the growth is not so much checked as to render the heads small and their stalks tough. Trees are, in their youngest state, frequently transplanted by nurserymen to increase their root fibres.

It may with this view also be advisable, in some instances to trim off some of the root fibres to diminish the supply of sap, and cause new root fibres to grow; a thing which ought never to be done where luxuriance of leaves is an object, and hence the old practice of trimming both the root fibres and the branches or leaves at the same time, is in the most cases highly absurd.

SCIENTIFIC PRINCIPLES OF STRIKING.

By certain experiments, not by any means praiseworthy, yet, beyond all question, correct, it has been proved that, if the head of a snail, or of an earth worm, be cut off, the body will not only live for a considerable time, but a new head will be reproduced, with a mouth capable of taking food. By similar experiments it has been found that the legs of spiders and the feet of frogs, when cut off, are reproduced.

Upon a similar principle, when the roots of certain plants which are to them what the head is to animals, are cut off, new roots may, under peculiar circumstances, be reproduced. The chief condition required for the reproduction of such roots, is the preservation of their life till the roots have time to form, and various expedients are resorted to with this view, as well as for the quick production of the roots.

CHINESE MODE OF STRIKING.

The simplest mode of striking is that practised by the Chinese, and which I have tried successfully with the lilac. Lord Macartney was surprised to find in the Emperor of China's hall of audience a number of dwarf pines, oak, and orange trees bearing fruit, in frames filled with earth, and placed on tables. These are produced by selecting a fruit-bearing bough, with a good branchy head, and taking off from the stem a ring of bark about an inch in length. Around this is placed a ball of rich earth, tied on with bass or coarse cloth, and the whole is kept moist by means of a vessel of water hung over it with a very small hole, or a thread to convey the water drop by drop. The descending pulp being stopped short in its passage downwards towards the root, first forms root buds, which soon send out roots into the moist earth, and when these are deemed strong enough to feed the plant, the branch is cut off a little below, and the tree in minature is ready for planting in a pot.

The process has been varied by having garden pots made so as to enclose the ring branch, and in this way dwarf fruit-trees are often formed on the continent, where they are much prized.

STRIKING BY LAYERS.

The common mode of striking by layers proceeds on the same principle. Some plants may be said to propagate themselves by layers, such as the strawberry, which sends out runners that take root, and the ends of the common bramble sometimes take root in a similar way. A willow or a privet branch also, if accidentally bent down into the ground, will send out roots, and become a new tree, if separated from the parent.

But in most instances, it is requisite so to interrupt the downward flow of the pulp, as to cause it to form root fibres, and hence, in practice, the branch intended as a layer, is slit, tongued, or cut half through in a direction sloping upwards, or it is ringed, as in the Chinese mode, or it is pierced in several directions by a brad-awl, or it is wired or twisted; all of which operations have the same design of checking the descent of the pulp, while the sap going up in the more central parts is not interrupted, and consequently the layered branch grows as well as, if not better than, if it had not been so treated. The soil ought not to be too damp, otherwise the cut part may canker.

Towards the end of the autumn, layered plants are, for the most part, sufficiently furnished with new roots to feed them without farther dependence on the parent plant; but they are in general still weaker than seedlings, and require to be not only watered, but the more tender sorts not exposed to too bright sunshine.

STRIKING BY SLIPS, OR CUTTINGS.

In the preceding modes of striking, the layer, being partly in communication with the parent plant, is in no danger of perishing for want of food; but, in the case of cuttings, the circumstances are much the same as in the experiments alluded to, made upon the snails and earth worms, inasmuch as they are deprived of their natural feeding organs, their root fibres. In the first instance, therefore, a cutting like the headless snail and earth worm, must live entirely on the nutrient materials it already possesses, which are, as we have seen, partly laid up in the cells of the stem, but more particularly in the buds. Hence it becomes important to have a bud, or buds, on every cutting intended to be struck; but leaves, or at least many leaves, are disadvantageous, as tending to exhaust life, by giving off too much water and oxygen. In the case of evergreens, however, in which the action of the leaves is so slow as not to produce exhaustion, they must be left on, to assist in maturing the pulp for the new roots, but no such leaves must remain below the surface of the soil, lest canker ensue.

The end of a cutting, to be planted in the soil, ought to contain a heel of older wood than the bole, or stem, and be cut very smooth, in order to prevent water from stagnating in any crevice or bruise, and thus tending to rot the part. The heel of older wood is to prevent too much water being taken up by the more active and more open vessels of the bole, which would render the whole dropsical and sickly.

For the same reason, rich earth, very retentive of water, is bad for most cuttings; and species difficult to strike require to be planted either in pure sand, or in a soil containing a large proportion of sand to drain off all superfluous water which ought to be supplied in small quantities, but frequently, so as to keep it in constant circulation. Hence, orange-trees can only be struck by a drain of broken potsherds in the bottom of the striking pots. This is one of the true scientific principles of striking cuttings.

Another is founded on the effects of light upon leaves, or buds, which being furnished with only a scanty supply of food, cannot stand much loss of water and oxygen; and hence they are covered with a bell glass, both to modify the intensity of the light, (some light is indispensable,) and to render the included air moist, from the water given off in the form of vapor. Some fresh air, however, is as necessary as some light, in order to produce a healthy leaf pulp, and hence, the bell glasses must not be kept air tight.

When bell glasses are not used, it is found that cuttings succeed best in a border with a northern aspect, protected from the wind; or, if otherwise situated, they require to be screened from the force of the noonday sun.

The same principles of supplying regularly a moderate portion of water, so as not to cause dropsy by overgorging, and of sheltering from too much dry air, and bright sunshine, so as not to cause exhaustion, regulates the striking of buds, or *eyes*, as they are termed, which always require a leaf attached, and even of leaves themselves, such as those of the cacti.

SCIENTIFIC PRINCIPLES OF GRAFTING.

When the finger is cut with a knife, the blood vessels soon after contract their cut extremities into an opening so narrow, that the thicker and red-coloured part of the blood cannot pass, and the bleeding therefore ceases. But even then there oozes out the thinner watery part of the blood, consisting chiefly of matter the same or similar to the white of an egg, which being thus separated from the rest of the blood, thickens by the heat of the body, as the white of an egg does by boiling. If the lips of the finger-cut accordingly be kept close together by sticking-plaster, they will become united by means of this natural glue, as it may be termed, in little more than a day. Upon the same principle, when I was a student of medicine, I once succeeded, as others have done, in managing to unite the whole tip-joint of a finger which a boy had chopped off by machinery; and experiments have been successful in causing the spur of a cock to unite and to grow upon his comb.

It is upon similar principles that the science of grafting is founded; for if a young branch, like the boy's finger, be chopped off by a clean cut, and the cut extremities immediately joined, the decending pulp will thicken like the watery part of the blood, and while it remains soft, the sap from the cut ends of the sap vessels will force its way through to their continuation above in the cut slip, which, if the process be successfully managed, will grow as well, or nearly, as if had never been cut.

If, again instead of applying the same cut slip to the part it was cut from, a slip from another tree be applied, as if I had applied to the boy's finger the tip of another boy's, chopped off by the same accident, there seems no good reason to doubt that a similar healthy joining might, by care, be effected. In the case of animals, indeed, such joinings are rare, because rarely tried; but in garden plants they are exceedingly common; for the purpose of continuing esteemed varieties of fruits and flowers, accidentally produced by cultivation, as well as for forwarding the fruiting of young trees—since seedlings require years to arrive at a bearing state.

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* It is correct to say "one Coreopsis" and "two Coreopses."

On examining the joining of a graft about a fortnight after it has been made, I have found, as in a healing finger-cut, a number of small roundish grains, in form of a thin layer, produced from the thickening of the pulp, and destined to form the hard substance which in general projects a little externally, and the scar differs in appearance from the other parts of the bark. It is, however, only in the space between the pulp-wood and the bark that the uniting substance is formed, and therefore it is evident the slip to be grafted must have this part applied to the same part of the stock, and, if these differ in thickness, at least on one side.

BINDING OF THE GRAFT.

When the joining has been made by cutting and properly fitting the bark of the slip to the bark of the stock at least on one side thereof, it must be bound so as to prevent this junction from being deranged. This is usually done with a ball of three parts of clay free from stones, well worked with one part of fresh horse-droppings and a little finely chopped straw, the whole about an inch thick, and two inches or more in length, being tied with a ribband of bass.

The principle upon which this is done, is to prevent the oxygen of the atmosphere from getting to the fluid pulp at the joining, where it would unite with the carbon and form carbonic acid gas, and thereby rob the pulp of its solidity. The exclusion of light is necessary on the same account, for, as in the case of a finger-cut, the oxygen would unite with the carbon and prevent the thickening of the matter from the blood. On the same account, moisture, by supplying oxygen, would be injurious; and dryness might act both by exhausting the pulp and by causing the edges of the bark to shrivel and gape, which would facilitate the entrance of the air with its oxygen.

It must be obvious from this simple principle, (never, that I am aware of, before stated with reference to grafting,) that no composition, whatever may be said of its peculiar power of healing, can act in any other way than this; any more than the farrago of plasters and salves for healing flesh wounds and cuts, which are only good in so far as they keep the lips of the wound together, and exclude oxygen and light.

[The following communication was received after our paper for February, was at press. We therefore give it in our supplement, and we do it with pleasure, as the readiest means of correcting the mistatement which it imputes to our correspondent.—*Cond. Cult.*]

Hon. Jesse Buel—Dear Sir—The undersigned members of the executive committee of the American Society for the Diffusion of Useful Knowledge, beg leave to state to the readers of the Cultivator, that the charges by an anonymous correspondent, in the January number of that paper, against the society, and those charged with the management of its affairs, must have arisen from a want of knowledge of the operations of the institution, and are without any foundation whatever.

The committee will make a more particular reply in the March number of the Cultivator. The number of gentlemen acting on the committee, and the intervals of their meetings, make it impracticable to forward an answer in season for the next number.

Passed in Committee, January 18, 1839.

Cha's Sam'l Stewart,	James Brown,
Geo. F. Allen,	Thomas Cock.
John T. Gilchrist.	A. P. Halsey.
Cornelius Baker.	J. Proudfit.
John Torrey.	John A. Vaughan.
Gorham D. Abbott.	

[The following, like the preceding communication, came too late for its proper place in the Cultivator. We give it without comment—leaving the reader to form his own conclusions of the matters in controversy, and to impute blame, if any is called for, wherever he may think it ought to attach. We only say, we believe we have much yet to learn, in regard to the relative merits of the different species and varieties of the mulberry.—*Cond. Cult.*

J. Buel Esq.—In the January number of the Cultivator, is a long article purporting to be editorial, containing reflections upon Samuel Whitmarsh and D. Stebbins, saying however: "We do not mean to charge these gentlemen with wanton deception, for we have a high opinion of their standing, yet there is something so contrary to received opinions, that we cannot pass them as current truths, without asking for some explanation:" and demurring at the assertion of Mr. W. "that the Alpine is the kind universally used in France and Italy," and for authority to the contrary, the declarations of Gen. Tallmadge, and others are offered to show, that the black and white mulberry are most used. But by late intelligence, however, from Europe, the Alpine mulberry is recognized, as well as the morus multicaulis, for American market. Yet it is not of a fig's consequence to us, what kinds of mulberry are known or used in Europe, provided we have the same, or others, congenial to our climate, and producing the best of foliage in equal abundance and quality for growing silk.

Mr. W. was sent out by the Northampton Silk Company, (as understood) to visit the most noted silk districts, to inform himself as fully as practicable, on the whole subject of growing and manufacturing silk, which of course would involve inquiry for the best kind of mulberry for our use.

In the next place, the motives of Dr. Stebbins are called in question, for advertising the *Manilla multicaulis*, the *Canton*, the *Alpine*, the *Asiatic*, the Smyrna, the Brussa, Dandolo and others; about which, the editor says: "Now we protest against the fabrication of new names for old things—whether it be from ignorance—for novelty, or to subserve the interest of the trade"—rather crude suggestions however. Although it has been sometimes said, that we are to judge others by ourselves. He considers the *Alpine*, *Asiatic and Smyrna*, to be absolutely of new coinage, "that this unnecessary multiplication of names, tends to mystify the business—to deceive the public, and retard a useful branch of national industry, and believes that *all* named in the Doctor's advertisement, are merely varieties of the white mulberry, &c."

Thus, the editor substantially confirms, what is stated in the advertisement about the morus multicaulis, Brussa and Dandolo mulberry. And here it may be observed, that by no fair construction of language, does it any where appear that there is any "*insinuation*" made, that among the trees named, or alluded to in the advertisement, that any of them are "unfit for the entire subsistence of the silk-worm, and the production of excellent silk." The suggestion appears wholly gratuitous on the part of the editor.

I am sorry that the words, "neither *ingenuous* or *true*," have been so applied by him, nor can see any particular necessity or use of the following sentence, unless it be for the purpose of personal abuse: "We have no objection that Doctor S. should puff his own wares, or his own kind of trees.—but we do object to his doing it to the prejudice of others and of truth." This same sentence of the judge, without trial by jury, appears to be rather arbitary, for only saying: "the Brussa and Dandolo *appear* to be selected white mulberry"—while the judge may say with impunity, and without being charged of "doing it to the prejudice of others and of truth"—for he asserts that he "believes that *all* which are named in the advertisement, are merely varieties of the white mulberry."

Others have advertised more kinds of mulberries than was contained in the advertisement, and never a complaint.

Nurserymen advertise a great variety of apples, peaches, plums, pears, &c. One list enumerates 317 different kind of pears—228 of apples—154 of peaches—66 of plums—68 of cherries—all of excellent quality, and probably if asked the reason—would say, to *distinguish one from the other*, called good, better and best, and each bearing a different name.

Doctor S. had the pleasure of eating some delicious fruit, from the garden of the judge, which were called by different names, "although of the same family," and had no idea of accusing him of "the fabrication of new names for old things," or that the names were of "new coinage."

If the advertisement had been published with the criticisms, the public would have seen that the *Manilla multicaulis*, the *Canton* and *Alpine*, were so called, to designate the places of origin—the same also might be said of the others.

And now disclaiming any pretence of puffing my own trees to the prejudice of others and of truth, I would venture to ask, if it might not be gratifying to many of your readers, to see the advertisement published? and let them judge of its mystification: I have the pleasure to state, that all the names given in the advertisement, have been, and are, recognized by numerous orders from the empire state—from the remote south and west—from the east and north—where the *Canton*, Asiatic and Alpine, in particular, have become favorites, for cultivation and for making silk. No fear therefore, need be entertained by either of us, that the public will be deceived, or a useful branch of national industry retarded. Such, however, is the opinion of your respondent, with sentiments of due respect.

DANIEL STEBBINS.

Northampton, January 21, 1839.

Young Men's Department.

Chemical Catechism—Chapter VII.

[*From Parkes's Chemical Catechism.*]

OF ACIDS.

What is an acid?[*]

Most of the acids are substances which produce that sensation on the tongue which we call *sour;* but some substances are classed with the acids which have not this characteristic—though they possess some of the other properties of acids.

What are the properties of acids?

Acids change the blue, green, and purple juices of vegetables to red; and combine with alkalies, earths, or metallic oxides, so as to form those compounds called *salts.*

What is the origin of acids?

Most of the acids owe their origin to the combination of certain substances with oxygen,[†] which has been called the acidifying principle.

How is it known that oxygen imparts acidity?

This is built upon analogy; for it is found that most of the acids contain oxygen, and that they lose their acidity exactly in proportion to the quantity of oxygen which is taken from them.[‡]

Are there any other means of ascertaining this?

Yes: some acids may be decomposed, and deprived of their oxygen, and others may be formed by a direct combination of oxygen with certain radicals.

Do the same radicals always combine with an equal portion of oxygen?

No: some of these acidifiable radicals combine with different proportions of oxygen, and consequently produce different states of acidity.[§]

How is this difference distinguished?

When two acids have the same radical, but contain different quantities of oxygen, they are distinguished by their termination. The name of that which contains most oxygen ends in IC, the others in OUS.—Thus we say *sulphuric* acid, and *sulphurous* acid; *phosphoric* acid, *phosphorous* acid.

What substances are capable of being acidified by oxygen?

The mineral, the vegetable, and the animal kingdoms, all furnish bases or radicals, which become acid by their union with oxygen.[‖]

Do all the acids owe their acidity to the presence of oxygen?

The greater number of the acids are evidently indebted to oxygen for their acidity, but there are substances that possess acid properties which contain no oxygen. Until lately, there were also three acids whose composition was unknown.

How are the acids classed by chemists?

The acids were formerly divided into three classes, viz. the mineral, the vegetable, and the animal acids; but the more useful and scientific way of dividing the acids is into two classes only.

How are the acids now divided?[¶]

The undecomposable acid, and those which are formed with two principles, are comprised in the first class; while those acids which are formed with more than two principles compose the second class.

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[*] The acids differ from each other in their appearance and properties as much as any class of bodies we are acquainted with: it is therefore difficult to give a definition of an acid.—In general they are liquids, but some of them take a solid, and others a gaseous form: some are mild, others corrosive; some are pungent and volatile, others are fixed and inodorous.

[†] The substances which are combined with oxygen to form acids are (in all the decomposable acids) *combustible* substances. Indeed several of the acids are the *product* of combustion:—witness the sulphuric, the phosphoric, &c. Five of the metals, and the other simple combustibles, hydrogen not excepted, are all convertible into acids.

[‡] Many of the acids may be decomposed, and deprived of their oxygen, by combustible bodies. Any combustible body, that has a greater affinity for oxygen than oxygen has for the radical of the acid, will decompose that acid. Charcoal, when made red hot, will in this way decompose sulphuric acid.

[§] The first portion of oxygen converts some bodies into oxides, as is the case with carbon, forming carbonic oxide; and sulphur, forming oxide of sulphur: the second into that class of acids of which the specific names drawn from their particular bases terminate in *ous*, as the sulphurous acid: the third degree of oxygenizement changes some of these into that division of acids which are distinguished by the termination in *ic*, as the sulphuric acid, &c. In like manner we have oxide of phosphorous, phosphorous acid and phosphoric acid.

[‖] The mineral acids are generally formed with a peculiar base and oxygen; the vegetable acids, with carbon, hydrogen, and oxygen; while the animal acids are composed of the same substances united with nitrogen.

Some of the mineral acids are decomposable, as already mentioned, by charcoal heated to redness. Some of the vegetable acids are also decomposed, and reduced into water and carbonic acid, by leaving them in an exposed situation to the action of their own principles: others may be changed into different acids, by imparting or abstracting a portion of oxygen.

[¶] Those acids of the first class, which are formed with two principles only, are composed of oxygen and some other substances which is called their radical. The acids of the second class are composed chiefly of oxygen, hydrogen, and carbon; though some of them contain a portion of nitrogen, as mentioned in a former note.

Can you enumerate the acids of the first class?

The sulphuric and sulphurous acids; the muriatic and oxygenized muriatic acids; the nitric, the carbonic, the phosphoric and phosphorous, the fluoric, the boracic, the arsenic and ersenous, the tungstic, the molybdic and molybdous, the telluric and the chromic acids.

Enumerate the acids of the second class?

The acetic, the oxalic, the tartaric, the citric, the malic, the lactic, the gallic, the mucous, the benzoic, the succinic, the camphoric, the suberic, the laccic, the prussic, the sebacic, the uric, the amniotic, and the fluoboric acids.

What is the SULPHURIC *acid?*

The sulphuric acid is a combination of sulphur and oxygen. It is commonly called oil of vitroil.

How is the sulphuric acid obtained?

Sulphuric acid is procured by burning sulphur, in contact with oxygen; by which process the sulphur combines with the oxygen, and becomes acidified.

If sulphuric acid is nothing more than sulphur and oxygen, what is it that occasions its fluidity?

Sulphuric acid, at the instant of its formation, is in a gaseous state; therefore the manufacturers find it necessary to condense the gas by means of water.—Hence the sulphuric aid of commerce is always in a fluid state.

What are the properties of sulphuric acid?*

The sulphuric is a very ponderous, corrosive acid, destitute of colour and smell, and has a very strong acid taste. It has a great attraction for water,† and, when combined with the alkalies, the earths, or the metallic oxides, forms with them those salts called *sulphates*.

What is the SULPHUROUS *acid?*

The sulphurous acid, like the sulphuric, is a combination of sulphur and oxygen, but with less oxygen, or, we may say with more sulphur, than the latter.

What are the properties of sulphurous acid?

Sulphurous acid, in the gaseous state, is invisible, like air, but of a strong suffocating smell.‡ It is readily absorbed by water, and then forms liquid sulphurous acid. It is capable of uniting with various bases, and forms the salts called *sulphites*.

What is the MURIATIC *acid?*

The muriatic is a peculiar acid obtained from sea-salt. Until lately, the radical, or base of this acid, was entirely unknown.

What method is made use of to collect and preserve the muriatic acid?

Muriatic acid is distilled from sea-salt by means of sulphuric acid, and collected in appropriate receivers, where it is condensed in water, for which it has a very powerful affinity.

What are the properties of muriatic acid?

This acid, in the gaseous state, is invisible, like air; and has a pungent suffocating smell. With water it forms the liquid muriatic acid, which preserves the smell of the gas, and gives out white fumes when exposed to the atmosphere. This acid is much employed in the arts, and in chemical laboratories.—With various bases it forms the salts called *muriates*.

What is the OXYMURIATIC *acid?*

It is now a prevailing opinion, that the oxymuriatic acid, or chlorine, as it is usually called, is a simple substance, It is known in the gaseous state, and in combination with water: but in the latter form it is more commonly used in the arts.

What are the properties of oxymuriatic acid?

The oxymuriatic acid gas is so suffocating, that it cannot be breathed without great injury; yet it will support combustion. This gas discharges vegetable colours; it burns all the metals,§ and is the only acid that will dissolve gold and platina:|| with various alkaline and earthy basis it forms salts called hyperoxymuriates.

What other compounds may be formed by means of chlorine, or oxymuriatic acid?

Chlorine will combine with oxygen, with hydrogen, and with nitrogen; also with carburetted hydrogen, and with the carbonic oxide; some of which combinations possess very curious properties as may be seen by reference to the notes.

Those you have now mentioned are all gaseous substances: does chlorine form any other combinations?

By peculiar management chlorine may likewise be combined with sulphur, with phosphorous, and with the metals, including also the metals of the earths and alkalies.

What effect has chlorine upon charcoal?

Chlorine has no action whatever upon charcoal, even though the charcoal be intensely hot when plunged into it. Some intelligent chemists consider this fact to be a decisive proof that chlorine contains no oxygen.

What is NITRIC *acid?*

Nitric acid is one of the constituent parts of nitre or saltpetre. It is a compound of oxygen and nitrogen, in the proportion of about 26 parts by weight of nitrogen, to 74 of oxygen.*

How is nitric acid obtained?

Nitric acid is obtained by distilling two parts of nitre and one part of sulphuric acid in a glass retort, and collecting the fluid in proper receivers.† This acid, which at first contains nitrous gas, and is thereby made of a deep red colour, is in a great measure deprived of it, and rendered transparent and colourless, by the application of heat in a subsequent process.

What are the properties of nitric acid?

Pure nitric acid is clear and colourless, like water; its smell is pungent, its taste exceedingly acid, and its action on animal substances very corrosive. It has the property of permanently staining the skin yellow. It has a great affinity for water; is capable of oxidizing most of the metals, and with various bases forms the salts called *nitrates*.

What constitutes the acid of commerce, called NITROUS *acid?*

Nitrous acid, improperly so called, is in fact nitric acid impregnanted with variable portions of nitrous acid gas.

What are the properties of nitrous acid?

Nitrous acid is somewhat similar to *nitric* acid in its properties; but its colour varies according to the proportions of nitrous acid gas which it has absorbed, and the water that it contains.‡

What is CARBONIC *acid?*

Carbonic acid is a combination of carbon and oxygen. It was formerly called fixed air, on account of its being so intimately combined in chalk, limestone,§ magnesia, &c.

What are the properties of carbonic acid?

Carbonic acid is invisible when in the state of gas, and unfit for combustion, or respiration. Water, by pressure may be made to absorb three times its bulk of this gas; by which it acquires an agreeable acidulous taste. Carbonic acid in the proportion in which it exists in atmospheric air is favourable to the growth of vegetables, but in a large proportion is highly injurious. This acid enters into combination with the alkalies, with earths, and metallic oxides; and forms with them those salts called *carbonates*.

What is PHOSPHORIC *acid?*

Phosphoric acid is a compound of oxygen and a peculiar substance called phosphorus.

How is phosphoric acid procured?

Formerly phosphoric acid was procured only by burning phosphorus in oxygen gas; but, since it is known that this acid is a component part of animal bones,|| we now procure it at a much cheaper rate from that source.

What are the properties of phosphoric acid?

Phosphoric acid is very soluble in water: the solution is colourless; it has a strong acid taste:* by evaporation the solution becomes very dense and of an oily consistence. This acid may by evaporated to dryness, and even submitted to a white heat, without suffering any change, or being volatilized. It forms by its union with earthy, alkaline, and metallic bases, that variety of salts which we call *phosphates*, and occurs in nature combined with lime, oxide of lead, and other bases.

What is the PHOSPHOROUS *acid?*

This acid contains a smaller proportion of oxygen than the phosphoric acid. It is procured by the *slow* combustion of phosphorus; for when phosphorus is heated it burns *rapidly*, and the product is phosphoric acid.

What are the properties of phosphorous acid?

Phosphorous acid is a dense, viscid liquid, with an acid taste, and emits the smell of garlic when heated. This, like the phosphoric acid, may be decomposed by charcoal, but cannot be obtained in a concrete state. It has not yet been applied to any use. The salts formed with it are called *phosphites*.

What is FLUORIC *acid?*

The fluoric is an acid of a very peculiar nature, found in the fluor spar,† which is a natural production, composed of fluoric acid and lime. This acid is found also nearly in the same proportion in the *cryolite*, a rare mineral brought from West Greenland. The topaz likewise contains fluoric acid, though in a less proportion.

What are the properties of fluoric acid?

In the state of gas it is invisible like air. Water rapidly absorbs it, and forms liquid fluoric acid. It has an acid taste, and the peculiar property of corroding silica. With the alkalies and earths it forms salts called *fluates*. Though it has been decomposed, the nature of its radical is not yet known.

What is the use of fluoric acid?

Fluoric acid has been used for etching upon glass; also in various cases for destroying the polish upon glass, so as to render it nearly opake. It appears that it was employed for the first named purpose so early as in the seventeenth century.

What is the ACETIC *acid?*

Acetic acid is principally obtained from saccharine liquors which have undergone the vinous formentation.

What are the properties of acetic acid?

Acetic acid, as it is usually prepared, is a pleasant yellow liquor, well known. When distilled it is as colourless as water, and of an agreeable odour. In both states it is known in commerce by the name of vinegar.

How is the concentrated acetic acid, or radical vinegar as it is sometimes called prepared?

Concentrated *acetic* acid is obtained from acetate of copper, acetate of soda, or acetate of potash, by decomposing either of them by means of sulphuric acid, and then distilling the product.

What are the properties of acetic acid in this state of concentration?

Acetic acid thus prepared is very pungent, acrid

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* When sulphur is combined with a smaller portion of oxygen, it forms a volatile acid of a penetrating smell called *sulphurous* acid; a larger portion of oxygen gives what we call *sulphuric* acid, which on the contrary is very ponderous, and destitute of smell. These acids are constituted in the following manner:—*Sulphurous* acid consists of 100 parts of sulphur and 100 of oxygen; while *sulphuric* acid is composed of 100 parts of sulphur and 150 parts of oxygen.

† Sulphuric acid and water combine so intimately that the compound gives out a large portion of caloric. Four pounds of this acid mixed with one pound of water will raise the thermometer to 300° of Fahrenheit.

‡ Sulphurous acid gas is used by manufacturers in bleaching straw and silk. A slow combustion sulphur is promoted in a close chamber, and the goods are exposed to the gas as it is produced. Thus, silks, which are dyed by archil of a dark lilac, are brought to a beautiful flesh-colour by the fumes of this gas. Flesh-coloured silk stockings are also colored in this way.

§ Metals beaten into thin leaves, or reeuced to powder, inflame when thrown into a vessel filled with this gas, provided the temperature be not lower than about 70°, and present a kind of shower of fire.

|| Mr. Humbolt has found that seeds which do not commonly germinate in our climates, or in our hothouses, and which, of course, we cannot raise for our gardens or hope to naturalize in our fields, become capable of germinating when immersed, for some days, in weak solution of oxymuriatic acid. This interesting discovery has been turned to advantage in some botanic gardens.

* It is curious that the gases which compose atmosphereic air, so necessary to our existence, should, in different proportions, produce also one of the most corrosive acids.

21 parts by weight of oxygen,
mixed with } form atmospheric air
79 parts of nitrogen
———
100

74 parts of oxygen,
with } when chemically combined and condensed by water, form nitric acid, or aquafortis.
26 parts of nitrogen,
———
100

Surely none but Deity could have conceived an idea of the production of such *different* susbtances from the *same* principles!

† The manufactories of this acid are commonly called AQUAFORTIS WORKS. The acid is drawn of different strengths, according to the purposes for which it is designed. It is used in dying, in refining gold, in medicine, and in a great variety of manufactories.

‡ The changes which take place on the addition of water to strong nitrous acid exhibit very curious phenomena. Different portions change its colour to a blue, a geeen, a yellow, &c. while the vapours which rise from it preserve their original flame-coloured red.

§ Carbonic acid is composed of about 28 parts carbon and 72 oxygen.

|| When animal bones are divested of their oil and jelly, the earth which remains is chiefly lime, united with phosphoric acid, and this phosphate of lime is often employed for the preparation of the medicinal salt called phosphate of soda. But Mons. Chaptal jun. son of the Count Chaptal, employs bones in Paris, as I am informed, in a very different manner. Having a large establishment for the preparation of soda, in which process a larger quantity of muriatic acid is afforded than can be consumed in the ordinary way, he employs persons to collect bones from all parts of the city, and digests them in this spare muriatic acid. The acid disselves the phosphate of lime and leaves the gelatine. The latter is made into soup, and sold in every district in Paris.

It is worthy of notice, that phosphate of lime is found in abundance also in milk. This seems to indicate, as Fourcroy beautifully remarks, "that Nature thought fit to place in the first nourishment of animals a quantity of osseous matter, with a view to the necessary celerity of the formation and growth of the bones in the earliest stage of their lives."—This fact is probably unknown to some who study natural history, and is one of the numerous instances of the beneficence of the Creator, exemplified by the science of chemistry. The more we know of the minutiæ of matter, and of the laws by which it is governed, the greater occasion shall we have to admire the excellence of contrivance and the benevolence of intention of the Omnipotent Artificer. Let the advocates for chance consider the aforesaid fact, and say, if they can, that phosphate of lime is found in animal milk, in consequence of *fatality*, and that it occurs by *accident* where it performs so important an office in the animal economy. It is also a remarkable fact, that the nearer the female approaches to the period of parturition the more is the milk charged with this calcareous phosphate; and that it is not till the digestive organs of the infant are sufficiently strengthened to answer the purposes and the work of animalization, that this earthy salt disappears from the milk of the mother.

* Pure phosphoric acid obtained, without the addition of water, by burning phosphorus in oxygen gas, has the form of white, snowy, light flocks, of a very strong acid taste. By exposure to the air it attracts humidity, and becomes a *fluid* acid. One hundred parts of dry phosphoric acid consist of about 46½ phosphorus and 53½ oxygen.

† Fluor spar is found in many parts of Europe, particularly in Derbyshire. It is employed in the manufacture of ornamental vases, &c. It is constituted of about 67 per cent. of lime and 33 of fluoric acid.

and volatile, and corrodes animal substances. With various bases it forms the salts called *acetates.*

What is OXALIC *acid?*

The oxalic is a peculiar acid found in the juice of sorrel, in combination with potash. Several substances also, and particularly sugar, contain the bases of this acid in a convenient form for conversion into oxalic acid by combining it with oxygen; and hence it has also been called the acid of sugar. It crystallizes in four-sided prisms, has a very acid taste, and is soluble in water. It is composed of oxygen, hydrogen, and carbon.

What are the uses of oxalic acid?

Oxalic acid is of service in detaching the presence of lime in solution. It is also become an article of great consumption with the calico-printers, both in the state of crystallized oxalic acid, and in that of superoxalate of potash. In combination with earths, alkalies, and metallic oxides, it forms the salts called *oxalates.*

What is TARTARIC *acid?*

Tartaric acid is a particular acid found in the tartar of commerce.* It is capable of crystallization, and easily soluble in water. It is used by calico-printers to discharge false prints. The salts formed with it are called *tartrates.*

What is CITRIC *acid?*

Citric acid is found in the juice of lemons and several other fruits. It crystallizes in beautiful rhomboidal prisms, is extremely acid to the taste, and very soluble in water. It is used in various ways for domestic purposes, for medicine,† and in the arts. The salts formed with it are called *citrates.*

What is MALIC *acid?*

Malic acid is obtained from the juice of apples, in which it exists ready formed.‡ It is a very acid, reddish-coloured liquid, composed, like the other vegetable acids, of oxygen, hydrogen, and carbon. It is incapable of crystallization, and has not yet been brought into any use except as a chemical test. Its salts are called *malates.*

What is LACTIC *acid?*

Lactic acid is prepared by a peculiar process from milk after the curd has been separated. It is an acid of a yellow colour, incapable of crystallization, and has not hitherto come into use. The salts formed with it are called *lactates.* The earthy and alkaline lactates are all deliquescent salts.

What is GALLIC *acid?*

Gallic acid is found in the galls of commerce, and in most astringent vegetable substances. It is obtained in thin transparent plates, and in minute needle-shaped crystals, of an acid austere taste. It has the property of precipitating iron, from its solution in acids, of a black colour. Its salts are called *gallates.*

What is PRUSSIC *acid?*

The prussic is a peculiar acid, composed of hydrogen, nitrogen, and carbon. It is a colourless liquid, like water, has a sweet taste and does not alter the colour of vegetable blues. It is of great use to chemists for detecting metals in solution. It is prepared from blood and other animal substances; and when united with iron, forms that beautiful colouring substance called prussian blue.

What is URIC *acid?*

The uric or lithic acid is found in human urine.—Some of the human calculi are composed entirely of this acid. When pure it has neither taste nor smell, but it reddens vegetable blues, and combines with alkalies and earth. It is a composition of carbon, nitrogen, hydrogen, and oxygen.

How many different distinct acids are there?

The number of the acids that are well known amounts to about thirty; besides which, a variety of substances have been announced, as new acids, by some of the foreign chemists, that require to be further examined before they be finally admitted into this class of bodies.

What are the USES *of these various acids?*

The uses§ of the acids are so many and important that it is impossible to enumerate them. They are indispensable to various arts* and manufacturers;† they are employed for culinary purposes,‡ and for medicine:§ they act an important part in the great elaboratory of nature,—they produce that numerous class of bodies called salts, and form a great proportion of many of the rocky and mountainous districts of the globe we inhabit.

Do you recollect any instances of acids entering into the composition of rocks and mountains?

The vast masses of limestone, chalk, and marble, which are found in every part of the world, are combinations of lime and carbonic acid:‖ the mountains of gypsum in the vicinity of Paris and elsewhere are combinations of lime and the sulphuric acid.¶ The fluor spar of Derbyshire is composed of lime and the fluoric acid;** and there are masses of common salt, both in the eastern and western hemisphere, which contain such immense quantities of muriatic acid†† as would render every attempt to calculate the amount abortive.

Are you sure that the acids which Nature has employed in the formation of mountains, are of the same kind as those which come under our common notice and observation?

Yes: any of these native mineral substances may be decomposed, and their acids exhibited in a separate state for experiment or use.‡‡

Do you know of any other natural productions which contain considerable quantities of any of the acids you have described?

The large masses of celestine§§ and of ponderous spar‖‖ in different parts of the earth contain an incalculable quantity of the sulphuric acid; the cryolite¶¶ of Greenland is a compound of alumina, soda, and the fluoric acid; and several of the valuable minerals, together with some of the precious stones, are combinations of the different earths with the chromic or the phosphoric acids; not to mention the annual changes which the vegetable kingdom undergoes by the formation and subsequent decomposition of the vegetable acids.

You speak of the formation of acids:—Are bodies of this class formed and decomposed by the common operations of nature?

Many of these bodies are the result of, and formed by the action of vegetable life, such as the malic and citric acids; some are formed principally by chemical changes effected on dead vegetable matter, as for instance the acetic; and others, as the sulphuric, occur in the mineral kingdom, and are also formed artificially, in great abundance.

Objects, Advantages and Pleasures of Science.

[*From the American Library of Useful Knowledge*]

* * * Reflect how many parts of the reading, even of persons ignorant of all sciences, refer to matters wholly unconnected with any interest or advantage to be derived from the knowledge acquired. Every one is amused with reading a story: a romance may please some, and a fairy tale may entertain others; but no benefit beyond the amusement is derived from this source: the imagination is gratified; and we willingly spend a good deal of time and a little money in this gratification, rather than in rest after fatigue, or in any other bodily indulgence. So we read a newspaper, without any view to the advantage we are to gain from learning the news, but because it interests and amuses us to know what is passing. One object, no doubt, is to become acquainted with matters relating to the welfare of the country; but we read the occurrences which do little or not at all regard the public interests, and we take a pleasure in reading them. Accidents, adventures, anecdotes, crimes, and a variety of other things amuse us, independent of the information respecting public affairs, in which we feel interested as citizens of the state, or as members of a particular body. It is of little importance to inquire how and why these things excite our attention, and wherefore the reading about them is a pleasure: the fact is certain; and it proves clearly that there is a positive enjoyment in knowing what we did not know before; and this pleasure is greatly increased when the information is such as excites our surprise, wonder or admiration. Most persons who take delight in reading tales of ghosts, which they know to be false, and feel all the while to be silly in the extreme, are merely gratified, or rather occupied, with the strong emotions of horror excited by the momentary belief, for it can only last an instant. Such reading is a degrading waste of precious time, and has even a bad effect upon the feelings and the judgment.—But true stories of horrid crimes, as murders and pitiable misfortunes, as shipwrecks, are not much more instructive. It may be better to read these than to sit yawning and idle—much better than to sit drinking or gaming, which, when carried to the least excess, are crimes in themselves, and the fruitful parents of many more. But this is nearly as much as can be said for such vain and unprofitable reading. If it be a pleasure to gratify curiosity, to know what we were ignorant of, to have our feelings of wonder called forth, how pure a delight of this very kind does Natural Science hold out to its students? Recollect some of the extraordinary discoveries of Mechanical Philosophy. How wonderful are the laws that regulate the motions of fluids! Is there any thing in all the idle books of tales and horrors more truly astonishing than the fact, that a few pounds of water may, by mere pressure, without any machinery, by merely being placed in a particular way, produce an irresistible force? What can be more strange, than that an ounce weight should balance hundreds of pounds, by the intervention of a few bars of thin iron? Observe the extraordinary truths which Optical Science discloses.—Can any thing surprise us more, than to find that the colour of white is a mixture of all others—that red, and blue, and green, and all the rest, merely by being blended in certain proportions, form what we had fancied rather to be no colour at all, than all colours together? Chemistry is not behind in its wonders. That the diamond should be made of the same material with coal, that water should be chiefly composed of an inflammable substance; that acids should be almost all formed of different kinds of air, and one of those acids, whose strength can dissolve almost any of the metals, should be made of the self-same ingredients with the common air we breathe; that salts should be of a metallic nature, and composed, in great part, of metals, fluid like quicksilver, but lighter than water, and which, without any heating, take fire upon being exposed to the air, and, by burning, form the substance so abounding in salt-petre and in the ashes of burnt wood: these, surely, are things to excite the wonder of any reflecting mind—nay, of any one but little accustomed to reflect. And yet these are trifling when compared to the prodigies which Astronomy opens to our view: the enormous masses of the heavenly bodies; their immense distances; their countless numbers and their motions, whose swiftness mocks the uttermost efforts of the imagination.

* * * It is surely a satisfaction, for instance to know that the same thing, or motion, or whatever it is, which causes the sensation of heat, causes also fluidity, and expands bodies in all directions; that electricity, the light which is seen on the back of a cat when slightly rubbed on a frosty evening, is the very same matter with the lightning of the clouds;—that plants breathe like ourselves, but differently by day and by night;—that the air which burns in our lamps enables a balloon to mount, and causes the globules of the dust of plants to rise, float through the air, and continue their race;—in a word, is the immediate cause of vegetation. Nothing can at first view appear less like, or less likely to be caused by the same thing, than the processes of burning and of breathing—the rust of metals and burning—an acid and rust—the influence of a plant on the air it grows in by night, and of an animal on the same air at any time, nay,

and of a body burning in that air; and yet all these are the same operation. It is an undeniable fact, that the very same thing which makes the fire burn, makes metals rust, forms acids, and causes plants and animals to breathe; that these operations, so unlike to common eyes, when examined by the light of science, are the same —the rusting of metals—the formation of acids—the burning of inflammable bodies—the breathing of animals—and the growth of plants by night. To know this is a positive gratification. Is it not pleasing to find the same substance in various situations extremely unlike each other;—to meet with fixed air as the produce of burning—of breathing—and of vegetation;—to find that it is the choak-damp of mines—the bad air in the grotto at Naples—the cause of death in neglected brewers' vats —and of the brisk and acid flavor of Seltzer and other mineral springs? Nothing can be less like than the working of a vast steam engine, and the crawling of a fly upon the window. We find that these two operations are performed by the same means, the weight of the atmosphere, and that a sea-horse climbs the ice-hills by no other power. Can any thing be more strange to contemplate? Is there in all the fairy tales that ever were fancied, any thing more calculated to arrest the attention and to occupy and to gratify the mind, than this most unexpected resemblance between things so unlike to the eyes of ordinary beholders? What more pleasing occupation than to see uncovered and bared before our eyes the very instrument and the process by which nature works? Then we raise our views to the structure of the heavens; and are again gratified with tracing accurate but most unexpected resemblances Is it not in the highest degree interesting to find, that the power which keeps this earth in its shape and in its path, wheeling round the sun, extends over all the other worlds that compose the universe, and gives to each its proper place and motion? that this same power keeps the moon in her path round our earth, and our earth in its path round the sun, and each planet in its path? that the same power causes the tides upon our earth, and the peculiar form of the earth itself; and that, after all, it is the same power which makes a stone fall to the ground? To learn these things, and to reflect upon them, fills the mind, and produces certain as well as pure gratification.

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* Tartar is procured from vessels in which wine has been kept. The tartaric acid appears to be a necessary substance in all wine; for it seems from some late experiments that *must* will not ferment if all the tartaric acid be taken from it.

All the vegetable acids seem to be formed from the same radicals, viz: carbon and hydrogen, and perhaps in some there is also nitrogen: the different proportions of these, as well as of the oxygen, constitute the whole varieties.

† Within these few years an important use has been made of this acid in medicine. It is said that the largest dose of opium may be checked in its narcotic effects, if a proper quantity of citric acid be taken with it; and that with this adjunct it induces cheerfulness instead of stupefaction, succeeded by gentle and refreshing sleep. Dr. Willich's *Lecture on Diet and Regimen*, page 339.

‡ The malic acid is found not only in apples, but in strawberries and other summer fruits.

§ The acids are such powerful agents in a variety of chemical changes which take place in nature and in the arts, that it is of the utmost importance to acquire a knowledge of the modes in which they operate. Let it be recollected, then, that there are two ways in which the acids produce changes in the substances with which they are brought into contact. In some cases they effect a union with these substances, and become a part of the new compound, without having themselves undergone any decomposition. In others they become partially decomposed, by affording a part of their oxygen to the bodies on which they operate. The formation of saltpetre or nitre by the addition of nitric acid to potash is an instance of the first of these cases, and the action of the same acid on iron will exemplify the latter.

* Sulphuric acid, in a diluted state, is used by the tanner in the operation called scouring; also by the dyer, in a concentrated state, for dissolving indigo. It is likewise employed by hatters. Silk-dyers use it for whitening silks, and for giving them a beautiful lustre. The chemist employs it in the preparation of nitrous and muriatic acid, and as an agent in a variety of processes and decompositions. An account of a great variety of other purposes to which sulphuric acid is applied in the arts may be seen in my *Chemical Essays*, vol. ii. page 468.

Nitric acid is used by dyers to make their solutions of tin. Silver-refiners employ it in the operation of *parting*. It is also used by gilders, brass-founders, calico-printers, colour-makers, &c.

Muriatic acid is employed in dying, calico-printing, and colour-making. The oxymuriatic acid, in bleaching, and sometimes in medicine.

† The acetic, oxalic, tartaric, citric, gallic, and prussic acids are all of them employed in the different manufactures of the country.

‡ The acetic, the tartaric, and the citric acids are used for culinary purposes. According to some experiments of Dr. Macbride, it appears that all the mineral acids in a diluted state might be employed with great advantage in preserving meat.

§ Parliament voted a reward of £5000 to Dr. Carmichael Smyth, for his discovery, that nitrous acid, applied in a state of vapour, effectually destroys contagion, especially typhus, jail, yellow, and such like fevers. See Dr. Smyth, on *The Effect of Nitrous Vapour*, 8vo. 1799.

‖ Limestone, chalk, and marble, are composed of about 44 parts carbonic acid, and 56 parts lime.

¶ Gypsum is composed of 41½ parts of lime, and 58½ of dry sulphuric acid.

** Dr. Thomson analyzed a specimen of fluor spar from Northumberland, and found it to consist of lime 67.34, and fluoric acid 32.66.

†† Common salt, when in a state of purity, is composed of 53½ parts soda and 46½ of dry muriatic acid; but the salt of commerce is always impure.

‡‡ If the pupil be directed to pour a little diluted sulphuric acid upon some pieces of marble, the carbonic acid will be disengaged, and become evident to the senses. In like manner, he may disengage the fluoric acid from the fluor spar, the muriatic acid from rock-salt, and other acids from those minerals in which they are found native. A few experiments of this kind will serve to show him how abundantly the mineral acids occur in nature.

§§ Celestine, which occurs in such large quantities in the neighborhood of Bristol, is composed of about 57 per cent. of strontites, and 43 per cent. of sulphuric acid.

‖‖ Ponderous spar, which is found plentifully in Staffordshire, Derbyshire, &c. and there called *cawk*, is a compound of 67 per cent. of barytes, and 33 of sulphuric acid. The granular kind consists of 90 per cent. of sulphate of barytes and 10 of silica.

¶¶ The *cryolite*, which is a very rare mineral, found only in a dreary and remote region of West Greenland, is, according to Vauquelin, composed of 21 per cent. of alumina, 32 of soda, and 47 of fluoric acid.

* * * Let any man pass an evening in listless idleness, or even in reading some silly tale, and compare the state of his mind when he goes to sleep or gets up next morning, with its state some other day, when he has passed a few hours in going through the proofs, by facts and reasoning, of some of the great doctrines in Natural Science, learning truths wholly new to him, and satisfying himself by careful examination of the grounds on which known truths rest, so as to be not only acquainted with the doctrines themselves, but able to show why he believes them, and to prove before others that they are true—he will find as great a difference as can exist in the same being; the difference between looking back upon time unprofitably wasted, and time spent in self-improvement: he will feel himself in the one case listless and dissatisfied, in the other comfortable and happy; in the one case, if he do not appear to himself humbled, at least he will not have earned any claim to his own respect; in the other case, he will enjoy a proud consciousness of having, by his own exertion, become a wiser and therefore a more exalted creature.—*Lord Brougham.*

PRICE CURRENT.

ARTICLES.		New-York. Jan. 28.	Boston. Jan. 28.	Philadelphia. Jan. 26.	Baltimore. Jan. 19.
Beans, white,	per bush.	1 25.. 1 30	1 35.. 1 75	1 50.. 1 75	1 00.. 1 25
Beef,	cwt..	7 50.. 8 00	7 00.. 8 00	9 00.. 9 50	9 00..10 00
Bacon, western,	lb....	12.. 16	13.. 14	15.. 17	15.. 16
Butter, fresh,	lb....	22.. 26	18.. 27	16.. 18	25.. 37
Cheese,	lb....	6.. 9	8.. 10	8.. 9	8.. 9
Cotton, best,	lb....	10.. 16	9.. 13	9.. 15	9.. 12
Flour, best,	bbl..	8 62.. 9 25	8 75.. 9 25	8 00.. 8 50	8 00..10 50
GRAIN—Wheat,	bush.	1 78.. 1 85	....	1 70.. 1 80	1 70.. 1 82
Rye,	bush.	1 12.. 1 15	90.. 95	1 10.. 1 12	90.. 94
Oats,	bush.	50.. 58	53.. 58	41.. 46	40.. 42
Corn,	bush.	97.. 1 00	1 00.. 1 02	84.. 87	75.. 81
Hams, pork,	lb....	12.. 14	16.. 17	13.. 15	14.. 15
Pork, in hog,	cwt..	....	10 00..11 00	7 25.. 8 00	7 75.. 8 50
SEEDS—Red Clover,	bush.	12 50..14 50	12 50..13 00	12.. 14	15 00..
Timothy,	bush.	2 37.. 2 75	2 63.. 2 75	2 75.. 3 25	.. 3 00
WOOL—Saxony, fleece,	lb....	50.. 62	57.. 62	55.. 60	50.. 55
Merino,	lb....	45 . 52	50.. 55	50.. 55	45.. 50
1-4 and com.	lb....	36.. 40	42.. 45	45.. 49	35.. 40
Sheep,	head,	....	3 00.. 5 25	1 00.. 2 87	....
Cows and Calves,		30 00..45 00	30 00..37 00	18 00..40 00	30 00..46 00

HALL, PACKARD & CUSHMAN, Bank Note Engravers and Printers, No. 10 Commercial Buildings, corner of South-Market and Hudson-streets, Albany. All orders will receive punctual attention.

*Moneys received during the last month, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

		No. Vols.			No. Vols.
*Alexandria,	D. C.	66	Mayfield,	Va.	36
Burgess' Store,	Va.	5	*Middlebury,	Vt.	11
Brooklyn, Kings,		6	*Milbury,	Mass.	32
*Bethany Church,	N. C.	28	*Middletown,	O.	38
*Boston,	Mass.	142	*Milton,	N. C.	23
Bull's Bridge,	Ct.	10	*New-York city,		211
Bowling Green,	Ky.	5	New-Harmony,	Ia.	11
*Brownsville,	Pa.	35	*Nashville,	Tenn.	157
*Baltimore,	Md.	113	*New-London,	Ct.	16
Clarksville,	Va.	16	*Oxford, Chen.		39
Clinton,	Mich.	13	Office Tavern,	Va.	9
*Catskill, Gr.		23	*Philadelphia,	Pa.	141
Clermont, Col.		6	Peoria,	Ill.	14
Cambridge,	S. C.	10	*Providence,	R. I.	12
Countsville,	..	5	Red Oak,	Ga.	22
Cleves,	O.	9	Rock city, Dutch.		6
*Chicago,	Ill.	21	Sichland, Osw.		6
Dover,	Del.	6	*Richmond,	Va.	154
*Enfield,	Ct.	21	*Ridgfield,	Ct.	8
*Easton,	Pa.	25	Surry C. H.	Va.	19
*Greenfield,	Mass.	13	Sam's Creek,	Md.	17
Greece, Mon.		6	*St. Louis,	Mo.	41
Halifax,	N. S.	30	*Troy, Rens.		25
*Ithaca, Tomp.		15	Tolland,	Ct.	5
*Jeffersonton,	Va.	21	*Teffin,	O.	7
*Lansingburgh, Renss.		25	Union,	Ct.	7
Louisville,	Ky	8	Upper Red Hook, Dutch.		6
*Lisbon,	Ct.	66	*Westborough,	Mass.	18
Lancaster,	O.	16	Webster,	..	5
Minisink, Or.		10			

VALUABLE PROPERTY at Saratoga Springs, for sale.—The following highly desirable pieces of property, with the improvements thereon, are offered for sale, comprising about 550 acres of land, viz:

The premises known as the MANSION HOUSE, situated about one mile east of the village. The building is a large commodious edifice, recently fitted up and furnished for a genteel boarding establishment, having a front of sixty feet, with double piazza and colonnade. Connected with the main building is a wing, making together a depth of about ninety feet. There are thirty lodging rooms, some of which are spacious, two parlors, &c. a dining hall, capable of accommodating 100 guests. Attached to the premises are a large barn, carriage-house, stables, wood and ice-house, &c. &c. large garden, with fruit trees and shrubbery. There will be sold with the above, from 75 to 100 acres of land, as may be desired, including the celebrated TEN MINERAL SPRINGS, only a few rods distant. The superior quality of these waters is too well known to require a particular description here. The Washington fountain is not inferior in its medicinal properties to any in the county of Saratoga, having been much resorted to, and is daily gaining in public estimation. Immediately contiguous to these springs, there are fifteen acres of table land, which from its high situation, commanding an extensive range of fine mountain scenery, presents very eligible sites for the erection of gentlemen's summer residences, or for a public institution.

Also, for sale, the handsome neat cottage adjoining the Mansion House, with stable, shed, store-house, &c. and from 20 to 75 acres of land.

Also, the valuable farm known as the Gibbs' Lot, on which is a comfortable and convenient farm-house, large barn, &c. embracing from 100 to 150 acres of land. It is well watered, and in every respect, a very desirable farm.

The residue of the land, situated in the vicinity of the above, will be divided in such a manner as to suit applicants.

Also, in the town of Northumberland, 80 acres of land, near Gansevoortsville.

Also, a good building lot in the village of Washington, or Watervliet.

On a part of the foregoing described property, (less than a mile from the village of Saratoga Springs,) is a very valuable water power, which could command a large amount of business, if suitable mills were erected. The line of the Whitehall rail-road, (which has been commenced,) is laid through the premises for more than a mile, and passes within a convenient distance from the Mansion House, and from the facilities it will afford, when completed, it is believed will greatly enhance the value of the property.

For terms and further particulars, apply to W. L. F. WARREN, Esq. Saratoga Springs, or H. H. & R. LAWRENCE, No. 10 Cedar-street, New-York.

FOR SALE—The short horn Durham Bull, SUPERIOR. He was calved in August, 1831. Superior was got by Frederick,* dam, Yellow Rose, by Young Denton; grand dam, Arabell, (imported) North Star; great grand dam, Aurora, (imported) Comet; great, great grand dam, Aurora, (imported) Henry; great, great, great grand dam, Aurora, (imported) Danby.

Price $250, apply to C. N. Bement, Esq., or to
WILLIAM A. S. NORTH,
Mont Marie, Duanesburgh, N. Y., where the Bull and his stock may be seen.

* Frederick was got by Wye Comet.

PAPER HANGINGS.—The subscribers offer to country merchants, a large assortment of paper, both French and American, on as good terms, and at as low prices as can be had in New-York or elsewhere. On the opening of navigation, they will receive upwards of seventy cases of French paper, of their own importation, including Borders, Fire Board Prints, &c. Dealers are invited to call and examine, at 419 South-Market-street, Albany. LEMUEL STEELE & SON.

FRESH GARDEN SEEDS.—The subscriber is now ready to receive orders in his line to any extent, having just received (in addition to a large stock of seeds of American growth of the present season) by various arrivals, a large assortment of English seeds, among which are early York, Battersea and drumhead cabbage; Windsor beans; the finest early and late peas; radish seed, sorts; true French sugar beet, (this from France;) genuine English mangel wurtzel; white mustard seed for medicinal purposes, very clean; rape seed; canary seed; lucerne; white Dutch clover; orchard grass, &c.

Those who may wish to favor the subscriber with their commands, may depend on the genuine quality of every article, as none other are retained—nor are old seeds kept on hand to be mixed with new, but are thrown away as soon as the new comes in, an adherence to which rule has made the seed trade, commenced by my father twenty-five years since, with a half pound of cabbage seed and a few ounces of other varieties, (in all $15) grow to its present standing, which it is no boast to state, is one of the best establishments in this country, and exceeded by but few in Europe.

It will always be the aim of the subscriber to merit a continuance of public patronage, bestowing as much pains on an order for $1 as for $100, to both which he he gives his personal attention. The prices, both wholesale and retail, are as low as any in America. Catalogues for private, and price currents for trade customers, can be had on application.

☞ Orders will be punctually attended to, and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable, it is desired that all orders be accompanied with the money. W. THORBURN,
Market-street, corner of Maiden lane.

SEEDS AND TOOLS, wholesale and retail, for sale at the seed store of Ellis and Bosson, No. 34 North-Market-street, Boston, Mass. For sale a full assortment of seeds of all kinds. Tools and implements of the most approved patterns. A list of the whole, with directions for the culture of important varieties of seeds, and a description of the implements named, is given in a book catalogue of 80 pages, which will be furnished to applicants gratis.

Orders by mail will receive prompt attention. Address ELLIS & BOSSON, Boston, Mass.

RUGGLES, NOURSE & MASON, Worcester, Mass. manufacture extensively, seven sizes of their celebrated Long Worked Cast-Iron Ploughs, for which the American Institute, at their late annual fair, in the city of New-York, awarded the prize medal for the best and most perfect specimens of ploughs.

They also manufacture four sizes of their improved Side-hill or Swivel Plough. Paring Ploughs, used in reclining meadows or swamps; improved expanding Cultivator or Horse Hoes; three kinds of Seed Sowers; Hay and Straw Cutters; Cast-steel Garden Trowels; Garden Hoes and Rakes, &c. &c.

MESSRS. C. & A. J. DOWNING, of Newburgh, N. Y., offer for sale genuine Brussa mulberry trees, raised by cuttings from the original trees brought from Brussa by Mr. Rhind. These trees are very hardy, and are therefore highly suitable for the northern and eastern states. Size from 1 to 4 feet, and price from 30 to 60 cents, according to size.

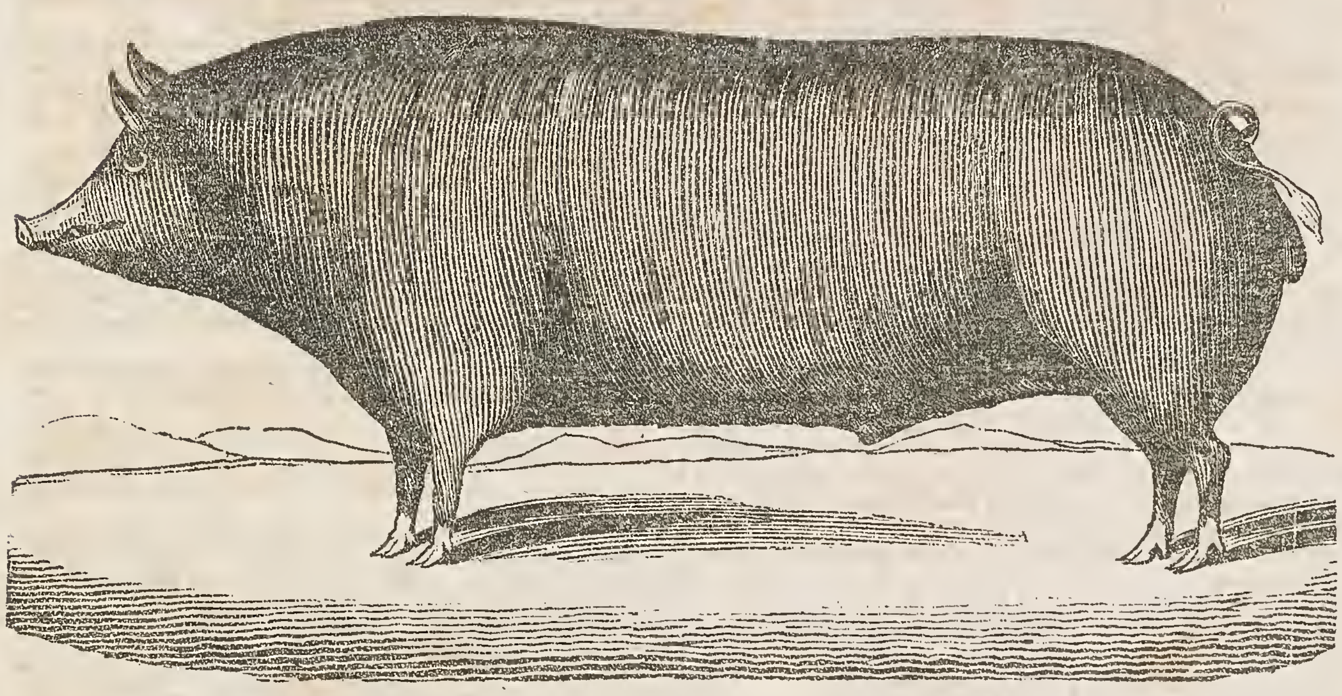
ROCHESTER SEED STORE, 1839.—REYNOLDS & BATEHAM, the proprietors of this well known establishment, respectfully announce that they have again on hand a fine assortment of English and American SEEDS, of the latest growth, including all the most valuable and newly introduced articles of garden and field culture—grain, grass, esculent vegetables, tree, shrub, herb and flower seeds. Also, a large collection of garden tools, agricultural and horticultural implements, books, &c. and a splendid collection of green house plants.

The liberal and constantly increasing patronage which this establishment has received during the past four years, is a gratifying evidence that its usefulness is in a measure appreciated by an intelligent community, and that the efforts of the proprietors to give satisfaction have not been unsuccessful. Great pains are taken to have all articles sold at this establishment of the very best quality, and the proprietors hope, by unremitted exertion, together with their experience in the business, and facilities for growing and importing supplies, to merit the fullest confidence of the community, without which they do not ask or expect a continuation of its liberal patronage. Merchants and others supplied with superior seeds, either by weight at wholesale, or neatly put up in small papers for retailing, at prices which will afford them a handsome profit. Small assortments will not be furnished on commission, but an agency is, or will be established in each of the principal villages in western New York, where a full assortment will be left for sale.

A catalogue of 42 pages may be had on application.
REYNOLDS & BATEHAM,
No. 3 & 5 Arcade Hall, Rochester, N. Y.

SHAKER SEEDS, for sale by WIGHT & GIBSON, Druggists, No. 44 Hanover-street, under the American House, Boston. All kinds of garden seeds cultivated by the United Society, at Harvard, Mass. and put up with directions for culture by Jonathan Chandler, trustee for said society. Persons purchasing to sell again, can have these seeds at the same price as sold them by the society at Harvard, or by their travelling agent.

BERKSHIRE PIGS! BERKSHIRE PIGS!!



BERKSHIRE PIGS.—Persons wishing to purchase genuine Berkshire pigs, are requested to call on the subscriber, No. 253 Washington-street, Albany, and examine mine. My stock are from the original importation made by Mr. Hawes; and I have three of genuine blood, two males and one female, selected by the same gentleman in England, and imported in November last, unrelated to the old stock. I went to the expense of importing them expressly for the purpose of improving those we had here. An opinion of the quality of these pigs may be formed from the fact notified to me by Wm. P. Curd, of Lexington, Ky. asking the pedigree of four, two of which I sold to Mr. Bryant of that state in 1836, for which he (Mr. Curd) paid Mr. Bryant $500—also of one that I sold James E. Letson, Esq. in 1837, and one that he bought of Mr. Hawes at the same time, for which two Mr. Curd paid Mr. Letson $300. Mr. Curd further writes, that he had sold eighty-five pair of pigs, from this stock, for $3400. Mr. Beach also writes me from Ohio, that the male and 20 pigs I sold him last spring, had established their reputation in that state as to size, the former having weighed at the fair last October, 550 pounds, and that he took the premium of a silver pitcher valued at 25 dollars.—He was about 17 months old at the time.

John Lossing.

BERKSHIRE PIGS.—ORIGINAL STOCK.—The subscriber has still in his possession, three of the original Berkshire hogs, imported in 1832. Also, several sows, descended from the above and the first imported boar, all of which are expected to litter in April next. Two of the above young sows have been crossed with a Berkshire boar, lately imported by Mr. John Lossing.

Gentlemen desirous of obtaining this valuable breed, in its purity, are requested to make early application. "First come, first served." ☞ Those making remittances in advance, will have the preference.

For a description of this very superior breed of hogs, I would beg leave to refer to the present and former volumes of the Cultivator.

Price—Pigs from 6 to 8 weeks old, $21 per pair, including a cage to send them in, delivered in Albany, after which they will be at the expense and risk of the purchaser.

DURHAM CATTLE.—A few head of the "improved short horned Durham cattle," consisting of cows, heifers and calves—one two year old bull and one bull calf, six months old—all thorough bred, and good pedigrees. Also, eight SOUTH DOWN BUCKS, bred from the stock imported by Mr. Hawes. For sale by

Caleb N. Bement, Three Hills Farm, Albany.

BERKSHIRE AND IMPROVED CHINA PIGS, for sale.—The subscriber keeps constantly on hand the above celebrated breeds of hogs. His stock is of perfect purity of blood, and as choice animals as can be found in the country, having been selected at great pains and without regard to price. He would especially commend his China boars to the attention of breeders, as they are so broad and deep in the carcass, so fine in all their points and so easily kept, that crossed with the most ungainly animals of the country, their stock is more rapidly improved than it could possibly be from any other breed whatever. The improved Chinas are celebrated for the delicacy and sweetness of their meat, and will return more pork for the same amount of food than any other race of hogs known; a matter of no trifling importance to the breeder. The Berkshires are too well known to need description.

Residing, as the subscriber does, at the great shipping port of the lakes, western gentlemen in addressing their orders to him, will make a considerable saving in in the item of transportation.

A. B. Allen, Buffalo.

BERKSHIRE PIGS.—A. & G. Brintnell, of Canterbury, Orange county, New York, keep pure bred Berkshire pigs for sale, at the following prices, viz: last fall pigs on the opening of navigation, $30 per pair; spring pigs ready for delivery in May next, at $10 per pair; with $1 extra for the box when delivered on board one of the North River Boats, at Newburgh.

Also, for sale a superior improved Durham short horned bull calf, one year old in May next, a beautiful roan colour, and having a cross in him of five pure bred imported bulls, viz: Admiral, Denton, Wye Comet, Dishley and Durham. Price $150.

BERKSHIRE PIGS.—The subscribers having increased their number of breeding hogs, will continue to receive orders for pure blood Berkshire pigs, to be filled during the spring, summer and fall of the present year. Orders for the south can be forwarded to N. York, by sloops or steam-boats every day in the week, (Sundays excepted,) during the season of navigation. Letters of inquiry must be post paid to insure attention. We have now on hand and for sale, a boar of the above breed, nearly two years old.

H. & J. Carpenter, Norwich, Conn.

FOR SALE.—A few pair of full blood Berkshire Pigs, from the stock of C. N. Bement, and from newly imported stock. A few pair of the full blood grass breed pigs are expected this summer. Also, this spring, pigs of the Berkshire breed, crossed with the China, grass, and Byefield breeds. One pure blooded Paular Merino buck. One pure blooded Bakewell buck.

Letters and orders, post paid, directed to S. M. Mitchell, Norwich, Conn. will meet with prompt attention.

CONGRESS HALL, Park-Place, corner of Washington-street, in the immediate vicinity of the Capitol, state offices and rail-road. W. Landon.

FRANKLIN HOUSE, opposite the rail-road office, in the immediate vicinity of the Capitol and state offices. Lately thoroughly repaired and improved; 136 State-street. A. Freeman.

CITY HOTEL, Albany, N. Y.—This extensive establishment has been recently enlarged; is situated in the most populous and pleasant part of the city, near to the post-office, banks, baths, rail-road and steam-boat landings. No charge for carrying baggage.

Chapin & Foster.

AZOR TABER and AMOS DEAN, Attorneys and Counsellors at Law, under the firm name of A. Dean, Commercial Buildings, S. Market-street, Albany.

ROBERT J. HILTON, Judge of Albany Co. Courts, Counsellor at Law, and ex-officio a Supreme Court Commissioner, office State-street, Albany, will promptly attend to all kinds of professional and official business that may be entrusted to his care.

WM. & A. GOULD & Co. Law Booksellers, No. 104 State-st. Albany, and Gould, Banks & Co. Law Booksellers, New-York, have constantly on hand, at both of their stores, a very general assortment of law books, law blanks and stationery articles, which they will afford as low as any other dealers.

THEOLOGICAL and Sabbath School Book Store.—Erastus H. Pease, Bookseller and Stationer, No. 82 State-street, Albany. English and American theological works, comprising a large and choice collection—the publications of all the Sabbath school societies—of the American, the Presbyterian and London tract societies—all new valuable works, and a general assortment of stationery, blank books, &c. ☞ Ledgers, journals, day books, letter books, registers, cash books, invoice books, bill books, receipt books, &c. Merchants, forwarding houses and public offices supplied with books and stationery of the best quality, on liberal terms.

JAMES HENRY, Bookseller, Stationer and Blank Book manufacturer, No. 71 State-st. Albany, keeps constantly on hand, day books, journals, ledgers, cash books, invoice books, registers, letter books, and a general assortment of half bound books of all sizes.

FRESH GARDEN AND FIELD SEEDS FOR 1839. We are now receiving and have for sale at our Seed Store and Agricultural Warehouse, No. 7 Merchants' Row, (3 doors from State-street) our supply of new seeds for the present year, comprising one of the largest and most extensive assortments, and including all the newest and best varieties of Corn, Potatoes, Wheat, &c. Having been for upwards of ten years engaged in the business of raising seeds, we can with confidence recommend our stock to be pure and of the best quality, having been raised by us, or by experienced growers expressly for us.

The following comprise some of the numerous varieties for sale:

100	bushels	best early peas,
100	"	large dwarf marrowfat do.
50	"	dwarf blue imperial do.
50	"	other fine varieties do.
100	"	of the best sorts of garden beans, dwarf and pole,
1000	pounds	long blood beet,
300	"	early turnip rooted do.
500	"	mangold wurtzel and sugar beet,
300	"	long orange carrot,
100	"	large Altringham do.
300	"	large Dutch parsnip,
500	"	ruta baga,
500	"	English turnip; 200 do. other varieties,
200	"	large red onion,
100	"	yellow do.; 50 do. pure white do.
200	"	early cabbage seed, of different sorts,
200	"	large drumhead and Savoy cabbage, (of American growth,)
500	"	long prickley cucumber,
500	"	early varieties do.
150	"	lettuce, the best sorts,
200	"	early squash, different sorts,
200	"	winter and Canada crookneck squash
100	"	autumnal marrow do.
300	"	short top radish,
200	"	long salmon, and other varieties do.
100	"	tomato,
25	"	squash pepper, (thick skin,)
100	"	different sorts melons,
500	bushels	Dutton corn; 200 do. Parker do.
100	"	ears sweet corn,
500	ears	Chinese do. (new.)

Also, celery, cauliflower, cress, brocoli, egg plants, okra, endive, leek, parsley, spinach, sweet marjoram, summer savory, thyme, salsify, sage, &c.

Herds Grass, Red Top and Clover Seed, at wholesale and retail.—Lucerne, orchard grass, rye grass, millet, spring and winter wheat, rye, oats, barley, buckwheat, seed corn, Rohan and other sorts of potatoes, &c. &c.

Among the varieties of corn, the "Parker" sustains a high character, and is remarkable for the length of the ear, the size of the kernel, and its great product. The Chinese, or tree corn, a new variety, has also been highly recommended for its earliness and great yield.—The Dutton is already well known. And the Rohan potato is one of the most remarkable products ever introduced.

Boxes of Garden Vegetable Seeds put up for dealers, containing a complete assortment, in papers, ready for retailing, with printed labels and directions, for cultivation, furnished either on commission or otherwise, on as good terms as at any other establishment.

Also, seeds for the West Indies or western islands, put up in boxes, with the names in English, French and Spanish.

Flower Seeds.—Upwards of 100,000 packages of annual, biennial, and perennial flower seeds are annually put up and ready for sale. Among them are all the new and choice varieties. The beauty of our double German Asters, Rocket Larkspurs, Zinnias, and similar showy flowers, are too well known to need any description here.

Assortments of 20 varieties, each one labelled with directions for planting, are neatly put up in boxes and sold at one dollar per box.

Splendid Double Dahlias.—200 varieties of this most beautiful flower (of which a separate catalogue is issued every spring) comprising all the newest and most splendid varieties to be procured in England. Dry roots supplied at the lowest prices.

Greenhouse Plants, always ready for sale from our garden, including a large collection of the finest Camellias, Ericas, Roses, Geraniums, Verbenas, &c. to be found. Plants suitably packed so as to be transported to any part of the country.

Bulbous Roots of all descriptions. Hyacinths, Tulips, Pœonies, Gladiolus, Amaryllis, &c. &c.

Rhubarb and Asparagus Roots, Strawberry plants by the dozen or thousand; also, Gooseberry, Raspberry, and Currant bushes of the most select kinds we have growing, and can supply in any quantity.

Fruit and Ornamental Trees furnished from the best nurseries in the vicinity of Boston, at one day's notice, at catalogue prices.

Morus Multicaulus Trees and cuttings, for sale by the hundred or thousand.

Garden Implements and Books on Gardening and Agriculture, constantly for sale.

Catalogues furnished gratis.

☞ Orders sent by mail or otherwise, with a remittance or reference will receive prompt attention and despatch, and be faithfully executed.

Hovey & Co.,
Seed Store and Agricultural Warehouse, No. 7, Merchants' Row, Boston.

NEW-ENGLAND AGRICULTURAL WAREHOUSE, Seed Store, and Office of the New-England Farmer, No. 51 and 52 North Market-street, Boston. JOSEPH BRECK & Co., the proprietors of this establishment would inform their friends and the public, that they keep constantly on hand and for sale, the greatest variety of Agricultural Implements, Grass Seeds, Garden and Flower Seeds, Bulbous Roots, Double Dahlias, &c. &c. to be found in the country;—among which are the following

Agricultural Implements.

C. Howard's Cast Iron Ploughs, Tices' do., Side Hill do., Double Mould Board do., Wrought Iron and Wooden Ploughs, Scott Keith, and other Plough Castings, Willis's improved Cultivator, Green's Patent Straw Cutter, Willis's do., Common hand do., Manure and Hay Forks, Scythes of all kinds, Patent and other Snaiths, Hall's and other Hay Rakes, Grindstones on Rollers, Corn Shellers, Grain Cradles, Chains of all kinds, Willis's improved Seed Sower, Gault's Patent Churns, Self Operating Cheese Press, Horse Power and Threshing Machine, Davis's Road Scrapers, Hale's Rotary Pump, Lead Pipe, Force Pumps, Copper do., Iron do., Underhill's Cast Steel Axe, Bark Mills, Corn and Cobb Mills, Harris's Paint do., Winnowing do., Grater Cider do., Cast Iron Cider Screws, Yokes of all kinds, with a great variety of Agricultural and Horticultural tools, too numerous to mention.

Field Seeds.

Northern Clover, Southern do., White Honeysuckle Clover, Lucerne, Herds grass, or Timothy, Red Top Southern Seed, do. Northern do., Fowl Meadow, Orchard Grass, Ruta Baga, Mangel Wurtzel, Sugar Beet, &c., Winter and Summer Wheat, do. do. Rye, Barley, Oats, English, Corn of various sorts, Millet, Hemp, Flax Seed, Potatoes.

Garden Seeds,

Of every desirable variety will be furnished wholesale and retail; by the pound, box, or package.

Seeds in Boxes,

For retailing, done up in the neatest manner in packages, with the name and directions printed on each parcel. Retailers supplied on the most favorable terms, with boxes from $1 to $100.

For the Flower Garden,

We have a very extensive collection of choice Flower Seeds, embracing all the Annuals, Biennials, and Perennials worthy of cultivation. Packages of twenty fine sorts for one dollar.

Dutch Bulbous Roots.

We import of these annually from Holland, a splendid collection, consisting of double and single Hyacinths, double and single Tulips, Crown Imperials, Narcissus, Iris, Crocus Gladiolus, Amaryllis, Ixias, &c. &c.

Double Dahlia Roots.

Of this beautiful and popular flower, we have more than two hundred fine varieties, embracing all that were shown at the exhibition of the Massachusetts Horticultural Society. Roots can be furnished from the first of October to the first of July, safely packed in moss, and sent to any part of the country.

Fruit and ornamental Trees and Shrubs furnished to order at Nursery prices.

Large plants of the Morus Multicaulis, and cuttings of the same, can be furnished by the hundred or thousand at moderate prices.

We would call the attention of the public to the New-England Farmer; one of the oldest and best agricultural newspapers in the country, containing a great amount of interesting and useful matter for the practical farmer and gardener. It is issued at our office weekly, on Wednesdays, at the moderate price of $2.50 per year in advance, or $3 at the close of the year.

We also publish the Horticultural Register, and Gardener's Magazine, issued monthly, at $2 per annum in advance, or $2.50 at the expiration of six months.—This work is devoted principally to the cultivation of Fruits, Vegetables and Flowers. New Subscribers can be supplied with the back volumes at $2.50 per vol. bound.

Among our agricultural Books we keep for sale, The Complete Farmer; Kenrick's Orchardist; American Gardener; Bridgman's Gardener's Assistant; Moubray on Poultry; Silk Grower's Guide; Cobb's Silk Manual; Loudon's Works, together with a great variety of useful and interesting works in this line.

We hope by unremitted attention, to sustain the credit of this establishment, and realize the anticipations of our predecessors, Newell, Russell & Barrett, in making it one of the most complete depositories for every thing in the Agricultural and Horticultural line in the country. JOSEPH BRECK & Co.

CHINESE AND BRUSSA MULBERRY SEED.—The subscribers have just received a small invoice of the above seeds, which they offer for sale wholesale and retail. RUSHTON & ASPINWALL,
86 William-street, and 110 Broadway, and 10 Astor House, New-York.

ISAAC BROWN, Wholesale and Retail Dealer in Stoves, Corn Shellers, Ploughs and Plough Castings, bar, sheet, hoop, band, nail and horse shoe iron, cast, English, German and American steel, cutlery and heavy goods, at the sign of the Plane, No. 128 State-street, opposite the English church, Albany.

THE VARIETY STORE, 392 South-Market-street. The subscriber has and intends constantly to have in his store, a general assortment of Fancy Goods, Baskets, Toys, Domestic Articles, &c. at wholesale and retail.

STEPHEN VAN SCHAACK.

WILSON'S Improved Patent People's Cooking and Parlor Stoves. The subscriber is now manufacturing, at his warehouse, all the varieties of the above named stoves, some of which have stood the test of years. The People's Cooking Stove possesses advantages which renders it superior to any thing of the kind ever before in use. The plan of operating with it is entirely new; the entire heat is thrown first under the four boilers, and then returning by means of an extra return flue, passes entirely around the oven without being divided, which makes it the best baking and boiling stove now in use. The oven is very large, capable of baking six loaves at a time if required. This stove has taken for three successive years, the highest prize at the American Institute Fair. The following certificate and names are presented to the public, as references; many more might be obtained, but these are deemed sufficient.

CERTIFICATE.

Mr. James Wilson—Sir—You wish my opinion of your new cooking stove, termed "the People's Stove;" my family are much pleased with it, and say, of the great number which they have had in use, yours is decidedly the best, not only on account of convenience, the perfect manner in which the cooking is performed, but also on account of the economy of fuel which it effects. Yours respectfully, J. BUEL.

Charles E. Dudley, Wm. McHarg, Wm. Mitchell, Chauncey Humphrey, Jesse Buel, Jr.	*Albany.*	Daniel Van Antwerp, John Van Antwerp, Thomas Calanan, James Tefft, J. W. Whitbeck,	*Coeymans.*
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AGRICULTURAL REPOSITORY, corner of Maiden-lane and North Market-street, (three doors north of the post-office,) Albany.

The proprietor will be induced to extend it in all its various branches, for the accommodation of experimental and scientific farmers, by the introduction of new and useful implements of husbandry, and to furnish the practical farmer with the best tools for his business. An establishment of this kind not only serves the above purpose, but makes a depository for the inventive artizan to place his articles for exhibition and sale. Machinists and manufacturers will find it to their interest to place here articles for sale and inspection, as it will more readily bring them before the public.

The object of this establishment is to keep on hand for sale, all the useful and improved agricultural implements now in use, and the subscriber invites mechanics and others to place their implements here for sale. His accommodations will be ample and his charges moderate.

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W. THORBURN, Seedsman.

CHINESE TREE PROLIFIC CORN.—The subscriber has for sale at his store, No. 317 North Market-street, Albany, a supply of this new and excellent variety of corn, (some account of which, will be found in the November number, page 157, of the Cultivator,) price 25 cents per ear.—Also Rohan Potatoes, with a full supply of garden, field and flower seeds, growth 1838, also the Whitington, new white wheat. W. THORBURN.

WM. PRINCE & SON, will make sales of trees and cuttings of the genuine Chinese Morus multicaulis, Morus expansa, Alpine, Broussa, Canton and other varieties, deliverable to the purchasers, at such period in the spring as is convenient to them, and will enter into contracts accordingly. Prices and terms for the trees and cuttings will be forwarded, to all who may apply for them by mail, as well as prices of silk-worm eggs mulberry seeds, &c. The Multicaulis trees are remarkably vigorous, and as we first imported the genuine tree, purchasers are sure of obtaining the genuine kind. It is from this cause and from the great attention paid by them, that the trees they have sold have given universal satisfaction.

Flushing, near New-York, December 26th, 1838.

FARM FOR SALE.—The farm well known as the Bemus Heights farm, containing about 250 acres, about 40 acres of which are in wood, about 150 acres in meadow, and the balance tillable land. On the premises are a good dwelling-house, farm-house, barn-room about 300 feet in length, by 30 feet in width.

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ROHAN POTATOES.—This new and extraordinary variety of the potato, was introduced into this country from Switzerland two years ago.

The following are among the accounts which have been published respecting its wonderful qualities.

A writer in the Genesee Farmer says, one pound of seed planted in his garden, produced 136 lbs. 3 ozs; and 45 lbs. planted on 24 rods of ground, produced 58 bushels, being three times as many as the common kinds produced on the same space and quality of ground.

A gentleman from Connecticut, from 13 ozs. of seed produced 2½ bushels of potatoes, which weighed 144 pounds while other varieties, with similar soil and cultivation, did not produce more than half an ordinary crop, owing to the extreme dry weather. It is stated that some of these tubers sold for $1 each, at the New Haven Horticultural Fair.—Judge Buel (in the Cultivator) says we have cultivated them two seasons, and feel justified in recommending them as a valuable acquisition in our husbandry.

First—Because their quality for the table will justify it.—If not superior they are good. The flesh is yellow, solid, and of good flavor.

Secondly—Because they admit of a great economy in seed; two eyes sufficing (and many of the tubers have 30 to 40 eyes) to plant a hill, and three or four bushels to plant an acre of ground.

Thirdly—Because they require comparatively little labor in harvesting, a man being able to dig thrice as many of them in a day as of ordinary kinds. The tubers are very large, 110 of the largest of our crop completely filling a flour barrel. 27 bushels were dug in our presence in one hour, (the tops being pulled,) by one man at moderate labor.

Fourthly—Because they yield an abundant crop—from 85 rods of ground were gathered 175 bushels, while our common kind did not give us half a crop. One case has been stated to us, of a single potato producing a bushel, and another of its having produced a barrel at harvest.

☞ They are for sale at the Albany Seed Store, by

W. THORBURN.

A FARM FOR SALE, containing about 210 acres, situated a little more than half a mile west of the village of Pittsfield, Berkshire county, Mass. Said farm has been stocked with sheep for many years, but is well adapted for grain or grazing. It is well supplied with wood, timber, fruit, &c.

On the premises are a new and convenient brick-house, a farm-house, several barns, sheds for sheep, &c.

Also for sale, about half a mile north of said premises, a farm of 100 acres without buildings.

A very choice flock of Merino and Saxony Sheep, will be sold with the above farms if required.

Terms will be made easy. Apply to the subscriber on the premises. M. A. LEE.

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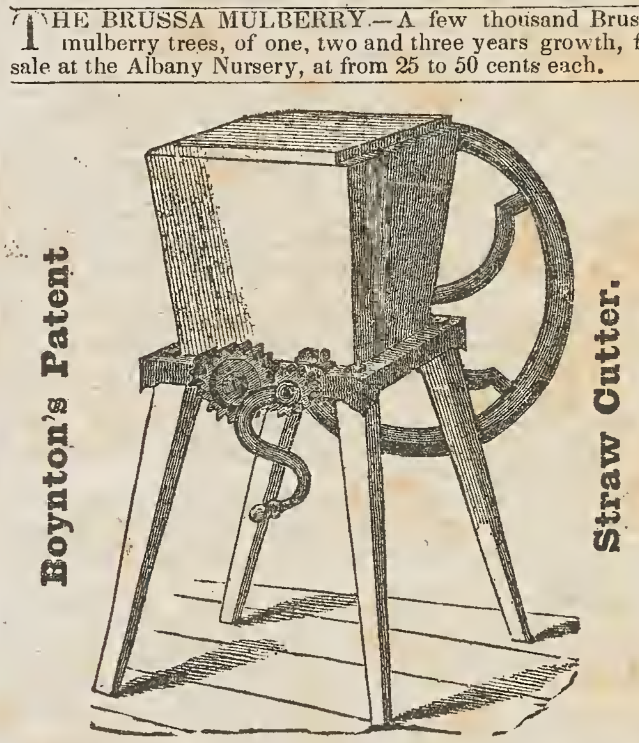
THE BRUSSA MULBERRY.—A few thousand Brussa mulberry trees, of one, two and three years growth, for sale at the Albany Nursery, at from 25 to 50 cents each.



BOYNTON'S PATENT STRAW-CUTTER.—This machine is designed for cutting straw, hay, cornstalks, &c. as food for cattle and horses, and may be useful for cutting many other articles. It may be driven with speed equal to two thousand turns a minute, making thirty-two thousand cuts, without doing the machine the least harm, while any other machine now in use for the same purpose, would be destroyed by running one hundred turns a minute.

The machine is constructed in a neat convenient and durable manner; is easily kept in order, and is adapted to either hand, horse, or water power; it is the only machine now in use that will run rail-road speed. Any person wishing to buy, may feel perfectly satisfied that no machine will ever supersede for utility and durability.

A machine may be seen at the Patent-Office, Washington city, Ellis & Bosson's agricultural warehouse 34 North Market-street, Boston, Baltimore, New-York city, Hartford, Ct. Hamilton Wool Co. Mill, Southbridge, Mass. and at the subscriber's factory in South Coventry.

Patent rights for counties, states, and territories for sale by the subscriber. JOHN BOYNTON, Patentee.

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FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

THE CULTIVATOR,

A MONTHLY PUBLICATION,

DESIGNED TO

IMPROVE THE SOIL AND THE MIND.

CONDUCTED BY J. BUEL, OF ALBANY.

VOLUME VI.

ALBANY, N. Y.
FROM THE STEAM-PRESS OF C. VAN BENTHUYSEN.
......
1839–40.

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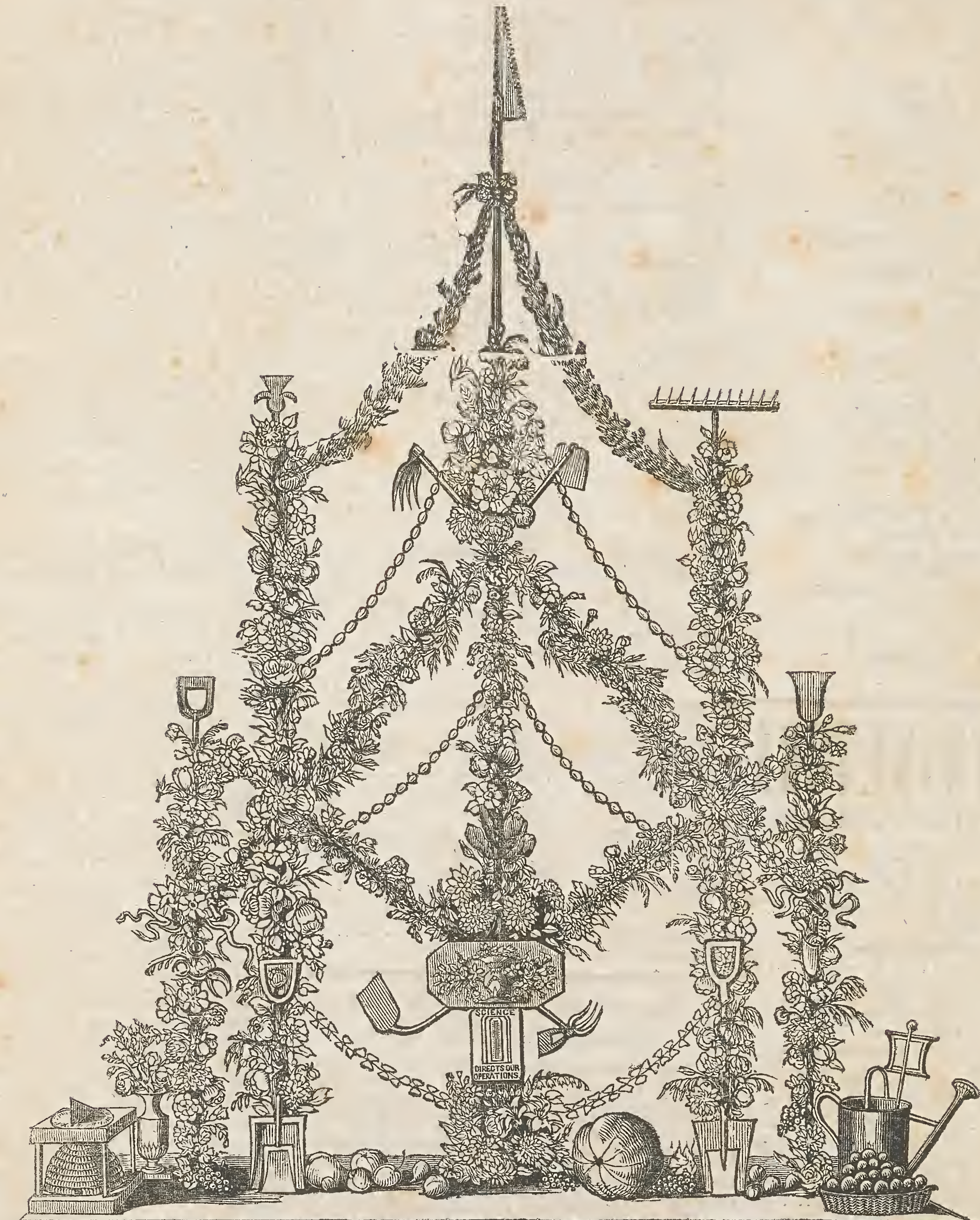

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Common School Libraries,

Are now attracting much of the public attention, and we begin to discover the want of suitable books, or a suitable collection of books, for these new establishments, adapted to the capacities and the business of our rural population; for it is generally conceded by intelligent men, that the two collections now offered, to wit, that got up, or recommended, by the American Society for the Diffusion of Useful Knowledge, and endorsed by the late Secretary of State,—and the one offered by the American Sabbath School Union, of Philadelphia, whatever intrinsic merits they may possess as literary or theological collections, are both of them glaringly deficient in what is most essential and most useful to an agricultural population. They contain little or nothing that is calculated to afford instruction, to the great business classes of the country, in their respective employments. The farmer and mechanic, and even the housewife, require *professional* books—books that will instruct them in their several employments—that will render their labors more enlightened, more pleasant, more profitable, more respectable—as much as the lawyer, the physician, or the clergy require professional books, to perfect them in their several vocations.

It is a well-known fact, that our system of farming is, in the main, wretchedly bad; that while many farmers get little more than a bare compensation for their labor, under a constant deterioration of soil, there are others, more enlightened, and who pursue a better system of husbandry, that derive an annual nett income of seven, fourteen, twenty-one, twenty-eight, and even thirty-five dollars, from every acre of land they cultivate. It is also well known, that our poorest farmers—not in means but in management—never buy, and seldom read, any publications that might teach them how to improve their practice.—But were such works placed in a common school library, at the expense of the state, the parents *might*, and the children *would*, read and profit by them.—There was more truth than poetry in the boast of the pedagogue, that he governed the village—because he governed Master Jacky, who controlled his mother, who influenced the father. Parents will listen and respect the reasonable counsels of their children. Were books upon their future business of life placed in common school libraries, the young would read them, as matters of curiosity, if not of instruction—and their minds would become imbued with a mass of useful knowledge—and generally with the ability and disposition to profit by it, which could not fail of producing the best effects on society. Sow the seeds of usefulness in the spring-time of life, and they *will* germinate, they *will* grow, and they *will* give the increase. Teach the young to provide for themselves, and you qualify them to be useful to others. Neglect this first duty, and, so far as your agency extends, you consign them to indigence or to vice. We do not mean to trespass upon credulity when we state it as our belief. that were a good collection of works upon agriculture, the mechanic arts, and rural affairs, placed in every common school library in the country towns, this measure alone would, in ten years, double the products of our soil; and would elevate, in nearly a corresponding ratio, the industrial and moral character of our population.

We cannot omit, in our consideration of this subject, to contrast the wisdom of a sister state, with what we deem the short-sighted policy of our own. The legislators of a state hold the same relation to the population, that parents do to children. They are presumed to be more wise, more provident, and to possess a stronger foresight, than those for whose benefit they act; and the legislator, or the parent, who, from the lack of moral courage, sacrifices the ulterior and substantial welfare of those entrusted to his care, to subserve selfish views, or to acquire temporary applause, abuses his trust, and mistakes alike his duty and his interest.

We have appropriated $55,000 a year, of the public moneys, for one of the noblest objects that ever formed the basis of a legislative appropriation—the diffusion of useful knowledge—the knowledge that enables men to provide better for themselves, to improve their mental and moral powers, and to qualify them to be more useful in life;—to every family—to every individual—be he rich or poor, and be his occupation whatever it may—whether he reside in a splendid mansion or a log hut. Our legislators have virtually said, 'we recognize no distinctions in our republican family. We have made ample provision for them all, for becoming wise, wealthy and distinguished in life. But how have they carried out the plan of dispensing equally these munificent provisions? The mass of our population know as little what is best for their own interest, in regard to a selection for common school libraries, as would our children know what is best for their future welfare in life—because they have not had the opportunity, or the means, of acquiring that knowledge which would render them competent judges. Had the question been left to the ballot-box, the Erie and Champlain canals would never have been made. Their ulterior advantages to the state, could not have been scanned by superficial minds. Had the question been submitted to a popular vote, two millions of the public money would not probably have been appropriated to colleges and academies, for, we may say, the exclusive instruction of the learned and liberal professions—the unproductive classes of society—while the productive classes—the rank and file of our population, were left to their own unassisted exertions, to acquire fortune and fame, and to keep down the aristocratic influence of the thus privileged classes. Yet we do not complain of what *has been done.* We only complain of what *has not been done*—that the public bounty has not been extended alike to ALL—to the producing as well as to the non-producing classes. We should take care, that while we are rearing the splendid column, and embellishing it with architectural beauty, we do not neglect the foundation upon which rests the entire structure. But to return from this digression—

How have we carried out this munificent grant, made for the benefit of our people—our *whole* people?

We have left the expenditure of this money to the trustees of common schools—many of whom cannot probably even read—and forty-nine out of fifty of whom—we speak it without disparagement to their integrity or respectability—our legislators would not entrust to purchase a library for themselves. We have put the public money into their hands, leaving it to their wisdom or their weakness, to decide, whether they shall lay it out in wholesome food or in poison—in useful knowledge or in useless trash—in romance and novels, which vitiate the taste, and unsettle the business habits of life—in the biography of the conquerors of the world, and in the history of foreign lands, with which we have little intercourse, and from which we can learn little that is useful, in arts, in commerce, in politics, or in morals—or in works of substantial utility to our business, our improvement and our happiness.

But suppose these school trustees are all competent to make good selections—that they are all men of sound intelligent minds, acquainted with literature and science, and with modern improvements in the arts of productive labor—let us for a moment look to the *economy* of the matter. An edition of ten thousand copies of any book—and ten thousand is the number of our school districts—can be had for *one-half, or less*, of the retail price of the same work from a book-store. So that ten dollars expended in this way, by the state, would have gone as far in purchasing books, as twenty dollars expended by the trustees in a village or city book-store.

But there is still another difficulty. Suitable books cannot be obtained except in the larger cities, even at this sacrifice. Thus the trustees must either incur the additional expense of procuring them from thence—of foregoing their share of the public bounty—or, sad alternative! of buying such as are not adapted to their wants—perhaps refuse stock, got up, like Pindar's razors, to sell! and as illy adapted as Pindar's razors for the purpose for which they are wanted.

One word as to the utility of books on agriculture and rural economy to *all* classes of society. Is there an individual to whom the perusal of such books may not be useful? Is there a branch of knowledge so generally beneficial to the state as this?—one more susceptible of improvement, or that exerts a more salutary influence upon the habits and morals of our population? To study agriculture, is to study the laws of nature, and their application to the wants and convenience of man.

Let us now turn to our sister Massachusetts.—With the same benevolent design of diffusing useful information among her whole population, that we have manifested, she has made provision for establishing common school libraries. But instead of leaving the selection to trustees, a great many of whom at least must be incompetent to the task, she has chosen some of her most worthy and distinguished citizens to form a board of education; and has added another, perhaps no less distinguished, as the efficient secretary of the board—to this board she has confided the all important charge of providing common school libraries. She means to put in the hands of her children good books, for their instruction and improvement, and on the lowest terms; and to be certain that the books shall be both good and cheap, she selects them herself, as every prudent parent will do, and gets them at wholesale prices.

To carry out the views of the legislature, the board of education in Massachusetts are now employed in making up a common school library, to be principally composed of books expressly written for the purpose, and adapted to the capacities, the wants and the improvements of her whole population. And the more effectually to accomplish this end, the board has enlisted the services of the most talented men of our country—and even of ladies—for ladies may do much to improve household economy, and to give a polish and charm to rural life. Among the writers who have engaged in this work of usefulness, we find the names of distinguished individuals of this state, and of other states of the Union. The library is to consist of one hundred volumes, one-half adapted to the senior and the other half to the junior branch of schools. It is to embrace matters in the various departments of knowledge, so as to improve the condition of all; *and no volume is to be accepted until it is approved by each individual member of the board.*

Comparisons, says the adage, are always invidious; and they are so when introduced for mischievous purposes; but they are certainly commendable when they are made to show us our faults, and to teach us how to correct them. Although it is not fair to draw conclusions before results have developed, we can hardly mistake the tendency of the two modes of proceeding which we have contrasted, nor hesitate in giving a decided preference to the policy which has been adopted in our sister state.

Our Country—our whole Country.

There is no one business of life which so highly conduces to national prosperity and independence, and to general and individual happiness, as the cultivation of the soil. Agriculture may be regarded, says the great Sully, as the breasts from which the state derives its support and nourishment. Agriculture is truly our nursing mother, which nurtures, and gives growth, and wealth, and moral health, and character, to our country. It may be considered the great wheel which moves all the machinery of society; and that whatever gives to this a new impulse or energy, communicates a corresponding impetus to the thousand minor wheels of interest which it propels and regulates. Providence seems wisely to have ordained, that because this is the most necessary employment towards the subsistence and comfort of the human family, its labors shall receive the highest and most substantial reward. While the other classes of society are directly dependant upon agriculture, for a regular and sufficient supply of the means of subsistence, the agriculturist is enabled to supply all the absolute wants of life from his own labors; though he derives most of his pleasures and profits from an interchange of the products of labor with the other classes of society. Agriculture has been called the parent of arts, not only because it was the first art practised by man, but because the other arts are its legitimate offspring, and cannot continue long to exist without it. It is the great business of civilized life, and gives employment to a vast majority of almost every people.

The substantial prosperity of a country is always in the ratio of its agricultural industry and wealth. Commerce and manufactures may give temporary consequence to a state; but these are always a precarious dependence. Venice, Genoa, Portugal, Spain, &c., each in turn rose to wealth and power from commercial enterprize. But they all now exhibit melancholy evidences of fallen greatness.—Their population degenerated under the corrupting influence of commercial wealth, and having no suitable agricultural basis to rest upon, they have fallen in succession, from their high standing, victims to the more robust energies of rival powers, or to the enervating influence of domestic cabals. They exhibit nothing now, in their political or social institutions,—in their agriculture or the condition of their population,—that can be admired or coveted, by the freemen of America. Great Britain has now become ascendant in commerce and manufactures; yet her greatness in these sources of power and opulence, are primarily and principally owing to the excellent state of her agriculture,—without which she could not probably sustain her manufactures or her commerce, in their present flourishing state, or long retain her immense foreign possessions, or any thing like her present population. Only one third of her population are said to be employed in agriculture; yet the labors of this one third, such is the high condition of her husbandry, suffice to feed themselves and the other two thirds. Five millions of agricultural population, of all ages, produce annually, from her limited soil, seven hundred millions dollars worth of agricultural produce, averaging about one hundred and forty dollars to each man, woman and child. The recently published letters of Dr. Humphreys, are so conclusive, and instructive, upon this subject, not only in regard to the importance of agriculture to a nation, but as showing the susceptibility of this art of high improvement and great productiveness, that we subjoin below an extract from one of his letters.

> "It is the opinion of competent judges, that the advances made in the agriculture of Great Britain, during the last seventy or eighty years, are scarcely exceeded by the improvement and extension of its manufactures, within the same period; and that to these advances, no other old settled country furnishes any parallel. That they have been very rapid indeed, the following figures and comparisons abundantly show: In 1760, the total growth of all kinds of grain in England and Wales, was about 120,000,000 bushels. To this should be added, perhaps, 50,000,000 for Scotland—making a great total of 170,000,000. In 1835, the quantity in both kingdoms could not have been less than 340,000,000 bushels. In 1755, the population of the whole island did not much, if any, exceed 7,600,000. In 1831, it had risen to 16,525,180, being an increase of 9,000,000, or 120 per cent.! Now, the improvements in agriculture have more than kept pace with this prodigious increase of demand for its various productions; for it is agreed on all hands, that the 16,500,000, or rather the 17,500,000, (for more than a million has been added since 1831,) are much fuller fed, and on provisions of a far better quality, than the 7,500,000 were, in 1755. Nor is Great Britain indebted at all, at present, to foreign markets for her supplies. Since 1832, she has imported no grain worth méntioning; and till within the last six months, prices have been so exceedingly depressed, as to call forth loud complaints from the whole agricultural interest of the country. England is, at this moment, so far from wanting any of our bread-stuffs, if we had them to export, that she has been supplying us liberally all winter from her own granaries; and, according to the latest advices, she had still bread enough, and to spare. Again, it is estimated by British writers, of high authority, that the subsistence of 9,000,000 people costs, in raw produce, no less than £72,000,000, or £8 per each individual, per annum. According to this estimate, the annual product of this great branch of national industry is $350,000,000 more at present, than it was in 1755; which is more than twice the value of the whole cotton manufacture of the country, in 1831. Now if it costs $350,000,000 to feed the increased population of 9,000,000, then to feed the present population of 17,500,000, must cost near $700,000,000! What an amazing agriculturul product for so small a territory! And yet it is the opinion of practical men of the highest respectability in England, that the raw produce of the island, might be well nigh doubled, without any greater proportional expense being incurred in its production; that is to say, 25,000,000 people might draw their subsistence from one little speck in the ocean! Now *we* have a territory more than fifteen times as large as the island of Great Britain; and what should hinder it, when it comes to be brought under no higher cultivation than some parts of England and Scotland, from sustaining a population of 500 or 600 millions of people? This would give to Virginia something like thirty millions; to Illinois and Missouri ,about the same number each; to New-York near twenty-five millions, and so on in proportion to the other states, I am quite aware that this estimate will be regarded as extremely visionary and incredible, by many of your readers; but not more so than it would have been thought in the middle of the last century, that England, Scotland and Wales, could ever be made to sustain thirty-five or even thirty millions."

A *city* may flourish by foreign commerce—by becoming the carrier of other nations—till foreign aggression, or foreign rivalship, or the opening of new channels of commerce—contingencies of no unfrequent occurrence, shall blast its prospects, and consign it, like Persepolis, Petra, Tyre, and other ancient cities of the east, to ruin and oblivion.

A *town* or *district*, may flourish by manufacturing industry, as many have done in ancient and in modern times, as long as it can exchange its merchandise for the means of subsistence and of acquiring wealth; but if its dependence for these is upon foreign lands, its prosperity is unstable—the interchange is liable to be interrupted by wars, rivalships and other contingencies.

A *country* can be long prosperous, and truly independent, only when it is sustained by agricultural intelligence and agricultural industry. Its foreign commerce may be swept from the ocean; its manufactures may perish; yet still, if its soil is tilled, and well tilled, it can be made to yield all the absolute necessaries of life;—it can, when misfortunes abate, like the roots of the trunkless tree, send forth a new stem, new branches, new foliage and new fruit; it can rear again the edifice of the manufacturer, and spread again the sails of commerce—and it will yet retain the germ and the spirit of independence.

The preceding facts will serve to show the importance of agriculture to a nation, in sustaining its prosperity, and its independence, and in supplying the wants, and multiplying the comforts of its population. The same reasoning that applies to nations, applies to states, to counties, to towns and to neighborhoods. Agriculture constitutes the basis of their prosperity, directly or remotely; and the blessings which it confers are always in the ratio of the intelligence, skill and industry which direct and control its operations. Take a town, for instance, which has a mixed population of the various classes of society. If the average produce of each acre of land is but ten dollars, it is sufficient, merely, to cover expenses and to feed the farmer's family. Having nothing to sell, the farmer of course cannot buy; or, if he buys, he cannot pay, the merchant, the manufacturer or the mechanic, nor can he support the lawyer, the physician, the schoolmaster, or the clergyman. But if every acre is made to produce thirty dollars worth of produce annually, which most lands, properly managed, are capable of doing, the twenty dollars, or two-thirds of the whole product of the soil, become virtually a circulating medium. It is so much surplus wealth, created by the agricultural labor of the town. Now let us suppose, further, that the lands in the town amount to twenty thousand acres. Under the reckless system of management, which too generally prevails, and which upon the average does not produce over ten dollars an acre, in old improved lands, the product would be barely sufficient to maintain the agricultural population, without adding to their wealth, or enabling them to buy of the merchant or others, the necessaries and comforts which they stand in need of. I am aware that this does not hold good in practice; for even the most shiftless farmers do buy; but if they pay, it is at the expense of many of the substantial comforts of life, or perhaps ultimately of their farms, which they might continue to enjoy under a more enlightened system of management. But under the improved system, which we have not graduated high, at thirty dollars per acre, and which is under the average product of well cultivated lands, both in Europe and America, the aggregate agricultural labor of the town, would give an annual increase to its wealth of *four hundred thousand dollars*. Is there an intelligent, reflecting man, who cannot see and appreciate the advantages to society—to the state and to the nation, of a high state of improvement in our agriculture? Is there one who does not see his personal interests promoted by this certain and constant influx of wealth, drawn from the soil—prolific in the bounties and blessings of a wise and beneficent Creator? He has spread every where the means of making man wise and happy. He has given him the capacity to apply these means to his own good. He has commanded him to bring his capacities into constant and active exercise; and He has *promised* to reward, and He will reward, all who prove faithful to the command.

I do not aim to disparage the other great branches of national industry, which are prolific sources of wealth and happiness, by praising agriculture; but I think the importance of this great business to the state, has not been duly appreciated, nor its interests sufficiently regarded and promoted by those who have had the management of our state affairs. My object is merely to make agriculture the base, as it ought to be, of the social superstructure. We are so prone to look *up* for blessings, to what are termed the higher walks of life, and to expect them to fall upon us without an effort, that it becomes necessary, sometimes, to point to their legitimate sources *below*, in the soil. Agriculture, manufactures and commerce are all important, in a public point of view, in the order in which we have named them; and, like the human body and its members, are reciprocal aids to each other. The agriculturist gathers from the soil the elements of usefulness; the manufacturer fits them to our wants; and the merchant becomes the factor of both, and the medium of interchange.

It is but just, in the mean time, to suggest some of the important bearings which our manufactures have upon the prosperity and independence of our country. These consume the surplus products of the soil; they convert into useful fabrics the wool, the hemp, the flax, and much of the cotton, of the farmer and the planter; and they supply to the great agricultural mass of population, articles of necessity and convenience, at a cheaper rate than the farmer could fabricate them for himself. *The manufacturers of our country consume more of the surplus provisions of our soil, than all Europe, Asia and Africa, put together.* I know it is said, that we can get our wearing apparel from Europe, had we no protecting duties, cheaper than we can manufacture it ourselves. And this is undoubtedly true, as regards many articles we use. But what would be the consequence? What was the consequence in 1836, when we were flooded with foreign goods, without the means of paying for them? Our manufacturers became embarrassed; many of the mills were stopped, and a general stagnation of all business ensued. Had the causes which produced that state of things, continued to operate, a complete prostration of our manufacturing energies must have ensued, and the manufacturer been obliged to seek his employment, and his bread, among the agricultural class: the home market for the surplus products of our soil would have been cut off, and the stimuli to industry and enterprise every where paralyzed. Europe does not want, and will not buy, our agricultural products. She sells to us bread stuffs. Ours must find a home market, or no market at all.

But there is another consideration which claims for us an interest in our manufactures. Why are manufactured goods cheaper in Europe, than they are in America? Not because our workmen are less expert, or our machinery less perfect. The difference lies in the social condition of the workmen of the two countries—in the price of labor. So depressed is the condition of the operatives in Europe, that they are compelled to work for a bare living. They enjoy but few political rights. There, the many toil to support the few, in luxury and extravagance. Here the case is different. Our citizens enjoy equal rights, and the spirit of our institutions demands that they should be so rewarded for their labor, as to be able to assert and maintain their rights. Depress them by poverty and want, to the condition of the operatives in European workshops, and you degrade them as men, and render them dangerous as freemen.

The interests of the different classes of society, in our country, are so intimately interwoven, that it may be assumed, as a truth, that each class, and each individual, best subserve their own good, when they endeavor to promote the welfare of all, of every other class and individual. It comes then to this, if our views of the matter are correct, that agriculture, being the great conservative principle of national prosperity, independence and character, should be primarily supported—should be encouraged, enlightened and honored;—that our manufactures, being necessary, like the elaborating organs of the plant, to convert to convenient and useful purposes the products of agriculture, should hold the second rank in our regards—as a branch of national industry, which cannot be dispensed with, without manifest injury to the other classes of society, and without periling our independence as a nation;—and that agriculture and manufactures being duly cherished, commerce, as a necessary medium of interchange between the two great branches of national industry, and between them and foreign nations, will as certainly prosper and flourish as the tree in a rich soil will, which is braced and supported by a good system of roots below, and by a healthy top and foliage above. Let us then improve our agriculture, and foster and protect our manufactures—that our commerce may enlarge its boundaries, and multiply its gains. Then may we, in the spirit of our motto—exclaim—OUR COUNTRY—OUR WHOLE COUNTRY.

Root Culture.

I.—THE POTATO.

Every farmer cultivates the potato, but few farmers cultivate it as profitably as they might. The average crop does not probably exceed one hundred bushels an acre. It may be made to exceed three hundred bushels the acre, and without increasing, materially, the expense of culture. It is a reproach to us, that this root is brought three thousand miles—from England, Ireland and Germany, to supply the wants of our city population. Let us try to do better. It is in the hope that we may contribute to increase our average product, so as to supply the demands of our market, that we give the following directions for its culture.

Soil and preparation.—A mistaken notion prevails with many, that the best potatoes are grown on a warm sandy soil. The reverse of this is true. The best potatoes, as to quality, are believed to be grown in the west of England, Ireland, Nova Scotia, Maine, and other high latitudes, and particularly in humid climates. In a dry season, the quality and quantity are inferior with us, to what they are in a moist and cool one. The potato zone does not extend south of New-York—that is, its quality deteriorates south of that latitude; and it probably has the most congenial climate between 42° and 45°. If these assumptions are well founded, then it should be our aim to plant upon a cool and moist, though not wet soil, which approximates nearest to the temperature of the best potato-growing districts elsewhere. The potato will grow any where, if there is vegetable matter and moisture, but it will be inferior upon dry sands and stiff or wet clays. It does best in loams, or reclaimed swamps; and it pays well for a good dressing of long manure, and should, if practicable, be planted on the first furrow of a grass ley. If the sod is old and tough, plough deep in September, having first spread the manure, if to be had at the time; but if the ley is one of clover, of one or two years old, the ploughing may be postponed till spring. If ploughed in September, without manure, this may be spread upon the ground just before planting, and buried with a light furrow so as not to turn up the vegetable matter of the sod. In our practice of always sowing clover with small grains, we seldom fail of having a tolerable grass ley for the corn and potatoes which are to follow; and its value to the crop doubly compensates for the cost of the clover seed. The potato has a system of roots which strike deep, if the soil will permit, to collect food for the plant. A decomposing sod, with the manure which should accompany it, turned with a deep furrow, affords the best aliment for the plant, and is deposited where the roots naturally seek it, and where it remains cool and moist. The stolens have a different office to perform. They require more air and heat, shoot horizontally, and if buried deep in culture by the plough will protrude a new set near the surface. So that a rich deep soil, having a good sod and a mellow surface, is best adapted to this plant. Harrow thoroughly before planting.

Manures.—The value of manures to the potato crop was illustrated in the preliminary remarks in our last number; and indeed a large crop is seldom obtained without this auxiliary. Long or unfermented manure is preferable to that which is rotten. And remember, this manure does not become more impaired in value for the crop which is to follow the potatoes, than if it were summer-yarded. We prefer applying it broad-cast, with an unsparing hand, previous to the last ploughing; and we approve of Mr. French's practice, of sowing plaster upon the manure, instead of afterwards applying it to the growing plants.

Seed.—A thousand and one experiments have been made, and with various results, to determine the relative value of large, medium or small seed—of cut or whole tubers. We think the majority of these experiments is in favor of medium, or a little more than medium sized roots, for seed, cut into sets of two or three eyes. On the principle that like produces like, such a seed will produce a crop of the most desirable size for the table. Each eye forms a distinct plant, like a kernel of corn, and the size of the tuber, and not of the set which is taken from it, will give character to the product. If the variety has a dwarf habit of growth, more sets may be put in a hill, or they may be planted nearer in the drill, than where the growth is tall, or where the tops send out many lateral shoots. Rich ground will also sustain a greater number of plants than poor ground. The Rohan, and we are told also the forty-fold, require thin planting. The object should be to give the plants a good pasture, and not to have the tops so thick as to exclude the solar rays from the soil.

To produce early potatoes, or to bring a crop to early maturity, it is advised to gather the seed before it has attained maturity, to expose it some days to the influence of the sun, and to select the top ends for the earlier crop. We have a strong illustration of the correctness of these conclusions, in Loudon's Gardeners' Magazine. A correspondent of that journal made the following experiment: He dug every other row of a potato patch for seed while the vines were fresh, and exposed them in the sun until they had become green. In February, he cut them crosswise, leaving the bottom and top in separate sets. He cut those which had been suffered to ripen in a similar manner, and planted the four kinds in alternate rows. They were all planted on stable litter, and covered with about three inches of earth. A part of each kind received no subsequent earthing. We give the result in the writer's own words.

> "The early potatoes not earthed up, grew close around the stock or stem, like eggs in a nest, and so near the ground that they might be picked off with the finger, leaving the stock or stem uninjured, to produce more potatoes from the runners. From the eye sets of the unripe tubers, we had a supply every day for a fortnight; when those of the bottom sets came into use for another fortnight; at that time potatoes from the eye or top sets from the ripe seed came into use, and were succeeded by potatoes from the bottom sets of the ripe seed.—Those kept for seed, or the table, were earthed up as usual, and each row produced almost as large a crop as any two rows not earthed up—the luxury of an early potato being a greater object than the quantity."

Choice of sorts.—There is a difference of nearly one-half in the nutricious or fattening properties of different varieties of the potato. Those which are best for table are best for market, and best for farm stock, though their yield is generally less than that of the coarser varieties. Those in the highest esteem are the Pink-eyes, Mercers, Sault St. Marie, St Helena; and almost every district has its other favorites. The Rohan, we think, will ultimately obtain the ascendancy, on account of economy in seed, its yield, and its intrinsic merits.

Mode of planting.—Three modes are practised; in hills and in drills, as a distinctive crop, and in alternate double or threble rows with Indian corn. The propriety of planting in hills or drills depends upon the condition of the soil; if it has been thoroughly subdued by the plough, drills are to be preferred, as they are cultivated with the least expense and generally give the largest product, though they in general demand the most labor in gathering the crop. The practice of raising potatoes with corn, by alternating two or three rows of each, has been eminently successful, where it has been conducted with spirit: the product of the mixed crop has been greater than where each has had a separate department of the field. We omit to notice the Irish mode of planting in beds, as involving an economy in land which we do not require, and an expenditure of labor which we cannot afford. The seed should not be buried more than three or four inches —and the covering should be least in wet ground.

Culture.—The culture of the potato, to be profitable, should be almost wholly performed with the plough, cultivator and harrow—little other labor being required with the hand hoe, than may be barely sufficient to destroy the weeds which these implements do not reach. In the first place, the seed may be covered with the plough, whether in hills or in drills. In the next place, the harrow should be used, before the plants are above ground, to reduce the ridges made by the plough in planting, to pulverize the surface, and to destroy the young weeds. In the third place, the cultivator, or the plough, turning a superficial furrow *from* the plants, may be introduced, when they are not more than six inches above the surface. In the fourth place, the plough may be used to turn a light furrow *to* the plants so as to give their stems an earthing of three or four inches; but the plough should run twice nearly in the same track, that the ridges upon which the crop grows may be rather flat and broad than pointed—rather concave than convex—calculated rather to retain, than to throw off water. Here the hand hoe may be of use in gathering around the stems a portion of the earth raised by the plough, in destroying weeds among the plants, and in perfecting the earthing or hilling process; for the crop should receive no further earthing after the plants are in blossom, when the stolens have shot forth, and the tubers began to form. Earthing after this time causes a new set of stolens near the surface, and a growth of a new set of tubers, which in a measure rob the original ones of their food. We have seen, by the experiments quoted, in raising early potatoes, that the natural place for throwing out stolens, or roots which produce the tubers, is the point of the stem which first comes to the light and atmosphere; that if this point is covered in due time with two or three inches of mould, stolens are protruded into it, which produce the potato; but that if this earth is wanting, the stolens cannot protrude, but that the potatoes grow at the surface, around the stem. After the earthing process described, no further care is required, than to destroy weeds, which may be done with the hoe, or, if long omitted, by the hand.

In harvesting the crop, although we have made much progress in improvement, much remains to be done. The hoe, the dung-fork, the spade, the potato hook, and the plough, followed by the harrow, have each their several advocates. From our experience, we should choose the last first, and the first last, where the crop is in drills; and we should prefer the hook where it is in hills. With the potato hook, when the crop has been in hills, we have thrown out 14 bushels of pink-eyes in an hour, and 27 bushels of the Rohan, though in neither case, did we gather the potatoes—but in both cases, the digging process was thoroughly done. Lawson & Son's potato lifter, figured and described in the August number of our last volume, very much on the model of one before introduced by Capt. Joab Center, seems to be calculated to abridge the harvest labor of this crop. But of this we hope to be able to speak more understandingly another year.

Sorting the crop.—This is an economical process, though little attended to, and may be more profitably done before the crop is housed, or pitted, than afterwards. There is a portion of the crop, often a fourth or a third, which is small, and unfit for the table, for market, or for seed, but which is as good as the large size for farm stock, and which can be economically used for this purpose, in fattening hogs and beef cattle, in autumn and winter. If they are separated at the harvest, they are always in readiness; if not, the sorting is tedious, or is neglected, and the small potatoes are the last that remain, either for the table or for seed. With us the work is a trifling affair. We have a wire sieve, or riddle, the meshes of which are of a size to admit those of a given size, appropriated to swine or cattle, to pass through. As the crop is brought home, a peck is thrown into this riddle, and by shaking it half a minute, the sorting is completed.

Wintering the crop.—The best mode of preserving potatoes in perfection through the winter, is to bury them in shallow pits, in a dry and porous soil—a side hill is the best—where they will be free from water, and to cover them first with straw, and then with earth, and if convenient, coarse manure over the earth, so that they shall be secure from frost. When put in pit or cellar, they should be dry, that is, free from external moisture. Potatoes put into the cellar should be kept as cool as possible without freezing, and air should be excluded by a light covering of mould or sand. A dry warm atmosphere will speedily impair their good properties.

In using potatoes, they are improved by boiling, especially for pigs. The potato belongs to a family of poisonous plants, the *solanum;* the boiling or steaming of which is believed to expel the deleterious, and to improve its nutricious properties. To neat cattle and horses they may be fed raw with manifest advantage. In cooking them for the table, it is preferable to do it by steam. The mode of doinfi it is simple. Get a piece of sheet iron of the size of the bilge of your pot or kettle, perforate it with half inch holes, then clip off two parallel sides so as to admit it into the mouth of the vessel; put it in; put some water *under*, and some potatoes *over*, this perforated iron; and when the water boils, the potatoes will be steamed and prepared for the table: or, if to be boiled, put them in the vessel while the water is cold, that they may heat through as the temperature of the liquid increases—that the inside may cook as well as the outside—and when they are near being done, turn off the water, remove the cover, and leave them to dry over a moderate heat.

We will close this article, already longer than we intended it should be, by giving the culture, expense, product and estimated profit, of two crops raised by ourselves, in different years, upon the Albany barrens, the soil a sand loam.

Culture.—The field was in clover. We applied twenty-five loads of long manure, in May, to an acre, and dropped it at suitable distances for spreading; marked out two lands of equal breadth, twenty feet; and having the seed prepared, proceeded to planting, which occupied three men, a boy and team three half days. One man took charge of the team; a second raked the manure into the furrow, and trod it down as he went on; and a third spread the manure, and with the boy dropped the seed. The rake followed the first furrow, and the manure from two and a half feet surface was drawn into it, and the sets, or seed, dropped at eight inches distance on the manure. The plough followed and turned three furrows, or made three bouts. In the mean time the manure and seed were deposited in the first furrow of the second land, to which the plough followed, and in this way they alternated till the planting was completed. The ground was then rolled, harrowed as the plants began to break the surface, and subsequently ploughed between the rows, and hand hoed once. About half the field was a dry sand knoll, which suffered severely from drought; and the crop here was but a little more than fifty per cent of the other half. The product was ascertained by the agricultural committee, and the product stated embraced the average of the entire acre.

EXPENSE OF EXPERIMENT I.

Man and team 1½ days, ploughing in seed,	$2 00
Two men and boy planting same,	2 00
25 loads manure, at 75 cents,	18 75
25 bushels seed, at 50 cents,	12 50
Rolling, harrowing and ploughing,	1 00
Hand hoeing once,	1 50
15 days taking up crop, (a long time,)	11 25
Rent,	5 00
	$54 00

PRODUCT.

359 bushels large potatoes, at 50 cents,	$179 50	
71 do small, at 12½ cents,	8 88	
		$188 38
Deduct charges,		54 00
Nett profits in experiment 1,		$134 62
At 2s. a bushel the nett profit would have been		$45 25

EXPERIMENT II.

Culture.—This crop had been preceded by wheat. It had 25 loads of long manure, spread and ploughed in. The ground was then harrowed, furrowed or listed with two and a half feet intervals, the seed dropped at eight inches, covered with a plough, a furrow on each side, and the ridgelets rolled. The after culture consisted of two horse and hand hoeings. The crop was harvested with the plough and potato hooks. The product was determined by the agricultural committee:

EXPENSE.

One ploughing,	$2 00
25 loads manure, at 75 cents,	18 75
25 bushels seed, at 50 cents,	15 50
Harrowing, furrowing, rolling and horse hoeing,	3 00
Planting and covering, 3 days,	2 25
Hand hoeing, 2 days,	1 50
Taking up crop,	9 00
Rent,	5 00
	$53 90

PRODUCT.

333 bush. merchantable potatoes, at 50 cts.	$191 50	
77 do small do. at 12½ cents,	9 62½	
		$201 12½
Deduct charges,		53 90
Nett profits,		$147 22½
At 25 cents per bushel, the profit would have been about		$52 00

In these estimates, the whole manure is charged to the crops. Deducting one-half, as is customary, the profits would have been $9.37½ more in each experiment.

Maple Sugar.

We often neglect to profit by things within our reach, and are constant in our eagerness to grasp those which are remote and doubtful. This is particularly the case in regard to our sugar giving maple. We have perhaps enough of this species of tree in our state, to furnish our whole population with sugar, were the business properly husbanded; and if not enough, they might be sufficiently multiplied in time to serve the next generation. The sugar which this tree yields is as good, or may be made as good, as that which comes to us from Louisiana, or the West Indies, and by simple means, available to every sugar boiler—the means which give to sugar the character of white Havana.

As there is much of this article badly manufactured,—and as its value may readily be doubled, and its quantity greatly increased—to aid in these desirable ends, we shall here state the whole process of manufacture, as given to us by a gentleman long practised in the business, and who makes three thousand pounds a year, equal, he says, to any that can be produced from the cane or beet.

He first procures sap buckets equal to the number of trees he intends to tap, which are of course always kept in a cleanly condition. These are perforated with a hole near the upper part of a stave, large enough to admit freely the head of a large nail, upon which they are to be hung, and which nail is to be firmly driven into the tree, near where it is to be tapped, and which may be at any height within reach. The tree is bored, the quill or tube to conduct the sap into the bucket inserted, and the bucket hung upon the nail, and in contact with the tree, to catch the sap. This completes the first process. The second is to gather the sap to the boiling house. To do this in a cleanly manner, butts or large casks are placed upon a sled, with coarse linen strainers tied over the tops, leaving the centre of the strainers to sag so far into the casks as to form a basin large enough to hold a pailful of sap.—This sled is drawn through the sap orchard, the sap gathered and turned upon the strainer, and then deposited in the sap reservoir, near the boiling pans. The strainers keep the sap in the casks, and keep leaves and other foreign matters out of them. This completes the second process. The third is the boiling process. For this purpose, broad sheet iron pans are employed, not more than twelve inches deep, both because they give the greatest surface to the fire, and the greatest to the air, and consequently accelerate most the evaporating process. The sap reservoir, or cistern, is placed so high, that tubes from it conduct the sap directly into the pans, so that when the boiling is started, these are opened, and the pans receive a constant and regular supply. The fourth process, that of clarifying the syrup, and the fifth, sugaring off, we did not particularly learn, and inferred that there was nothing particularly in them differing from the common modes of practice. The next and last process, claying, is the most important. To perform this, a bored log, resembling a pump log, is placed nearly horizontal, one end inclining towards a tub or barrel, to catch the molasses; holes are made on the upper side of the log, and to the centre bore, to admit moulds, of the shape of a sugar loaf, the lower or smaller ends of which being temporarily stopped, the sugar, after it has granulated, is put into the moulds, the latter set in the bored log, and a coat of the best Amboy clay, reduced to a paste, is then spread over the sugar, in each mould, to the thickness of an inch or more, and the plugs drawn from the bottom of the moulds. The water in the clay percolates through the sugar, carrying with it the colouring matter and molasses, falls into the bored log, and passes off into the tub or cask. If the first claying does not suffice to render the sugar sufficiently white, when it becomes dry it is taken off, and a second is applied, when the process is completed.

This is the mode of producing clayed sugar in Cuba, where the clay is sometimes thrice repeated; and it seems to be the mode now adopted in France with beet sugar; and a recent improvement consists in refining it without removing it from the moulds, by the aid of heat and pressure.

We have obtained from the gentleman, whose process of making sugar we have been describing, the following description of his

SAP BOILERS AND MODE OF SETTING THEM.

The best vessel to boil sap in, to reduce the same to syrup, is made of Russia sheet iron; and its size may be in proportion to the quantity to be boiled. The sap of a thousand trees may be easily evaporated in an apparatus such as I will describe.

Make of Russia sheet iron, a pan about six feet long and four feet wide, with sides at right angles, of the same material—six inches high. Also another pan of the same material and construction, but ten feet long and four feet wide.

Erect an arch of free stone or brick, with grates to lay the wood upon, and a good iron door to give a draught, so that the air passing into the arch shall be heated before it touches the bottom of the pan. The plan of the distillery arch will give the idea perfectly, but this is not near as expensive. Set the small pan nearest to the mouth of the arch—say within two feet of it. Let the sides of the pan rest on the sides of the arch about four inches, and at the ends and middle let it rest on three good bars of iron, to prevent its sagging. Let these bars be chamfered on the front edge, so as not to catch the wood as it is carelessly thrown into the arch, and let them be long enough so as to protrude over the arch on both sides, and be bent over at the ends, so as to prevent the arch from spreading, and the bars from sagging when heated.

At the farther extremity of the arch set the larger pan, as you have set the smaller one, only let the arch be raised about six inches higher, so that the bottom of the larger pan may be a little higher than the top of the smaller. Set this pan a little dipping towards the smaller, and in the lower end, and close to the boiler, insert a small stop cock. Let the chimney of the arch be immediately beyond the further end of this last mentioned pan. The mason will of course know how to construct the arch, so as to have a good draught. It is desirable to set the arch near to some bluff, so that the sap, when collected in a reservoir, may flow directly into the upper or larger pan.

Both pans are then filled with sap, and fire is put under; and afterwards the sap is only let into the upper pan, and from that into the lower, through the stop-cock above described. In this manner, the lower pan is fed constantly with hot sap, and is constantly boiling.

You syrup down only in the lower pan, and you do not sugar off in either.

You cannot make these pans boil over, and when syruping down, cannot burn the sap, as in the cauldron or pot ash kettle. The wood should be collected and prepared the season before, and kept dry.

As the correspondent, at whose particular instance the above is furnished, may wish to employ kettles instead of pans, we will add, that the great point to be obtained, in constructing an arch, or furnace, is to expose the greatest possible surface of the boiler to the immediate action of the fire. To effect this, two rules are to be observed—first, to conform the brick work to the shape of the boiler, leaving an interval of four or five inches only between them, and to suspend the boiler by the flange resting upon a course of brick set edgeways. Second, to elevate the grate for the wood—an ash pit being left under it—three to six inches above the bottom of the boiler—so that the flame will surround and cling to the boiler on its way to the chimney—and not pass under the bottom and only upon one of its sides.

Litter your Cattle Yards.

Every farmer has, or ought to have, from the produce of his farm, quantities of straw, corn stalks, and other coarse vegetable matters, which the cattle reject, but which is yet good and profitable food for his farm crops, if properly husbanded and judiciously applied. In a well constructed yard, calculated to retain the urine of animals and other liquids, the coarse litter should be spread at intervals through the winter. It thereby becomes doubly enriching to the soil, when spread upon it, by the fertilizing properties of the liquids which it there imbibes. Arthur Young understood the economy of enriching lands, as well as of fattening cattle. He says, if litter is scarce, two tons may be made to suffice for a fattening beast during the winter months; though if plenty, or in situations where litter can be *purchased*, he thinks an animal may convert much more into rich manure. The Flemings count upon the urine of their farm stock as nearly equal to the other excrementitious matter, and they save and apply it with care. We almost wholly lose those fertilizing matters, yet we can mostly save them in concave cattle yards, if we will frequently apply litter to absorb and take them up. He that wastes or sells his litter, is a bad economist, unless he brings from market a return load of dung. The man who rides a load of straw ten miles to market, barely gets pay for his time, while he robs his soil of that which would increase its products. Straw, manufactured into dung by the farm stock, is worth more in the soil than it is in the market, even were the expense of transportation in both cases alike. But it is the waste, or a want of the due application of litter, that is most to be complained of. Let it be remembered, that every vegetable substance, however worthless it may seem, is convertible, if buried in the soil, into corn, roots, hay and pulse, and ultimately into meat, cheese, butter, wool, &c., and that he who would realise the interest must deposit the principal.

To illustrate more forcibly the value of straw and other litter, in augmenting manure, we quote the following from the Farmer's Calendar.

"Mr. Moody—Forty-five fat oxen, in fatting, littered with twenty wagon loads of stubble, raised two hundred loads, each three tons, of rotten dung, worth 7s. 6d. ($1.65) a load.

"Every load of hay and litter given to beasts fatting on oil-cake, yield seven loads of dung, each one ton and a half, exclusive of the weight of the cake.

"Mr. Arbuthnot, one hundred and thirty-four sheep and thirty lambs, penned six weeks in a standing fold, and littered with five loads and forty trusses of straw, made twenty-eight large loads of dung." The straw, at 20s., cost £5.15. The dung was worth £10. Profit £4.5. ($19.20.)

"William White—Thirty-six cows and four horses tied up; ate fifty tons of hay, and had twenty acres of straw for litter: they made two hundred loads of dung, in rotten order for the land."

Messrs. Moody and Abuthnot say it answers well to buy litter with a view to dung; that in feeding oxen with oil cake, one load of straw makes seven loads of dung, each a ton and a half; and that in feeding sheep with turnips, one load made more than 4½ large loads, worth 7s. 6d. each. Mr. White, with 30 loads of straw, made 200 of manure in littering cows, which is 6⅔ of manure for one of straw.

"I have found," says Mr. Young, "by experiments very carefully made, that a ton of straw used in littering a stable kept dry, and the urine not retained, will give three and a half to four tons of dung; but used in littering fat hogs, a ton gave seven or eight of dung."

Our Premiums.

After we had awarded our premiums for 1838, and the sheet containing the award, had been struck off, (Jan. 15,) we received the two applications for the Indian corn premium, which appear in our paper of to-day. Under these circumstances, the last applicants must be content with the reflection, that they have set good examples in farming, have obtained profitable crops, and have *deserved* premiums; and, as we intend to offer other premiums for the coming year, we hope they may yet do better, and put in their claims *in time.*

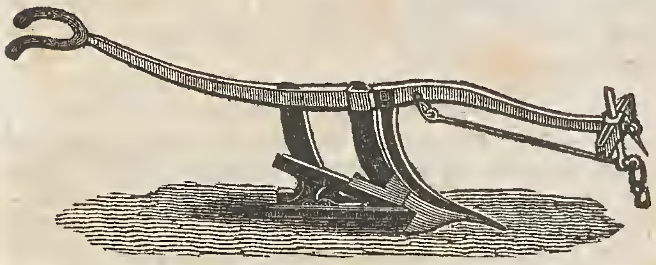
We also received, *in time*, a drawing and description of a farm dwelling-house. The drawing was mislaid, but has since been replaced. This communication contains no estimate of the expense—a material point to one who may wish to adopt the model—as every man should count the cost before he begins to build. We beg our correspondent to supply the deficiency. We have also received, (in Feb.) three other plans and descriptions of farm houses. We intend to publish all these communications, in some one of our future numbers, with the drawings which accompany them; and to prolong the time for competing for the twenty dollar premium offered for the best plan, to January, 1840. In the mean time, we ask such of our correspondents as have not done it, to send us estimates of the cost of materials—wood, brick or stone—for buildings like those they have severally described.

Whitington Spring Wheat.

We noticed the receipt of a sample of this beautiful grain in our January number. Mr. George C. Thorburn, of New-York, has just received a few bushels from England, which he sells at $8 per bushel.

Smith's Subsoil Plough.

[Fig. No. 1.]



The objects sought to be obtained by the use of the subsoil plough, are these, viz:

1. To permit the surplus water to pass down.
2. To render the subsoil permeable to the enriching influence of the atmosphere—to those chemical changes which take place in a fallow; and ultimately to deepen the super-soil, and thereby increase the pasture for the plants growing upon it.

A superficial soil, upon a tenacious subsoil, is often cold, inert and precarious, by reason of the water which settles upon the latter, stagnates in summer, and becomes prejudicial to healthy vegetation. By deepening the permeable stratum from six to twelve inches, with the subsoil plough, the surplus water settles down that much lower, and often beyond the reach of the roots of the crop, and the soil becomes correspondingly better fitted to sustain a healthy vegetation. Crops will not do well where the roots penetrate a stratum abounding in water.

The atmosphere is always charged with the food of plants, in a gaseous form; and the subsoil contains more or less of the elements of this food, insoluble or useless, from the presence of too much water, and the want of atmospheric and solar influence to render it soluble, and fitted for the absorbent vessels of the plant. The subsoil plough not only frees it from excess of moisture, but renders it pervious to atmospheric and solar influence—not only converts the insoluble into soluble food, but adds to it the fertilizing properties of the atmosphere.

By the operations of the subsoil plough, in a few years, the loosened subsoil acquires the fertility of the super-soil, and becomes blended with it; the tilth, the pasture of plants, is deepened and enlarged; the roots have a wider range; the soil will support a heavier crop, and the danger from drought as well as from heavy rains, is materially lessened.

The advantages which have resulted from the use of Smith's plough, were sometime ago noticed in the Cultivator. Its reputation for usefulness has not since been impaired. At the Northumberland cattle show, in October, Mr. Gray, in the course of his remarks at the dinner table, stated, that his attention had been called, a few days before, to a field of wheat, one half of which had been ploughed with a subsoil plough, and the other half by the common plough. "Both of the divisions of the field," said Mr. Gray, "were equally fallowed and manured, and there was indeed, no difference between them, except as to the mode of ploughing. He had carefully examined the results, and had no hesitation in saying, that the half which had been submitted to the operation of the subsoil plough, had produced a crop full one third more than the other half; and many persons who had compared the respective crops, gave it as their opinion, that the produce had been doubled by the use of the implement in question. The diminished produce on the latter part of the field, was occasioned by the water settling in the furrows, and damaging or rotting the stocks, an injury which is obviated by the use of the subsoil plough. In the part worked with this no distinction was observed in the crop between the ridges and the furrows, but every part bore an abundant crop of fine wheat."

It is not to be understood, however, that the subsoil plough is to supersede underdraining in all cases.

Clover—Its Value for Cattle, for Seed and for the Soil.

We have received a communication from Mr. Henry Brewer, of Enfield, Tompkins, illustrating strongly the value of clover, as a means of keeping up the fertility of his land, and of rendering its culture profitable. Mr. Brewer was from old Dutchess, the land of clover. He purchased his farm in Enfield, in 1830, at $8.50 per acre. It now gives a product of from fifteen to forty dollars per acre per annum; and the improvement and the profit he ascribes principally to the cultivation of clover. As the communication is very lengthy, and having the writer's permission so to do, we give the purport of it in a condensed form.

Mr. Brewer remarks, that New-York farmers pay to those of New Jersey and Pennsylvania, annually, many thousand dollars for clover seed, which they might raise for themselves with profit. He would as soon think of buying his seed oats and seed wheat, as his clover seed. He prefers the southern or dwarf clover, because it is fit to cut five or ten days earlier than the tall growing or northern kind, and is more certain of ripening the seed of the second crop. He sows with his small grain, at the rate of fifteen lbs. the acre, and sometimes sows his corn fields after the last hoeing.

Mr. Brewer appropriates his clover to three very valuable purposes—to feed his stock, to fertilize his land, and to fill his purse—and he has succeeded admirably in them all, so far as we can judge. His cattle thrive upon it both as a green and a dry crop—in summer and winter;—his wheat and corn feed and thrive upon it, when buried and decomposing in the soil;—and his purse increases with the increase of his cattle and his crops. And finally, besides feeding his cattle, and fertilizing his soil, the seed of his second crop gives him an acreable profit, annually, of from fifteen to fifty dollars. Now there is no secret in the business—no patent right. He gives you his whole process, that you may profit by his example if you will. We will endeavor to give it in concise and plain terms.

Clover is either used for hay or pasture the first crop, and uniformly for seed and forage the second crop. If for pasture, he turns upon it his stock about the first of May, or when the soil has become so firm that the feet of the cattle will not poach the sod. At this time, the growth is such, as to enable the cattle to thrive. He pastures till about the 20th June, and the closer it is cropped at this time, the better, he thinks. The cattle are then withdrawn, and the second crop is permitted to grow and mature its seed. If the first crop is designed for hay, it is cut from the 20th to the 25th June, although it may not have passed the bloom, or arrived at that state when most farmers deem it in a proper condition to cut. It is important to cut it as early as the 25th, Mr. B. thinks, in order to give the second crop time to grow and mature its seed before it is injured by the frosts of autumn—five days often making a material difference in the seed crop. We do not like Mr. B's mode of curing this early cut clover: he takes it, when partially cured, to his barn, and spreads it about upon scaffolds and poles, till made, and then puts it into his bay. This causes unnecessary labor. Cured in grass cocks, according to our repeated directions, it will be as good as when spread over a barn, and more than half the labor will be saved. Mr. B. thinks clover hay made in the shade is much better than that which is made in the sun. "The next way of curing this green clover," says the writer, "is with wheat straw, that has been kept in the barn for that purpose, by laying a course of hay and then of straw, and so on, until you have it all secured." The importance of mowing the first crop early, is illustrated by the fact, that one of Mr. B's neighbors, who had been persuaded to cut his first crop some days earlier than usual, acknowledged that he should obtain last season, thirty bushels more clover seed than usual, in consequence of it.

The seed crop is gathered with care, and brought to the barn as soon as it is fit, that rain upon it, or unnecessary exposure to the weather, may be avoided, both of which materially impair the value of the buts or straw for fodder. The heads are separated with a flail, and the seed extracted by Robert Rittenhouse & Co's. patent clover machine. The average product in seed, is four to five bushels the acre; which, at present prices, is worth sixty to seventy dollars—a tolerable acreable profit for a second crop. In regard to his clover machine, Mr. B. has cleaned four hundred bushels of seed with his, without a dollar of expense in repairs. It is portable; and "when there is once a machine in a neighborhood," says Mr. B. "I think the farmers will then raise their own seed, as is the case in my neighborhood. And if they raise it themselves they think it costs nothing; they then sow liberally, and get a bountiful return." The clover machine costs sixty dollars, and it would verily seem to be worth more than that amount annually to the farmers of the neighborhood. Mr. Brewer's machine was made by Blackwell, of Albion, Orleans county.

In regard to the value of clover in keeping up the fertility of the farm, Mr. Brewer considers it of the first consequence; for, says he, "I think I can manure my farm with clover, cheaper than I can cart out my manure from my own barn yard; although I have it all carted out in the spring of the year for my hoed crops, while unfermented, because I think it of more value to have it rot in the soil than in the farm yard. I do'nt wish to have it understood that I am an advocate of the miserable practice of leaving my manure in my barn yard, as many of my neighboring farmers do, to waste one half of its best qualities, for I have it thoroughly cleaned every year."

One word as to the condition of the farm when it came under Mr. B's management. The soil is described as a sandy loam, mixed with slate gravel, and most of it very stony. When he came on to it in 1830, "there was about fifty acres of cleared land, and it was considered one of the poorest farms in the town, by my neighbors, who assured me I could not get grass enough from the farm to keep one cow. There was but two acres of meadow upon it, and that was too wet to plough. But this did not discourage me. I purchased two and a half bushels of clover seed the first spring, which some of my neighbors thought was enough to seed my whole farm, weeds and all; but I sowed it on sixteen acres." Such was Mr. Brewer's beginning; and the reader is already advised that this spirited beginning has been followed up for eight years with increasing advantage. The wheat crop has averaged from eighteen to twenty-four bushels per acre.

An Agricultural Society in Montgomery.

A society is organizing in Montgomery, under the style of "*Agricultural and Rural Society*," calculated to produce the best results, and to benefit every class and age of the population. Every town is expected to organize an auxiliary society, the president of which is a vice-president of the county society; and the school districts constitute in a measure departments or branches of the town societies. The plan embraces—

"1. Whatever regards health and domestic comfort—and includes a provident care of all domestic animals.

2. An improvement in the breeds of farm stock, and a better provision for their maintenance and comfort.

3. An improvement in garden culture, orcharding and rural embellishment.

4. Improvement in common roads,—an improvement much wanted every where among us. And as a sure and solid foundation to the whole,

5. *Common Schools*—On the improvement and success of these, perhaps all else depends. There must be introduced agreeable manners and systems of education, to invite and allure children to useful action. Right education developes and directs powers of mind and body, where energies might otherwise slumber, or do mischief for life. It forms and fixes individual, social, and national character. There must be provided competent teachers, and geometrical forms and figures of surface and solids; mechanical, mathematical and philosophical instruments and apparatus, and correct engravings and colourings to explain the general anatomy and economy of animals and vegetables; collections of plants and minerals. Books, composed and compiled, suited to the intelligence and condition of children; few such are to be found, and perhaps none, exactly fitting for American education. Adequate teachers are almost equally rare. Children themselves, and parents, and the friends of education, liberty, morals and religion, may do much, yet the co-operation of the legislature is demanded in a plan so desirable, so general and evidently so practicable."

Cuts of Farm Implements.

We have received several drawings of new farm implements and machinery, to be inserted in the Cultivator. The rule we have adopted in regard to these is this. If the implement is patented, the right of using it is private property, and the patentee, or proprietor, must be at the expense of the cut, if one is to be inserted. If there is no patent right, and every one has a right to make and use it, we are at the expense of the cut, if we deem the implement one of manifest public utility. This rule has only been departed from when we have been presented with the new implement, and have been satisfied, upon trial, of its usefulness.

Patent Office.

It appears from the annual report of the commissioner, that 520 patents have been issued during the last year; that 224 patents have expired; that the receipts of the office have been $42,123.54, and the ordinary expenses of the office have been $19,180.18—leaving a surplus of $19,243.36.

Farmers' Garden.

PERENNIALS, BIENNIALS AND ANNUALS.

Perennials do not generally flower the first year, but die down to the ground, and spring up again the next spring, for a number of years—as peonies, lillies, &c. *Biennials* flower the second year and then die. *Annuals* flower and die the year they are sown. We shall omit the botanic names, and notice such as are most conspicuous for beauty and fragrance, and are of easy culture.

1. *Amaranthus,* the globe and the tricolour, the first admired for its everlasting flowers, and the latter for its foliage. Plant the seed in May, and allow the plants room to spread. Annual.

2. *Aster,* (China) An annual. The double, or quilled and the German, or striped flowered, are most admired, though a bed of the early flowering, exhibiting as they do a great variety of colours, is highly ornamental. Sow early. If a small space in the hot bed can be given to this, the amaranthus, balsam, &c. their season of flowering may be greatly accelerated.

3. *Balsams,* a beautiful annual, of infinite varieties, very much improved within a few years, in brilliancy and in combination of colours. One of the most showy flowers for the autumnal borders. Gather seeds before the pods change colour, and sow early.

4. *Canterbury Bell,* biennial, admired for the profusion of its large bell-shaped blue and white flowers.

5. *Chrysanthemum,* perennial, much admired, of many varieties, propagated by dividing the roots. South of New-York they generally flower well in the open ground; but in our borean region, they must be potted in August or September and sheltered to produce flowers. Many of the varieties are brilliant when in bloom.

6. *Carnation,* beautiful and fragrant, but too tender for the open ground in winter. It flowers in summer, and should be taken in before severe frosts occur. Propagated by pipings, layers or division of the roots.

7. *Crown imperial,* a splendid bulbous rooted plant, flowering early. Plant in autumn, four inches deep. Multiplies by offsets, and is produced from seeds.

8. *Crocus,* a small bulbous rooted perennial, multiplied by offsets—hardy, flowers very early, and is of various colours. Plant in autumn two inches deep.

9. *Columbine,* very common, very neat—many species,—perennial. Seeds.

10. *Crimson monardia,* (high balm,)—well known. Offsets.

11. *Convolvulus,* an annual, many species, as the morning glory, bell of day, &c. admired. Sow the seeds early.

12. *Coreopsis* tinctoria, a pretty annual, with yellow flowers, and a dark centre, which, when once introduced, propagates itself, as the plants which spring up from the seed self-sown, endure the winter's cold, and flower the earlier. It may be sown in September. There are several other species of the coreopsis.

13. *Candytuft,* white and purple flowering, are pretty dwarf growing annuals, the seeds of which should be sown early.

14. *Coxcomb,* an annual; like the amaranthus and eternal flower, it retains its beauty through the winter, if gathered before frost. Sow early, and in hot bed if convenient.

15. *Clematis,* (Virgin's bower.) Several species, beautiful perennial climbers—some woody—some indigenous. Seeds.

16. *Dahlia,* too well known and admired to need a description. It is one of the greatest ornaments of the garden, and often flowers from June to October. It possesses about the same hardiness as the potato, and like the potato may be started in the spring in earth in the green-house or dwelling, though the stem should not be exposed in the open ground till the first of June. A stake should be put down by each plant, which should retain but one stem, to tie the plant to as it grows. The roots may be divided into as many parts as there are sprouts. Plant from three to five feet apart in moist rich ground. The roots should be taken up after the plants have done flowering, and being suffered to dry a few hours in the sun, may be packed for the winter in dry sand, and placed in a dry cellar, or cellar kitchen. They do not bear frost or great humidity. A dozen will afford a pretty variety of colours.

17. *Daisy,* a modest but beautiful dwarf perennial, suitable for the border, producing double white and pink flowers, multiplied by seeds or offsets.

18. *Double perennial Sunflower,* produces an abundance of double showy yellow flowers.

19. *Eternal flower,* red, white, purple and blue, all beautiful, the flowers retain their colours through the winter, and, like the amaranthus and coxcomb, make a fine appearance in vases.

20. *Eupatorium,* a perennial with blue flowers much admired. Divide the roots.

21. *Evening primrose,* (onothera) several species, perennial and annual, the dwarf annual particularly handsome.

22. *Eltscholtzia,* (Californica,) a dwarf of beautiful foliage and a yellow flower, sows itself, and is long in bloom. If a little protected, the plants will stand the winter, and flower early.

23. *Foxglove,* white and purple flowering. Produced from seed. Perennial. Sow early, and cover the seed lightly.

24. *Fraxinella,* perennial, white and pink flowering, the blossoms and capsules possessing a peculiar aromatic fragrance. Seeds.

25. *Hyacinth,* a bulbous rooted perennial, producing beautiful and fragrant flowers of various colours, single and double. Usually multiplied by offsets.

26. *Hollyhock,* or holy-oak, termed a perennial, but is rather a biennial, unless the stems are prevented from seeding. It is a showy plant, of a multiplicity of colours, and some of the double varieties have all the delicacy and beauty of the rose.

27. *Iris,* or fleur-de-lis—many species, embracing different combinations of colours—is generally grown on the border, and the dwarf kinds are used for edgings. Multiplies rapidly.

28. *Larkspur.* There are several perennial species, much admired for their beauty, particularly the Chinese double flowering, which last can be only multiplied by dividing the roots—the others producing seeds. There are other species that are biennial and annual. The rocket, (ajacis,) sown in a bed in September, produces the next season, the most brilliant spikes of diversified flowers.

29. *Lily.* There are many beautiful species belonging to this genus, and several of them are natives of our woods and meadows. We have transplanted the common meadow lily, (*superbum,*) when in full bloom, and some of them, under culture, have produced from 30 to 47 flowers upon a single stem. The tyger lily is very showy. Propagated by seeds or by dividing the roots.

30. *Lupins,* several species, perennial, having showy flowers, propagated by seeds.

31. *Lobelia,* the scarlet and the blue, are both natives and are perennial, and pretty flowering plants. Seeds.

32. *Lichness,* the double scarlet, fulgens and double ragged robin (*flos cuculi*) are beautiful species of this family. These kinds propagated by dividing the roots.

33. *Lichnidia,* or phlox, several species, of various colours, coming into flower in succession. Propagated by dividing the roots.

34. *Monkshood,* the common, a blue flower, and a new kind has variegated flowers.

35. *Mignionet*—admired more for its fragrance than the beauty of its flowers. Annual—seeds.

36. *Musk plant,* a dwarf annual, with small yellow flowers, highly scented with musk. Sows itself when once introduced.

37. *Narcissus,* a bulbous rooted plant, managed like the hyacinth—blooms early, is beautiful and fragrant. The polianthus narcissus and jonquils, both elegant flowering plants, are propagated and cultivated, in all respects, in the same manner.

38. *Nasturtium,* is an annual, two varieties, with showy flowers, cultivated principally for their fleshy pods, which are gathered before they are ripe, and pickled. They are used as a substitute for caper sauce.

39. *Pæony.* The double scarlet is common, the double blush less so; but the Chinese, of which there are at least three herbaceous kinds (*Whitleji, Humei and Fragrans*) are equal in beauty, and surpass the others in fragrance. There are several other kinds of less note.

40. *Peas*—The everlasting is perennial, and there are several annuals, differing in flowers and fragrance.

41. *Pink*—a large family of plants, embracing the Sweet William, clove, China, and many other species. Some are equal in beauty to the carnation, and the pheasant-eyed, which is propagated by layers, affords at all seasons, a beautiful tuft of green foliage.

42. *Poppy,* perennial, has a very large, showy scarlet flower. There are two or three oriental species. Seeds.

43. *Poppy,* annual—many varieties, and of brilliant and diversified colours. To perpetuate double ones, those with single flowers, growing near, should be destroyed as soon as the flower buds burst.

44. *Petunia,* an annual of recent introduction, purple and white flowering—flowers very abundant, resembling in size and shape the morning glory.

45. *Purple hyacinth bean,* makes a very pretty show when trained over an arbor, or upon a wall.

46. *Polyanthus*—many varieties—a bulbous rooted plant, treated like the hyacinth. Offsets.

47. *Spiderwort,* three kinds, blue, pink and white flowered—perennials. Divide the roots.

48. *Tulip.* A great many varieties of this beautiful plant are annually imported, and the finer kinds command a high price. It may be raised from seed; but the more ready way is to plant the bulbs, which multiply by offsets. The tulip should be planted at six inches distance, in a rich soil, and the bulb should be surrounded by sand when planted. Plant three inches deep. The roots should be taken up at least every second year and divided.

49. *Violet*—many species and varieties. This has now become an amateur flower in Britain; violet shows are frequent, and prizes are awarded for the best flowers. The choice kinds have been partially cultivated by amateur florists among us.

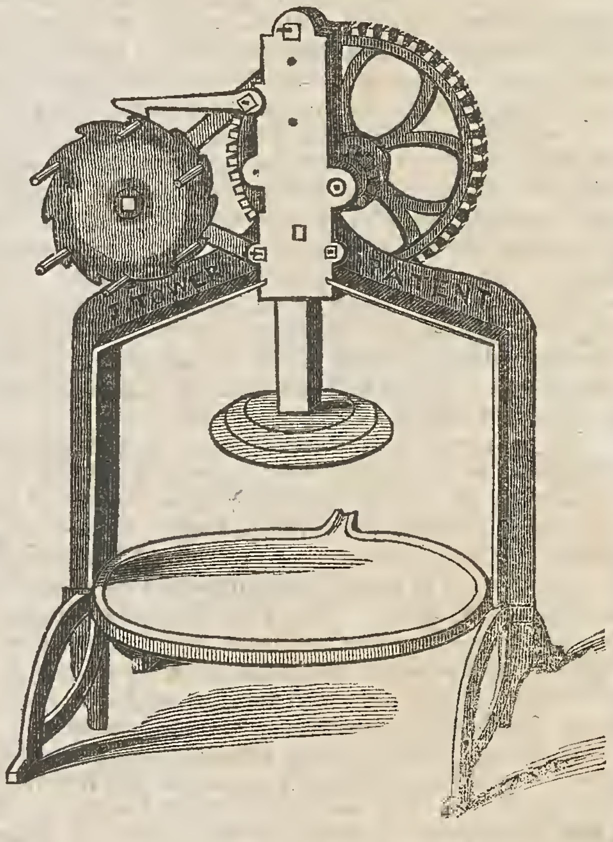
This list of ornamental plants might be greatly extended; but we opine it will be considered already too extensive for a farmer's care. If so, it admits of being curtailed to suit the taste or the convenience of the cultivator. Our woods and meadows, and swamps abound with ornamental plants highly prized in Europe; and which would also be admired here, were they not common. A collection of such as are not here enumerated may be made without much trouble or expense, which would add greatly to the beauty and variety of the ornamental grounds.

The ornamental department may be blended with the fruit and kitchen departments; it may be spread through these and the court-yard, or grounds about the dwellings, or it may constitute a distinct department, under the name of flower garden or shrubbery, combined or separate. In whatever manner it is arranged, it should be contiguous to the dwelling, of easy approach, and where it may be seen from the doors and windows.

Tower's Cheese Press.

We called the public attention to this press, of which we here give a cut, in October, 1837. The inventor, Jonas Tower, lives in Madison, Ohio.—We here figure and again notice it, because we deem it the best that has ever come under our notice; and were it in market here, we doubt not it would sell well.

[Fig. No. 2.]



The press is entirely of cast iron, except the lever. It occupies about two feet square, and stands about three feet high. It is on the principle of continuous pressure; the power may be increased at pleasure, to almost any required extent, by a youth of twelve years old. It is simple, and can hardly get out of repair. Its advantages are—

It occupies but little space; and

The pressure may be graduated at pleasure.

The Silk Business.

An uncommon degree of public attention has been turned to this subject during the last few months. A national convention of silk growers was held at Baltimore, in December, as we have already noticed. Since which time, state conventions have been held in Maryland, Pennsylvania and some other states, and the "*Journal of the American Silk Society, and Rural Economist,*" has been commenced at Baltimore, by J. S. SKINNER, the original publisher of the American Farmer, assisted, we believe, by G. B. SMITH, two gentlemen eminently qualified to conduct a publication of this kind. The Journal is to be published in monthly numbers, each number to contain thirty-two pages, 8 vo., at two dollars a year, to be paid in advance. A prospectus of the Journal may be seen at the office of the Cultivator, where subscriptions for the work will be received. The first number contains the proceedings, including the debates, of the national convention, and of the American silk society, an address to the people of the United

States, which we insert in another column; and several other matters of great interest to the silk grower. We commend this publication to the notice of all who have commenced, or who intend to commence, the silk culture.

Extensive preparations are making, and heavy capitals have been put in requisition, to extend greatly this business the coming season, particularly in the middle states, where we think it can be managed with the greatest economy; while the northern and eastern states will probably be found to excel in growing the sugar beet, as this is more properly the beet zone—the root grown here abounding more in sacharine matter than that grown at the south. This is inferred from the fact, that the beet grown in the northern departments of France furnishes a richer juice than that grown in the southern departments.

The Ohio State Agricultural Society,

Was organized early in January. Samuel Spangler was appointed president, and William H. Harrison and eighteen others, vice-presidents. It has commenced its operations with a spirit which presages much good to the state; and which will tend to arrest, we doubt not, that exhausting system of culture, common to the settlers on new lands, which has so lamentably impoverished the soil in the old settled states. The society resolved to establish a state agricultural journal—to petition the legislature for pecuniary aid, and to provide for an agricultural survey of the state;—to inquire into the propriety of invoking the aid of the national and state governments in purchasing, for the use of the society, a farm, or a tract of land, for the purpose of making experiments, and establishing thereon an agricultural school; and to take measures for the organization of county agricultural societies, of which, however, several already exist.

The establishment of a state agricultural journal, will no doubt accelerate agricultural improvement; but its potency and its benefits will be more than doubled if the society can introduce it into common schools, or common school libraries. It will contain much matter of interest to the boys, and will beget in them a taste for useful inquiry and experiment; and in this way too will incidentally be brought under the eye, and made to exert a benign influence on the practice of thousands of parents, who, if they read at all, must in this or some other way be decoyed into the habit. [We beg to make our acknowledgments to the society for the compliment it has done us, of enrolling the name of the Conductor among its honorary members.]

To Preserve Poultry in Winter.

About the 15th November, the Conductor purchased a quantity of poultry for winter use. The insides were carefully drawn, their place partially filled with charcoal, and the poultry hung in an airy loft. It was used through the winter, till about the first of February, and although some was kept seventy days, none of it was the least affected with must or taint—the charcoal having kept it sweet.

Relative Advantages of Large and Small Sheep.

In the proceedings of the Penrith Agricultural Society, England, we find some remarks of Mr. Gray, on the comparative profit, to the grazier, of large and small breeds of sheep, which we transfer into our columns for the benefit of our readers—of the buyer as well as the seller of mutton. It is a mistaken notion, too prevalent, that the largest carcases are the cheapest, or the very fat ones the most palatable and healthy. On the contrary, the Devon cattle, South Down sheep, and the Berkshire pig, which are considered medium sized breeds, give better beef, better mutton, and better pork, than the larger and coarser breeds of these animals. The former give more *fat lean* meat than the latter, that is, the fat is better intermixed with the lean; the meat is more rich, tender and economical for the table, although the proportion of clear tallow or fat may be less. But our extract refers merely to the profits of the grazier. It seems that in their awards at the fair, the judges had somewhat favored the small breeds of sheep. On the health of the judges being given, Mr. Gray, the chairman, addressed the meeting, and among other remarks, made the following:

"I dare say that the opinion of the judges, with respect to sheep, has been much censured, although I declare I have not heard any observations to that effect. My reason for supposing so, is this, that people who have not great experience of the qualities and niceties connected with every description of stock, are apt to look principally at that which fills the eye, and to form a favorable opinion of animals upon a large scale, and this is particularly the case with respect to the Leicester sheep. I have had considerable experience with sheep of this description, having, in former times, kept a flock of between nine hundred and one thousand Leicester ewes, and therefore I have some title to speak upon the subject. I say, then, that the largest sheep are the least profitable. If it can be ascertained, as I believe it has been, that you can feed on an acre of land a greater number of pounds of mutton in carcases of from 18 to 20 lbs. per quarter, than in carcasses of from twenty-eight to thirty lbs., then every one must agree that the advantages are on the side of the smaller carcases. The reason of this is obvious; in times of drought and scarcity, a small animal can collect for itself as much food as a larger one, and having a smaller carcass, it derives more advantage from it. Whilst, therefore, the larger animal is losing in condition, the smaller one, if not improving, remains stationary; and when the period arrives at which abundance of food can be obtained, it almost immediately re-assumes its position, and is fit to go to the market sooner than the larger animal. I do not presume to offer any thing like dictation to this meeting, but I am confident that those gentlemen present, who have had experience on this subject, will bear me out in saying, that there are advantages in breeding the description of stock to which I have been referring, which do not attach to animals of better appearance and larger size."

Economy in keeping Horses.

Roberts, in his Agricultural Economy, maintains that one pair of horses, well kept, are sufficient team to work a fifty acre farm, and to work it well, under the alternating system. It has been proved, he says, that a team going at the respective rates of a mile and a half and two miles an hour, will plough in nine hours as follows:

Width of furrow.	Rates per hour.	A.	R.	P.
Eight inches, ..	One mile and a half,	1	0	0
Nine inches,...	ditto,	1	0	20
Eight inches, ..	Two miles,........	1	1	10
Nine inches,...	ditto, ...	1	2	0

Three things requires attention from every man who wishes to keep horses well and economically:

1. The food must be natural for them;
2. The quantity of food requisite to keep their condition equal to their work;
3. The best manner of giving them their food, with the view of its being speedily eaten, so that they may lie down to rest.

The natural food for the horse, says our author, is corn, hay and grass; but that under artificial management, there may be advantageously substituted for natural food, or conjoined with it, potatoes, parsnips, carrots, turnips and mangold wurzel, together with straw, bean (and corn) stalks, pea haulm, vetches, clover and other cultivated grasses, cut green.

Hay is sufficient to keep a horse to look at; but corn is indispensable to enable him to stand hard work. A horse requires thirty pounds of dry food a day, of which a part must be corn or its equivalent; to those which work, one pound of good oats is equal in nutriment to three pounds of good hay. Heavy oats are worth more, pound for pound, than light oats, as will be seen by the following scale:

Weight per bushel.	Produce in meal.	Produce in bran.
42 lbs.	25 lbs. 2 oz.	16 lbs. 14 oz.
40 lbs.	23 lbs. 6 oz.	16 lbs. 10 oz.
38 lbs.	21 lbs. 12 oz.	16 lbs. 4 oz.
36 lbs.	20 lbs. 3 oz.	15 lbs. 13 oz.
34 lbs.	18 lbs. 11 oz.	15 lbs. 5 oz.
32 lbs.	17 lbs. 5 oz.	14 lbs. 11 oz.
30 lbs.	16 lbs. 1 oz.	13 lbs. 15 oz.

In general, the different kinds of grain are nutricious in proportion to the weight; while two pounds of green food or roots, are considered equal to one of dry.

"Whatever fodder be used," says Mr. Roberts, "it should be supplied in such a form as to be eat forthwith, that the poor animals should enjoy refreshing rest: to secure this, *the fodder should be cut or crushed*, and placed in a MANGER"—not a rack. "When the respective feeds will have been consumed, every horse will lie down to rest; his hunger being satisfied, there will be no temptation to keeping him standing for hours, as would be the case, were his rack stuffed with hay, according to the too general custom of farmers. The nutriment contained in every kind of grain depends upon its weight." It is to be remarked, that concentrated food, as grain, will not do alone, there must be something to increase the bulk, to impart the stimulus of distension, before the functions of digestion can be carried on in perfection. Horses, therefore, and even fattening animals, which are fed high with grain, require cut hay, or even straw, for this purpose, independent of the nutriment they afford.

"When the quantity of hay supplied as food for horses," says Mr. R. "has been increased, and the quantity of oats diminished, it has been found that the animals, though they appear to improve, as to the fatness of their looks, were nevertheless not so able to stand hard work; and on the contrary, when the corn has been increased, and the hay diminished, it has been found that though the animals might, as to appearance, be leaner, yet that they were stronger, more equal to hard labor, and in better working condition."

The following different component parts of a ration of food for a horse, have been publishod in the Sporting Magazine, and are worthy of notice, as coming from a proficient in the management of horses.

	lbs.	lbs.	lbs.	lbs.
Corn, peas or beans, ground or crushed,	5	5	10	5
Hay, cut into chaff,................	7	8	10	8
Straw, do	7	10	10	0
Potatoes steamed,.................	5	5	0	0
Malt dust or oil-cake,..............	0	2	0	2
Bran,..........................	0	0	0	7
Grains, ...	6	0	0	0
	30	30	30	30

Other articles, such as apples, carrots, parsnips, turnips, beets, &c. may be substituted. If the food is found to be heating, small doses of nitre or flour of sulphur may be found beneficial; and about two ounces of salt should be given twice or thrice a week.

Foot Rot in Sheep.

We find in our last Farmers' Magazine, the following directions for curing this disease, which are simple, cheap, and we should think effectual.

"Towards evening draw the lame sheep from the flock, have the hoof of the deseased foot, as far as it has any dirt or fester under it; wipe it dry and clean, and bathe the tender parts in the evening with a feather previously dipped in butter (muriate) of antimony; keep their feet dry during the night, and on the following day they may be turned into a pasture by themselves, where they will daily become better. At the expiration of about a week they should again be examined. The majority of them will be found perfectly well, and may be allowed to join the sound flock, as they will be clear of all infection. Perhaps about one in ten will require a little more pairing with a knife, and a very slight redressing of the sore place, with the feather prepared as before. JOHN BERKETT.

"*Dallston, Oct.* 1838."

Journals of Education.

We have recently received three new publications of this class; one from Boston, one from Hartford, and one from Detroit. They all evince talent and good judgment in their conductors, and an awakened and praiseworthy zeal in the community. We consider the increased circulation of periodicals on education and agriculture, as among the greatest improvements of the day, and as the certain precursors of an improved state of society.

Insect Enemies.

Three prescriptions against the depredations of insect enemies, which prey upon our garden and field crops, have been mentioned to us, of the efficacy of which we make no pretensions of a personal knowledge; but which being simple, and within the means of every family, and the trial of which will cost little or nothing, we give as we received them.

A good lady, now a widow, whose husband was, we believe, a gardener, says, that the sowing of buckwheat, broadcast, in the preparation of a turnip crop, is efficacious in preventing the ravages of the turnip fly, and that when the turnips have got their rough leaves, the buckwheat may be cut up without danger; that her husband always had good turnips with this precaution, and seldom saved his crop without it. Another widow lady gives us a like assurance, from her own practice.

A highly respectable gentleman assures us, that he is never troubled with the yellow bug upon his cucumbers and melons—because he always scatters upon the hills, at planting, a little lettuce seed.

And our Michigan correspondent, Mr. Beden, maintains stoutly, that poppies are a sure protection against every species of obnoxious bug and fly.

There is no doubt that the odor of many plants is obnoxious to certain insects, and will protect from their depredations. Thus Russian leather is safe against the moth that often destroys the binding of books, on account of the odor of the bark with which it is tanned. Spirits of turpentine, and the shavings of cedar, will protect clothing from the same and other insects, on account of the odor which they impart. The elder and hemp are obnoxious to many families of insects; and we do not see why buckwheat may not be so to the turnip fly, lettuce to the yellow bug, and poppies to many flies, bugs and other insects. It will not cost much to try either or all of them; and if successful, the the secret is worth knowing.

Templemoyle Agricultural School.

We gave in our July number an account of this school, recently established in Ireland, by private subscription. We have just seen an account of the first examination of its pupils. It is an establishment designed to afford a practical instruction in agriculture and the simple sciences, with wholesome food and a comfortable home, to one hundred pupils, at £10 ($44) per annum for each. "The importance of the system brought into operation at Templemoyle," says the writer whom we quote, "strikes us as being so vast, that questions of a party nature, however exciting for the time they be, sink into utter insignificance when compared with a principle so solid, and so essential to the well being of the country, as one which comprises the agricultural and liberal education of the farming classes." The exhibition was attended by a great concourse of the most highly respectable people; and the examination was conducted by competent gentlemen in the different departments of istruction. The boys that had been more than six months at the school were examined by James Anderson, Esq. in the presence of some of the first agriculturists of the country. The questions embraced the whole theory and practice of agriculture,—the use of the instruments of husbandry, the best methods of draining land, the laying out of ridges and water furrows, the management of horses and cattle, the different modes of cultivating the several crops, with the most approved rotation of each, &c. &c. The answers gave high satisfaction. Capt. Portland examined a class in botany, "and we question much," says the report, "if among the sons and daughters of the wealthy and learned, would such intimate knowledge of an abstruse and technical science be exhibited."

When shall we enjoy the pleasure of witnessing the examination of an agricultural school in New-York? There are thousands of parents who would like to avail themselves of the advantages of such a school for their sons, but there are few, very few, seemingly, who are willing to come forward to assist to establish one, for the benefit of their sons or their country. We might possess all the advantages of such a school in a few months, if ten gentlemen of influence would embark spiritedly in the enterprize. We have a law of incorporation; we have a quarter of the requisite sum subscribed, to put a school in operation, on a liberal and enlightened scale—but as it can furnish no political capital, and cannot be made a matter of speculation, it lacks the popular incentives to favor and patronage.

The Smithsonian Bequest.

A Mr. Smithson, who it is said, was a natural son of the Duke of Northumberland, a gentleman of liberal education, a traveller and a bachelor, who died some time since at Genoa, left his entire estate—*for the diffusion of useful knoweldge among mankind*, and left it to the wisdom of Congress to apply the avails. Mr. Rush has brought from England, $508,318.46, which has been paid into the national treasury, and most of it vested in productive stocks. The question is now before a committee of Congress, how this money shall be expended. Among other plans of appropriating it beneficially, one has been submitted for applying a part of it to the establisment of a national school of agriculture, near the seat of government, a plan and estimate of which has been submitted to the committee, by C. L. Fleischmann, a graduate of the royal agricultural school of Bavaria. The project is a noble one, and we hope it will be adopted. And yet we fear the the contemplated location is a bad one. We doubt if practical agriculture can be taught well, where agricultural labor is considered rather a servile employment. We think the south would prefer to send her sons farther north for an agricultural education; and that the north would not like, for a like purpose, to send hers so far south.

Wool Statistics of Vermont.

Vermont is peculiarly adapted to grass husbandry, and to the culture of the grains and roots for feeding and fattening farm stock. Being mostly of primitive formation, there is not lime enough in the soil to render the wheat culture profitable. Indian corn is liable to be injured by the early and late frosts. The oat, the potato, the ruta baga, and we doubt not the beet, do well; but the herbage, and pasture, are peculiarly rich and abundant. Her hills, and even her mountains, afford an appropriate range to cattle and sheep; and these, it seems, and particularly the latter, have for some time, attracted the attention, and very properly too, of her farming community.

It appears from the statement of Henry Stevens, made at the Caledonia cattle fair, in September last, that the whole number of sheep in the state in 1837, amounted to 1,166,234; that if averaging the fleeces at 2½ lbs. each, the aggregate would be 2,915,385 lbs. of wool; that there being 300,000 inhabitants in the state, and estimating that each requires, for all purposes, nine pounds annually, the surplus produced in the state, over and above the wants of her population, is 215,585 lbs. But Mr. S. goes on to state, that Vermont having no manufactures at home, sells her wool to the manufacturers of other states, and purchases her woollen goods in return, either of domestic or foreign fabrication, and pays for them, in the charges of collecting and sending her wool abroad, in converting it into manufactured goods, and in bringing them back into the state, sixty cents per pound over the prime cost of the wool, or in the aggregate, $1,600,000. Mr. Stevens argues from these premises, that Vermont ought to establish her own manufactories, for which she has capital, abundant water privileges, and all the materials for constructing them. There is no doubt but the suggestion is a wise one, though the benefit would not be to the extent stated. Were the wool manufactured in the state, the fabrics would be principally sold in Boston and New-York, and brought back by the retail vender. The manufacturer could not wait the tardy returns from the local market; the merchant would contrive to make his purchases at the great depots, and even the consumers, such is the force of habit, would buy them the more readily by their being denominated *boughten* goods.

New Agricultural Journals.

The *Boston Cultivator*, has been commenced at Boston, by Mr. Buckingham, one quarter part of which is to be devoted to agriculture.

The *Farmer's Monthly Visitor* has beem commenced at Concord, N. H., by Isaac Hill, formerly editor of the New Hampshire Patriot, and subsequently senator in congress and governor of the state.

In our young days, while conducting a political journal,—and by the bye, political journals were then less abusive, if not more tolerant, we think, than they are now—we received in exchange, the Albany Register, published by S. Southwick, the Balance, published by H. Croswell, and the New-Hampshire Patriot, published by I. Hill, all then distinguished political journals. These gentleman are all now engaged in other, and we believe better employments—in improveing the moral, social and agricultural condition of their country; and may success and happiness crown their labors; and may others, seeing their good works, profit by their example.

We hail the increased circulation of agricultural journals as highly auspicious to the best interests of our country. Were their circulation increased fifty fold, the country would be proportionally benefitted. Our system of husbandry in the main has been wretchedly bad. It has greatly deteriorated the old settled portions of our continent, and is rapidly exhausting the virgin fertility of the west. These agricultural periodicals are calculated to arrest our downhill course—to expose the errors of our practice, to introduce improvement, and to elevate the character and standing of this great business of our nation. They *will* produce a benign effect wherever they circulate, and it is the interest of all to endeavor to extend the sphere of their usefulness.

Editorial Pilfering by Wholesale.

We have just received the entire first volume of the "*Ohio Cultivator*," published at Belmont, Ohio, by Thos. S. Reid, comprising 160 pages 4to. On running over the pages, we find that the editor has filled thirty-two of them entirely, and to the amount of five or six more in parcels, making nearly one quarter of the entire volume, with matter which was first published in our paper—either written by the Conductor or his correspondents—and which justice, as well as the universal practice of editors, entitle us to credit for—*without intimaitng that it originated in our paper!* If the editor is an old man, he ought to *know* better, and *do* better. If he is a young man we hope he will *learn*, that "honesty is the best policy," the world over. We know of but one excuse—and that is, that the *Ohio* Cultivator may claim to be a legitimate child of *the* Cultivator at Albany—and justify itself upon the principle, that what belongs to the father belongs to the son. Be the fact what it may, we forgive the past, and hope, for the credit of the name, that we shall not have cause to repeat our admonition.

Agricultural Items.

A Steam Plough, of a very peculiar construction, has been invented in France, with which it is said four miles of ground can be excavated, with an engine of only eight horse power, to the depth of a foot, and the breadth of two feet, in a single hour. The earth as it is turned up is thrown into a sort of sail, which throws it to a distance of sixty feet. Its particular advantage is in the excavation of canals.—*Farmers' Magazine.*

Beet Sugar Manufactories.—Bavaria, with a population of a little more than three millions, has eighty-nine beet sugar manufactories in full operation, and many more ready to commence.

Bone Manure.—In a circuit of ten or fifteen miles round Driffield, in Yorkshire, says the Farmers' Magazine, three to four thousand tons of bones are brought yearly from Hull, as manure, and this independent of a considerable quantity obtained from the mills at Beverly and Malton. Bones are imported into England from Russia, Sweden and South America. A bone mill has been erected at Waterford, Saratoga county.

The Turnip Fly, although one of the smallest, is yet one of the most destructive foes to British husbandry. The British societies have offered many premiums, and awarded several, for preventives to its ravages, but all to little purpose. At length a patent has been taken out for a machine which it is confidently affirmed will destroy not only the turnip fly, but other insects and their eggs deposited on the surface—*by means of steam!* A boiler, to generate steam, is mounted on a small pair of wheels to be drawn between the rows. The steam passes through a pipe behind the boiler, into flat conductors which extend along the vacant space between the rows of turnips, and nearly touch the surface of the soil, so that a perpetual strong jet of steam is discharged against the surface of the ground, which it is said effectually destroys the fly in a chrysalis state, as well as the flies themselves, who it is generally believed, throw themselves down off the turnips as soon as they are disturbed by any movement of the plant.

Short Horned Cattle, seem to retain their former large prices in England. Extensive sales of large herds are recorded in the Farmers' Magazine. The average prices of cows, heifers and bull calves are from forty to fifty guineas, and some choice cows and bulls have sold as high as 100, 200 and 230 guineas each. The guinea is a little less than five dollars.

Spade Husbandry.—A notable illustration of the advantages of spade husbandry was shown to the Derbyshire Agricultural Society in October, by C. Pole, Esq. Wheat grown on land dug, and an adjoining piece of like quality which had been worked by the plough. The ears on the dug piece were longer, by at least an inch, than on the ploughed, and the product greatly superior. Mr. Pole estimated the product on six acres of dug ground to be worth £207, while that on the ploughed—32 bushels per acre—would be but £120, leaving a balance in favor of the former, after deducting £18 for digging, of £69—$306.36, or 51 dollars an acre.

Notices of Correspondence.

Rockwell's Corn Planter.—See advertisement in last number. This machine plants two rows at a time, at any required distance, and any required number of kernels in a hill. It makes the furrows, drops the seed, covers it and rolls the ground at one operation, propelled by a horse and guided by a man. It was exhibited at the fair of the American Institute; since which the price has been reduced from fifty to thirty dollars. It is said to be simple in its construction; easily taken apart and again united, and is packed for transportation in a box of fivefeet by twelve and a half inches, and eighteen inches deep. Address D. S. & F. A. Rockwell, Ridgefield, Ct.

Oil-Cake—"*A new subscriber*," inquires as to the value of oil-cake, the mode of using it, &c. We have had but little experience in the matter; yet we know it is extensively used in Britain in fattening cattle and sheep —large quantities being annually imported from Holland and other parts of the continent for this purpose; and that it is also used in the United States for the like purpose. It cost us, some years ago, ten dollars a ton. We do not know the present price. It is a valuable auxiliary in fattening cattle and sheep, and was worth all we paid for it; though the flesh it adds to the animal is rather gross, or of inferior quality. It is given to animals in three ways—ground to powder, broken into small pieces, or reduced by water to a jelly. The first mode is the most common, though we think the last most serviceable. It is fed with roots, hay, &c. in about the same quantities as corn meal.

Improvement by selecting Seed.—George P. Frost, of Ithica, Tompkins, has sent us two samples of very large corn, *Tuscarora* and *Sweet Corn*, which he says he has greatly improved in size, by carefully selecting the seed for some years. "I have succeeded in enlarging the grains of the Tuscarora," he writes, "to nearly double the ordinary size, and I think the sweet corn is three times as large as the grains used to be, and both still retain all their former sweetness and richness for table use." Mr. Frost's closing request shall be complied with, and he may compensate us by sending us a larger sample of his improved corn in the spring.

The Brussa Mulberry.—Mr. Abraham Marsh, of Tolland, Ct. has propounded to us several queries in relation to this species, or variety of the mulberry. Until experience shall enable us to speak with more certainty upon this subject, we must refer Mr. M. to the remarks upon it in our January number, page 188.

More Insect Enemies.—Daniel Andrews, of Meadville, Crawford county, Pa. writes, that, "insects nearly ate up or destroyed much of the last summer's crop. One kind got in the wheat, when nearly ripe, and was threshed out in pecks. At times and places, another kind were seen travelling in thousands across the roads to buck wheat fields, which in some parts were wholly destroyed by them. Another kind attacked the cabbage, at the root and on the leaf. At the roots of some plants, there would be thousands not much larger than pin heads; and the only resort was to get a hen and chickens among them."

The Pea Bug.—The habits of this bug are too well known to need a description wherever they have appeared. But as there are many districts which have not been visited by them, it may be well to remark, that as soon as the pea begins to form, the perfect insect punctures through the pod, and deposites the egg or the young in the pea, which feeds upon the pea, grows and matures, and comes forth the next spring a winged insect. The maggot is in the green pea when it is served up at table, but the great injury to the crop occurs after it is gathered—the insect consuming a great portion of the interior. Mr. Jason Smith, of Tyre, in this state, has communicated to us his practice for the last four years, which he thinks has preserved his peas from their ravages. It is to stow away his peas, without threshing, till winter. The vitality of the insect is believed to be destroyed by this means, and of course the parent stock. A somewhat similar mode has been adopted, we understand, to smother and destroy the insect, by threshing them as soon as they are brought from the field, heading up the peas in perfectly tight barrels, and keeping them in this state till winter.

Gypsum.—"A young subscriber," who dates from Virginia, would not be edified, and we fear our readers would not be benefited, by a philosophical disquisition of the question he submits to us. Opinions as to the *modus operandi* of gypsum are various. Even those who ought to know best are not agreed in the matter. *Our* opinion has been so often expressed in the Cultivator, that our correspondent will find no difficulty in gathering it from our volumes. See pages 80 vol. I. 7, 128, vol. III. 55, vol. IV. &c.

Application of Lime.—"N." who dates at Locust Grove, is referred to pages 104, vol. I. 11, 54, 84, 100, 116, 149. vol. III. &c. for answers to his queries. We remark, however, that the first question to be considered is, whether it is desired to have it operate as *caustic* or *mild* lime; that when applied to sod ground, it should be spread *before* the sod is turned over, in preference to being spread *after*; and that it is seriously injured, as *quick*-lime by being long exposed, in heaps of "two or three hundred bushels," to the weather; and that if *mild*, or air slaked, it will probably receive little injury or benefit.

John M. Millikin's proposition.—We have received a printed sheet, containing a proposition of this gentleman, who resides in Butler county, Ohio, to raise a fund, by voluntary subscription, of $1,000, to be awarded in 1842, in three premiums of $500, $300 and $200, for the first, second and third best improved, cultivated and stocked farms in the county. Subscriptions to be received till January, 1840. We have not room for the details; but we think the plan is a good one, and that if carried out with spirit, it will soon add thousands of dollars to the value of the agricultural products of Butler county. There is nothing like competition to accelerate improvement; and the more numerous the competitors, the more substantial the benefit.

Sugar Beets.—Sherman McLean, of Royalton, Niagara county, has raised 400lbs. of sugar beet seed—the roots appear still sound, and he asks if they will produce another crop of seed if they are planted out? Our answer is—they will not.

Sugar Boilers.—We have received a subscription from Joseph P. Plummer, of Richmond, Ia. and his friends, on condition that we publish in our March number, the best construction known to us for a furnace to boil "sugar water." We give, from perhaps the best sugar boiler in the state, a description both of the furnace and boilers, in another column, under the title maple sugar, which we hope will prove satisfactory not only to our correspondent, but to many other of our readers.

Smith's Contracting and Expanding Cultivator—A drawing of which has been sent to us, possesses one property not common to any other implement of this name we have ever seen: It may be contracted or expanded at pleasure, while the team is in motion, by the man who guides it, merely by moving one of the handles to the right or left, which is connected by a half inch rod with a cast iron cog wheel, four inches in diameter, which works in two slides screwed to the slats.

Nitre in Steeps.—In reply to the inquiry of James Boyle, as to the quantity of salt petre we use in steeps for seed corn, &c. our practice has been to use half a pint of crude India salt petre to a half bushel of seed. Less would suffice, and more would not prove injurious. We dissolve the nitre in water, and then apply it to the grain.

Society for the Diffusion of Useful Knowledge. We have received sixteen pages of manuscript, *in part* of an answer to the communication of our New-Hampshire correspondent, in relation to common school libraries. They came to hand too late for this number, but will be inserted in our next.

☞We thank our Correspondents,

For the valuable communications with which they have enabled us to enrich the columns of this number of our paper, and to render it as valuable, in original matter, probably, as any number we have published. Our communications exceed thirty in number; and, zealous as we feel in agricultural improvement, it seems to us, that some one of them may be made to benefit every subscriber to the amount of his annual subscription. The very excellent communication of Mr. Seeley cannot fail greatly to benefit every farmer who has a peat swamp, and is desirous to profit by it. The letter of Mr. Garnett, besides abounding in other useful matter, will furnish useful hints to our northern as well as southern patrons, who would mind their habits and their practice. The articles upon corn crops, the culture of the carrot and ruta baga, are replete with practical instruction. The communication of V.—and we are happy to add that our correspondent has promised a continuation of his favors—will be read with interest by all who are anxious to raise the standard of agricultural education. Indeed, we believe all the mass of matter inserted under "correspondence," will be found promotive of the great interests of agriculture and education.

And we beg leave to call the attention of *sugar-boilers* to the notice, under maple sugar, of the excellent mode of management adopted by an eminent sugar-boiler of Jefferson county; and also, of our readers generally, to the reports made in the State Agricultural Society and in the Agricultural Convention.

We are drawing out a vast deal of practical knowledge, from the richest sources in our country, calculated greatly to profit thousands, tens of thousands, nay millions, of American farmers—if they will but read, reflect and imitate.

Acknowledgments.—Three *very beautiful* apples, but not so rich in flavor as some of our old favorite varieties, from an unknown friend, the letter accompanying them having been lost; seeds of the Bayberry, Santafee wheat, and a new variety of corn, from Major Soulard, of Galena, from plants grown in the Major's garden, some of the wheat produced fourteen heads, beside the central one, upon a single stalk. We hope the opinion that this wheat will prove valuable, may be confirmed—unknown seeds from Columbus, Ohio, and from Mr. Hathaway, Rome, seeds of the "golden squash of France," described as splendid in appearance, fine in flavor, and of very large size, brought from the garden of the banker Rothschild, at Paris, in 1837. Mr. H. has grown them one year.

CORRESPONDENCE.

On Alternating Crops and the Causes of Deterioration in Virginia Lands.

December 1st, 1838.

Dear Sir—I have very often had occasion to remark, that the man who ventures to make even *one* speech in public, has generally to make two or three more, by way of explanation; and so it is by writing. But whether this be owing to the imperfection of language, or to the great carelessness of most of us in studying it, is foreign to my present purpose,—which is to explain, (if I can,) some things in my last letter, which you seem to have misunderstood. First, however, let me assure you, my good sir, in your own language, that no "spirit of controversy" actuates me; my sole object being to elicit truth in regard to a matter highly important to all our agricultural brethren.

You have gratified me much by expressing the belief, that "were our views mutually understood, there would be found to be no great matter of difference between us;" and it is the hope of making that difference still less, which induces me to address you a second time, on the subject of "*Rotation of Crops.*"

I certainly had no intention to undervalue, and still less to condemn the practice altogether. My design was merely to prove, that its advantages had been most extravagantly exaggerated by imaginative and theorizing writers, who often mistake their own fancies for facts, and thereby have done real injury to our cause, when they meant to do good. To guard against misconstruction, I declared my belief that "*the best system of husbandry is inseparably connected with, and dependant upon both the rotation of crops and manuring; but chiefly the latter.*" When, therefore, I stated numerous instances of good and apparently equal crops of *the same* or *similar kinds*, having been made on the *same land*, for a long term of years, in uninterrupted succession;—some *with manure*, but others entirely *without it*; I did not anticipate the possibility of appearing, either to yourself or others, to contradict myself. I meant no more than to prove that the rotation doctrine had been extended much too far by its chief advocates, who had thus produced doubts rather than conviction of its real advantages; for surely if it can be violated in very many instances, for half a century, (as you yourself have admitted,) without any discernable injury, the truth of the assertion, that destructive injury takes place notwithstanding, is not yet quite as clearly demonstrated as the fact that "the sun shines daily," which was all I meant by my objection to your apparently universal rule. *As such*, I could not admit it; neither could I receive it as any thing more than a conjecture, not sufficiently sustained by actual experiments.

One of my exceptions to the universality of the rotation doctrine, (for I have never questioned its general utility,) was, the constant succession, for many years, of corn and oats in two of the largest counties of Virginia, *without apparent injury to the land*. To this you answer, "*are corn and oats the same crop?*" as if I had actually called them so; whereas, I called them only "*white crops*;" the constant succession of which, on the same land, is forbid by the rotation doctrine. "Besides," (say you) "the pea, the bean, or the vetch, which always" (not always, but generally,) "accompanies the oat, and which is turned in as food for the corn—*is this nothing?*" My letter gave the answer in anticipation, for it states that the inhabitants of those counties ascribed the preservation of their lands to the turning under of this natural growth. This you seem to admit, for you ask "is not this virtually a *three* coursed system?" I have not denied it. But if so simple a process, forced upon men by their Maker, can prevent the fertility of an extensive territory from wearing out, may not some small indulgence be extended towards the scepticism of those who regard the complicated rotation of crops generally prescribed in our books, as a sort of "king-over-all," for exhausted lands, pretty much in the same light that they do the innumerable recipes in our old books on farriery, which rarely consisted of less than ten or a dozen ingredients, to cure a horse, even of the belly-ache, when not more than one or two of them perhaps, were worth a straw. Some medicine I believe to be quite as necessary for *sick land*, as for *sick horses*; but for both I am persuaded, the more simple the restoratives are, the better; and in the case of land that manured *without any rotation whatever*, is incalculably better, (if they must be separated,) than any rotation ever yet devised by man, can possibly be, *without manure*; although I again repeat that I deem it best to use both.

Among the proofs I adduced in support of my objection to your doctrine, as I, at first, understood it—*that* upon which I most relied, was, the apparently equal crops of *corn* after *corn*, for a long term of years, *without* any intervening crop whatever, and *without* manure of any kind. To rebut these facts, you offer only the general conjecture, that a soil *may* contain so much of the specific food, either of wheat, corn, tobacco, &c. as to last apparently, without diminution, for "*forty or fifty years.*" I asked no more to verify the inferences drawn from the facts which I stated; and this assurance I hope will, in a great degree, excuse my dissent from a rule, which you appeared to lay down as *universal*, but which I am now satisfied you intended to be understood as only *general*. In this sense, I am perfectly willing to understand and to treat it; notwithstanding you appear to have treated my exceptions to it, made under a misunderstanding of your intention, as proofs of my unqualified enmity to rotation crops of any kind. If *I* could misunderstand *you*, it is nothing remarkable that *you* should misunderstand *me*. Far, therefore, *very far*, am I from imputing to you any design to pervert my meaning; for I have full reliance on your justice, as well as on the sincerity of your wishes, to render every communication to your paper available to the advancement of our cause, so far as you can make it so, in accordance with the principles and notions which first prompted you to undertake that truly valuable work. In thus expressing my cordial approbation, both of your purpose and of the means to which you resort for its accomplishment, I say no more than my feelings and judgment both prompt me to utter. But being personally a stranger to you, this declaration might possibly lead you to suspect, without my earnest assurance to the contrary, that I was attempting "to feed you with soft corn," in order to deprecate or to dilute criticism, should you think I deserve it. True it is, that I have not quite so strong a fancy to provoke it as the valorous Don Quixotte had for attacking giants, and making an exterminating war against wind mills; but had I feared any severity of remark from your pen, I should have taken the wiser course to keep my scepticism to myself; well knowing that every editor of a public journal, who chooses to avail himself unfairly (as so many do,) of his position, may, in every controversy with others, award the victory to himself. But having no suspicion that you belong to that dextrous class who are always for playing the game of "cross *I win*, pile *you lose*," I shall proceed a few steps further in attempting to explain my former letter, with the hope of reasoning myself, if possible, from the suspicion of utter infidelity relative to the rotation doctrine.

The cases which I stated, of *the same* garden vegetables, and of cotton appearing to produce equal annual crops, on *the same land*, for a long term of years, without any discernible deterioration, either of the soil or the crops, were cited to prove that this had been effected without any alternate crop whatever, unless manure could be called a *crop*; and consequently demonstrated, in these cases at least, that the fertility of the lands and the equality of the crops had been maintained *without rotation*.

The cases of corn and oats—both "white crops," although not "*the same*," in constant succession, for a still longer period, and without the intervention of any thing but the natural growth of the wild pea or bean, turned under before the corn was planted, were given also to prove, that at least half a century of such a course had been insufficient to produce any apparent diminution in the crops; and the inference I drew from *these* cases was, not that rotation was altogether worthless, but of less advantage than was generally claimed for it; since here again, it had been found unnecessary, for at least fifty years, throughout a very extensive territory, where the soil did not seem materially different from that of thousands of acres, in other parts of our State. It is true, that I did not call this "virtually a *three* course system;" but I expressly stated, that the inhabitants themselves ascribed the preservation of their lands to the ploughing under the wild bean or pea, between the crops of corn and oats. Admit they are right, and what does it prove? Why, that this very simple alternation answers quite as well as any of those very complicated and troublesome systems of rotation, *with* which our agricultural books abound, and *by* which I have never yet seen any land improved, unless some one or more of the crops which constituted the course were returned to the land, instead of all being taken from it; and unless also, manure was plentifully used during each rotation. Apply this, in proper quantities, to any two crops whatever, either the same or different; *this* which is to plants what the life blood is to the human body; or make use of lime, gypsum, marl, or ashes, and my belief is, that we need not trouble ourselves much about any system of rotation whatever; although I repeat what I have said before, that some I deem better than none.

The cases of equal corn and tobacco crops, each annually made on *the same ground*, respectively appropriated to each, with *the same result* of undiscernable deterioration, and *without* manure of any kind, were presented as a still more unequivocal proof that the loss of fertility *does not* occur in every case, as you seemed to assert; since the life of the longest liver in those parts of our State, to which I alluded, had not been long enough to enable him to perceive it, in the instances which I cited. Your assertion, therefore, that deterioration *does take place* in *all* cases, where no alternation of crops is resorted to, seemed to me like taking for granted, that which yet wanted proof. Admit these exceptions to the apparent universality of your doctrine, and I shall think with you, that "were our views mutually understood, there would be no great matter of difference between us." Being sincerely desirous to have my own opinions strengthened by yours, I will now endeavor to ascertain in what that difference (if any,) really consists, by stating my own creed as to rotation of crops: not, I assure you, because I deem it of the least importance to any body; but because such statement may excite a further discussion by abler hands than myself, of a subject highly important to all our brethren, and may thus possibly lead them to perceive, that heretofore they have taken for granted, and accordingly asserted, many things in regard to it, which have never yet been satisfactorily proved; just as in our school boy days, when scanning our Latin lessons, we used to tell our masters that such and such syllables were long or short "*by authority*." Now, although such a reason—if it can be called one, may suffice in lieu of a better, for school boys scanning Latin poetry, I cannot deem it admissible among men who are earnestly seeking the truth in regard to the soundness and utility of any thing recommended to them as a practical rule. Such a thing, unless sustained by well authenticated facts, should never be regarded in any other light, even when most attractively presented, but that of an ingenious and plausible theory. In *this* light, I confess, (perhaps to my future shame,) that I view many of the alleged benefits of our popular rotation systems. Not one of them, in my opinion, actually *improves land*, unless, as I said before, some one or more crops of the course be returned to it, or unless manure, which cannot properly be called a crop, be applied between them. Their food being derived in part from the soil, and in part from the atmosphere, unless the former gets back more than she imparted of the principles of fertility, deterioration must occur in a degree more or less rapid in proportion to the quantities of food required by each crop to bring it to perfection. The few apparent exceptions I have stated cannot invalidate this doctrine, as a general one, and therefore ought not to encourage us to neglect it entirely. I gave them only to prove that it did not hold good in all cases whatever, since in some it was imperceptible. But some plants require much less food than others, consequently when *they* constitute the chief crops of a rotation, deterioration advances more slowly, and this is often called an *improving course;* when in fact, it only *retards* that injury, which would be too visible to be overlooked, if the whole or the greater part of the alternating crops consisted of those plants which require most food. *To retard impoverishment therefore*, is all the credit I think due to any rotation whatever, if all the crops which constitute the course, were taken from the land. Could this opinion be adopted by all our brethren, it would certainly, I believe, have the very salutary effect of causing the whole of our fraternity to pay much more attention to procuring manure than they ever have done; for they would all be convinced that *mere* rotation could do no more for our arable lands than I have stated.

And now, my good sir, before I conclude, let me endeavor to answer the few questions you have asked relative to our poor old mother, Virginia! By the way, they remind me very much of a highly esteemed friend, long since dead, who used to be vastly fond of this Socratic mode of argument, by which he seemed always to calculate on so "penning" a fellow, as it were "in a corner," that there was no escape but to cry out "*peccavi*."

It made no odds to him whether you answered "aye," or "no," he had you either way, with conclusions to suit his purpose.

Your first question is: "have not successive crops of wheat, of corn, or of tobacco, greatly deteriorated some of her once fertile soils?" and your second is "like unto it." It is: "have they not reduced thousands and tens of thousands of her good acres to comparative sterility, to unproductive commons?" To both I reply, that we have, alas! *hundreds of thousands* of once good acres, long ago reduced to "comparative sterility," but not to "unproductive commons;" for they still produce what we call hen-grass, broom-straw, and ever and anon, a starveling pine or cedar bush—the reproachful and melancholy mementoes of ancestral improvidence. But the successive crops to which you ascribe this, are far from being the *only* or the chief cause of this lamentable fact. From the first settlement of the country, until within a few years past, the most deadly enemies to good husbandry in Virginia, have been, *the utter neglect of it, as a science—the implicit adoption, by each successive generation, of the practices of their forefathers; the almost total neglect of manures except for grardens; the incessant alternate cropping and grazing our lands without rest; the culture of them in a certain rotation of workings, without due regard to the condition of the soil as to wetness or dryness.* But *above all*, to the proprietors of this goodly soil generally using it more as the means of gratifying their appetites, their love of show, and the means of displaying it, than sources of future comfort, respectability and happiness to their children, as well as of credit and honor to their native State. The acme of ambition, in the olden times, seemed to be, who should have the best cheer and the most company to consume it, with little or no regard to the "material" of which it was composed, provided these "Nati consumare funges" were lovers *of*, and tolerable contributors *to*, fun and frolic. As long as the plantations held out in furnishing the means of this ruinously merry career, the troublesome study and practice of good husbandry were postponed, like the study and practice of religion, "*to a more convenient season.*" This sir, I sincerely believe, is a true and just explanation of the complicated causes which have contributed to impoverish a vast proportion of our lands, and much to my shame and sorrow have I given it. But I have the consolation to feel assured, that the dawn of a much better state of things, at least in regard to husbandry, is now shining in almost every part of our old State. I fear to inquire how much is owing to the absolute necessity of reform, how much to motives every way laudable, and shall therefore content myself with the fact. There is, however, *one* cause of the happy change with us, in regard to the efficiency of which I feel so perfectly confident, that I cannot omit to mention it. This is, the circulation among us of our friend Ruffin's Farmers' Register and your Cultivator, which have done more than every thing else towards it. Both are read by great numbers of our brethren, and have greatly contributed to awaken them to a true sense of the vast losses they have sustained by their long and destructive neglect of the study and practice of agriculture. That you may both succeed to the utmost extent of your patriotic plans, is the sincere, the constant wish of, dear sir, yours with esteem,

JAMES M. GARNETT.

P. S. Had I not already given you and your readers so heavy a dose of my scepticism, as to fear to increase it, at present, I should here have offered numerous facts, which I have been more than twenty years in collecting, to disprove the doctrine stated in your November number, from Professor Low, that "it is best to bury manure."

Peat Earth, Peat Ashes, &c.

Wheat-Sheaf Farm, Staten Island, Jan. 18, 1839.

J. Buel, Esq.—Dear Sir—In your number of this month, page 191, your correspondent B. in noticing "a recently published account of the proceedings of the British Association for the advancement of Science," as to the improvement of peat bogs, and the use of peat moss or turf as a manure, speaks of the preparation of the latter *in barn yards*, and of *expelling from* the turf, through that mode of preparing it, the qualities with which it is imbued, when taken from the swamps, *deleterious to vegetation.* I began, some months ago the use of it, in some degree, after the modes adverted to by the members of the association; and have, from information I have been able to obtain from emigrants and my own observation and reading, been led to a series of experiments with it. The results I heretofore promised to your columns. Though not even yet as complete as I hope eventually to make them, I apprehend what I have thus far observed may be useful. I apply the turf in a variety of ways:—First, after the mode of preparing it *in compost*, directed by Lord Meadowbanks, "which was printed and distributed gratis among the Scotch peasantry, *many years ago*, and which has *ever since* been highly approved of both by practical and scientific cultivators," in Scotland, Ireland, and generally in all the European countries in which peat is to be found.—That method has been described in former numbers of your excellent publication, and will be found in all its essential particulars in Fessenden's New-England Farmer and Rural Economist, pages 209 to 212, and in Loudon's Encyclopædia of Agriculture. Composts have been made by me which, when made in strict conformity to those directions, have fully justified them. Through that medium, there is no difficulty in *trebling or fourfolding an ordinary farm supply of manure*, and which may (as the authors say,) "be used *weight for weight* as farm-yard manure, and will be found *in a course of cropping* fully to stand the comparison." Whenever I have deviated from the track laid down, I have found that the more strict pursuit of the old practice was the better, and have returned to it. In particular, I find the necessity not only of avoiding the compression of the compost heap by the tread of the men or cattle employed, but the expediency of throwing into it every vegetable material which may contribute to keep it light, and as springy as possible. I also find it most prudent to avoid compression by raising the heap above the allotted height.

My supply of turf to this time, has been taken from a swamp about five feet deep, of about two-thirds of an acre, one-half of which, down to the clay subsoil, I have used in composts or otherwise, and which I propose tilling the coming summer. I have also used the turf in *bottoming* my barn and cattle yard, stables and hog sties, and in burning it for ashes. My first application of it to manuring began with the last spring.

The ashes were used, as I have already stated in a previous number, and I can assure you my clover and grass crops fully justified all the anticipations I was authorized to make. Some of my neighbors, of excellent practical information in ordinary matters, attempted to dissuade me from the use of it. A few days before my harvest, I asked them to call and see a result I wished to exhibit to them. Leading them to a stand a short distance from a field to which the ashes had been applied, I pointed their attention to a very visible line, which could be traced across a part of the field, and asked them if they could perceive a difference on its two sides? Admitting it, I asked them to accompany me to it, and to follow the line across the field, observing to them, that for the wheat crop of the preceding fall, the manuring on both sides of the line, and the seeding for wheat, for timothy, and for clover had been precisely similar—but in the spring, an application had been made to the field to improve the grass, which was found not to be sufficient for the whole field, and had become exhausted on the land at which the line was visible. On examining the course of the whole line, the clover on the side to which the ashes had been applied, even to the last cast of the shovel, was nearly double the heighth and luxuriance of the other, and far better loaded with blossoms; and here, I said, my friend, is the line up to which my turf ashes, of which you disadvised the use, have been applied. Fortunately in spreading, it run out on this land, and thus has afforded me an opportunity of again advising with you as to its usefulness.

My mode of burning, you also have heretofore described, and my experience has convinced me of the policy of smothering the fire, and burning the turf as slowly, and confining as much of the smoke during the combustion as possible. My heaps are generally four to six weeks in burning. That the turf is *purely vegetable* will be perceived from the fact, that *twenty* cart loads of turf are necessary to produce *one* of ashes. Sand or clay are not destructible by combustion, and would, if present, have been found still the same in bulk, and visible to the eye; none however can be discovered in the ashes; and this may be considered as a fair method of testing the question as to how much of mossy earth the turf contains.

Your correspondent B. in your last number queries as to the application of sulphuric acid for converting turf into manure, and for fertilizing a turf soil. This induces me to call attention to facts which have ever been witnessed by me—around almost every opening of the heap, through which the smoke issues, an oily substance resembling sulphur will be perceived. Bottoming before covering them with litter, the shelters, under my barn and sheds, as I always do, to the height of about twelve inches with turf, in order that it may absorb the stale and moisture of the place, I have observed that, though the turf, when taken there dry from the swamp, is perfectly devoid of all smell; after having thus used it, it becomes as *sensibly acid* to the smell, as the most sour lemon. In turning it over, the acid exhalation cannot but be perceptible to every bystander.

All writers upon turf, in speaking of its antisceptic properties, say it is imbued with a phosphoric acid, having some affinity to gallic acid or tannin, and which renders it, in that state, anti-putrescent, and consequently deleterious to vegetation. It will dry rot and pulverize, when exposed to the air, and is in that state pernicious, because it has not gone through the fermentation necessary to render it soluble, and fitting food for plants. The *fermentative* decay and solution of vegetable and animal substances, afford to vegetation its proper nutriment. The turf, it will be perceived, when used in compost, and in contact with fermentative manures, *attracts to itself and absorbs* so much of the putrescent exhalations as is necessary to expel the acid which checks its decay, and to superinduce, as a consequence, its own fermentation and decay, in common with the manure placed in juxtaposition with it. If this then be a tendencency of the turf in the compost, *why should it not operate similarly*, though in a lesser degree, *in the earth* to which the turf is applied, and so far from affording nutriment to surrounding vegetation, attract it to itself, and absorb the putrescent or fermentative substances already in the soil? In the first instance, it was always said, and is no doubt true, that the turf, while saturated with the acid, is deleterious to vegetable growth and to the soil—remotely, and after having, within the soil, taken to itself what will promote its decay, it probably gives it back, and does become in some degree beneficial as a manure. It well may be that sulphuric acid will, by its action on the turf, accelerate the souring to which I have adverted, and thus promote the decay of the turf. Turf was, for a long while, the source of disappointment as a manure, until the principles applied to it by Lord Meadowbanks, were scientifically explained and brought into practice.

In the spring and in the fall, immediately after carrying out the supply of manure from my cattle yards and hog sties, I bottom them anew with turf to the depth of at least a foot, covering it with six inches of sea-weed or drift. To the accumulation of the place, during the rigors of the winter, and when little is to be lost, in fermentative manures, by solar heat or evaporation, I cart around the yard and spread *on its upper edges*, some eigh ten or more feet wide, the emptyings of my stables and yard sheds, with the littered surface occasionally of my hog pens, (which are placed in the centre of my barn-yard.) The feeding racks and moveable pens are from time to time shifted, that the turf and sea-weed may, by the tread and droppings of the cattle, and the occasional moisture of the yard, be worked together, and the turf saturated with them as much as practicable. The main part of the manure, being placed on the upper sides of the yard, in settling down to the centre, and towards the barn-yard drain, passes necessarily through the bottoms of the turf and sea-weed, which thus becomes imbued with the substances necessary to prepare them for the fermentative decay, which the acid of the one, and the saline impregnation of the other, require for them. In the spring, as soon as solar heat may induce a tendency to fermentation, and consequent evaporation and loss, the yards are turned over with a plough or the shovel, that the whole may be so commingled that the turf may attract and absorb the waste which would otherwise ensue. At the lowest part of the barn-yard, and that to which every thing from the farm house, kitchens, and farming yards, and stables tends, I have a cemented cistern, *or tank*, capable of containing 250 hogsheads. The wind-mill and horse-power of the yard is connected with this tank, by pulleys, straps, and chain buckets, so that if during the winter, spring, or summer, I think best to wet my compost heaps, hog-sties, or any of the yards with those drainings, the power is conveniently applied, and by leaders, the draining is thrown back to settle again through the mass and return to the tank. The compost yard adjoins without the barn yard—is so graded that if the drainings from the tank is thrown on to the heaps, after settling through, they return by box underdrains, into the yards and tank. If a surplus is still on hand, a cart, a hogshead and sprinkler is used, with which, in a four to one diluted state, I irrigate such grass lands as I think may be benefited by it, or my grain crops, in such parts of a field as I apprehend may want it—an excellent method of readily adding to the manure, and of forcing those parts of a field which in the spring are perceived to want manuring—or my garden is fertilized and forced with it, to any state of fertility which can be effected by such an application of the stringent and most prompt in its influence of all manures. The last spring, in spots where my wheat did not thrive comparatively, applying it with a watering pot, the grain advanced and outstripped the surrounding parts of the crop, which before had afforded better promise of thrift. Pouring a pint of it into a hill of corn, of potatoes, or of vines of any kind, will be found to give an astonishing impulse to them.

The filling and driving of the cart—of sprinkling it on the field, or applying it to the hill or garden, is the work of the barn yard power, a boy, horse, cart, sprinkler and watering pot. The cart and its sprinkler, in its form and use, is in all respects like those in use in cities for sprinkling the streets. To irrigate and manure drilled crops, the sprinkler should be taken from the rear of the cart, and two of them should be hung parallel with the shafts and over the drills.

During the heavy rains of the fall and spring, should the drainings of the yard accumulate and fill the tank, and not be otherwise wanted, the surplus is let off into a *muck road* embanked on the sides and filled to the depth of ten to fifteen inches with sea-weed, turf, turf-ashes and a small supply of manure, and made gradually to percolate and settle downwards, through a distance of from four to six hundred feet in length, and twenty in breadth, and through which *muck road* cattle, carts and vehicles of every kind, when *it is not too wet*, are forced to find their way, the better to commingle and break up together its contents with the drainings of the barn yard. Until the drainings of the yards have reached the farthest extent of this road, they must escape from applications to agricultural uses. Before driving my cattle from my yards, if it becomes necessary to do so, and always two or three times a day, when its surface is moist, a boy, as a standing order and practice, drives them for exercise several times around the yards, the better to bring the manure in contact with the bottomings. I have other modes, not here explained, by which I readily avoid the access to my yards and tank, of the excess of drenching rains, when storms are heavy and of long duration. This I may explain, if desirable, on another occasion. Within *the last year*, I have lost none—*absolutely none!*—of the leeching of my yards and stables.

To this it will be said by some, it is *laborious and expensive.* Not so much so as may be apprehended, or as would occur with others not assisted with mechanical powers and under-drains, as I am; but what I have thus done at some expense, others may do in a great degree at a mere trifle of expense, and in a way that I may hereafter suggest.

I assume, as a standard, the fact that farmers with us pay 8s. per load for manure, and that is a criterion by which to form an estimate of the labor or capital which may *profitably* be bestowed in obtaining it as I do. If that be the true criterion for judging, every day's labor I expend in producing it, is worth *twenty fold* the sum I pay my hands to effect it.

Turf affords an *incalculable medium for saving the waste of manure*, and for increasing its amount and usefulness, and is better than rich mould, earths, or the pearings and bottoms of ditches, in this—that it is *all* vegetable, and in itself, strictly speaking, a manure, when properly prepared.

The contents of stables, barn yards, and cattle and hog pens should never be exposed to the solar heat, or to fermentative evaporations, or its drainings lost, when turf, or any inert vegetable substance, or surplus farm materials of a vegetable or animal nature abound; nor should animal substances, fish or any other, be suffered to waste their effluvia in the air, when such materials can be had. Enough out of the soil, for all useful purposes, of the agricultural influence or effect of manure is produced *as soon as vegetable or animal decay is sure to progress.* From that moment, a compost should be resorted to, and the heat and action of the manure (which is sure and irresistibly powerful,) be brought to act on substances to which this propensity has not been sufficiently imparted. In this state, all that is ordinarily wasted acts to a useful result in augmenting the mass—and it will be perceived, on referring their ideas as to all fermentative manure, to the principles of Lord Meadowbanks as to turf, that they are far more beneficial as to their substances, not so strongly resisting putrescent decay.

It is a common practice to bury fish, preparatory to their use as a manure, in common raw earth. The most soluble of ordinary manures, it is soon dissipated by atmospheric action, and leaves on the soil to which it has been applied, a raw earth in its then condition injurious to it. I find it far more beneficial to bury the fish in turf and in turf ashes, seven loads to one of fish, (in Loudon it is said, of turf alône, even 20 to 1,) which the decay of the fish will make an excellent and very powerful manure, and one which will endure long after the fish will have done their office in the soil and disappeared.

But I perceive I am making my letter so long as to trespass on your columns, and will stop, only adding, publish all, or such parts of it as you please, and if you desire it, more anon. Yours very truly,

W. W. SEELY.

☞We do desire "more anon."—*Cond.*

Carrot and Ruta Baga Culture.

Richland, Oswego co. Jan. 22, 1839.

J. Buel—Dear Sir—Agreeable to your request, I send you a few lines, describing my method of cultivating the carrot and ruta baga. My opinion in regard to profit, is in favor of the carrot. As to the relative value, I have entertained the opinion, that the same weight of carrots is worth, for stock, nearly double that of the ruta baga. I fed my work horses on carrots, from November, 1836, till June, 1837, three span; they remained in good plight, and performed as much as I ever had any within that length of time—they ate no grain—nothing but hay and carrots, thrown whole into the manger. I have raised one thousand bushels of carrots or over, yearly, for three years past, on an acre of land.

In 1836, I raised between two and three thousand bushels of ruta bagas. They produced from six to seven hundred bushels to the acre. They grew very large—the largest one weighed 30½ pounds. The land was stony and gravelly, made mellow and ridged high with the plough, two and a half feet or over apart from centre to centre. The seed was planted about the 10th of June, which I found to be late enough. Method of planting—one man goes forward with the hoe and makes marks for the seed, in the centre of the ridges, about twenty inches apart, which is very quick done, nearly as fast as a man would walk; another man follows as fast with the seed, and drops from four to five seeds into the place with his thumb and fore finger, and covers the seeds at the same instant, with the remaining three fingers. In this way I think a smart man would drop the seeds and cover two acres a day.

The same year, 1836, I raised one acre of carrots, which produced over one thousand bushels. I measured one rod of the ground, where the carrots appeared to be the best—the produce of this rod was at the rate of over fifteen hundred bushels per acre. Multitudes of carrots from this acre measured four and five inches in diameter at the but—the longest one that we found measured over two feet. The soil was deep, gravelly and stony, originally covered with large sugar maple, interspersed with large hass and hemlock. I cannot admit that the whole expense of labor on the one acre of carrots, including the harvesting, was over thirty or thirty-five dollars. The land on which they grew had been occupied the year previous with carrots, potatoes, corn, ruta bagas, beans, and other garden sauce, and manured with long manure on the one half, and hog manure on the other. Between the 1st and 5th of May, (it having been previously deeply ploughed,) I commenced work in the morning with six or seven men and boys, three horse team ploughs and harrows; at 12 o'clock, M. the same day, the planting was finished. I have no douht that Judge Buel, had he been present, would have considered the planting of the seeds to have been slightly done, but the crop was a good one, being one thousand bushels or over per acre. First we ploughed the ground very deep, and harrowed the furrows level; then took each man his hoe, reversing the edge of it, and expeditiously scraping or dragging the hoe along the surface of the ground twenty or twenty-four inches apart, bearing on the hoe sufficient to make a large mark or track, and to remove the stone and other incumbrances from the track or drill; and so on back and forth until the whole acre was marked out in drills;—then each man or boy took a small dish with seed in one hand, and stooping down so as to bring the other hand as near the ground as may be, to prevent the wind from blowing the seeds out of their place—walking quick-step, each one strewing the seeds according to their own good judgment—having previously received a good lecture from the master not to strew the seeds too thick. When this was done, each man took the hoe again, and half reversing it with the edge up, went through again with an increased movement, gently puddling or stirring the soil in the centre of the drills. A piece of board or stick four or five feet in length, will answer this last purpose about as well as a hoe. A great part of the seed sown by some farmers, is lost by deep covering. A shower of rain will fetch them up without any covering, where the soil is loose and well fitted. The ground between the drills ought to be brushed over with the hoe immediately after they begin to come up, or before, if you can see where the drills are, so that you can avoid disturbing the carrots.

I think a man may cultivate three acres of carrots with the same amount of expense and labor, by keeping in advance of the weeds, as he can one acre in the common way, with the weeds in advance of him a number of days. When the carrots get up ten or twelve inches high, I plough betweeen the rows with a horse, again and again. When I harvest them, I run a strong team and plough as near the out-side rows as possible, and very deep, turning the furrow from the rows; the hands follow after, and pull them out by the tops with ease, a number at once, and throw them in heaps; and so I proceed until the piece is finished. If there was any difference in the crop, it was in favor of that part where the long manure was spread the year before. I planted the same piece, in 1837, without any additional manure. The crop was about one-quarter less. I have no doubt that it would be a great benefit to our farmers who keep stock to cultivate the carrot, especially for milch cows. To those who are not experienced in the cultivation of the carrot, I would say, sow your seeds in drills, at least twenty or twenty-four inches apart; the earlier in the season the better, if your land is in good order; if they stand thin in the drills, they will be large; if very thick, it will spoil the crop. Respectfully yours,

THOMAS S. MEACHAM.

Horse Harness.

Canaan Centre, January 15th, 1839.

Sir—The object of this communication is to call the attention of farmers to the inconvenience and needless expense they incur in using the kind of harness, for their common business, at present mostly in use among them. We are too much the slaves of fashion; and instead of studying economy, or our own convenience, in endeavoring to keep pace with the rich, or those in higher or different situations in life, we are often found with articles of dress or equipage, far from being convenient for our business or appropriate to our condition. It probably does not occur to many, that the harness used fifteen or twenty years ago, was more convenient, less expensive, and more enduring than that mostly used at the present day; being calculated for business instead of pleasure. The most objectionable part of the harness now used is the breeching, which was never calculated for heavy loads, and is very unsuitable; horses not being able to back or hold a load with half the ease as with those of the fashion of by gone days. The fashion of the breeching now in use, was introduced into this country from England, some forty years ago, and was called the phæton breeching; the name indicating an article for pleasure rather than convenience, yet we have almost universally adopted it for all kinds of heavy work. The Pennsylvania, or Dutch breeching, is far cheaper on account of its durability, than the phæton, and far better adapted to the ease and convenience of the horse in any situation. Martingals, gags and checks, are also very objectionable for a business harness; tending to confine a horse to one position, and of course curtailing the free use of some of his muscles; and requiring greater exertion in others, adding much to the performance of what is required of him. It appears to me, that it will require no logical demonstration to convince any reflecting mind, that where great muscular exertion is required, a free and unfettered use of all the muscles, as far as circumstances will admit, is very important. The cheapest, most convenient, and durable harness, is made with leather tugs from the hame to the hind flank, about three feet long; with a ring in the end. Pennsylvania breeching, with a leather strap from the ring of that to the one in the end of the tug. Chain traces, with what is called a T, on one end, which goes in at the ring on the end of the tug. Whiffletrees, with rings at the ends, the traces passing through them and hooking to any required length. Scotch collars, iron bails to hold back, and wire snaps on the lines. Many farmers suffer much by neglecting to oil their harness seasonably and properly; though once a year, if done as it should be, is generally sufficient. The best way is, after the harness is taken to pieces and cleaned, to have a kettle of warm water and put your oil into that; then dip in one strap at a time, taking care to let the oil close up to the strap as you take it out. It will then require rubbing off with a dry cloth, and will remain soft for a year. The water should not be so hot as to scald the leather. Neats or pigs foot oil is the best; next to that, fresh butter if you can afford it, if not, hogs lard. Many farmers suppose nothing so good as curriers oil, but that should be the last used. Harness not used for a year or two, is greatly injured by becoming hard and cracking; for that reason, a new harness lying idle for any considerable length of time, is not worth as much as one carefully used the same length of time. Yours respectfully.

DANIEL S. CURTIS.

Corn Crop.

Trenton, Oneida County, January, 1839.

Judge Buel—Sir—Enclosed I send you a statement of a piece of corn and potatoes raised by me this season, which I offer for a premium, tilled according to the directions of your valuable paper. I hired two acres, (not owning any myself,) of old meadow land, for two years at $6 the year per acre, with what manure I wished to draw on it. The soil is a strong gravel. I drew on manure two days, about 28 loads of the coarsest I could get in the yard; some of it dry straw, and spread it even. I ploughed, rolled and dragged it well, and marked it out three feet each way, in fine order, and planted on the 17th of May three hundred rods with eight and twelve rowed yellow corn, six and eight kernels in a hill, the seed dry; the remainder I planted with pink eyed potatoes. When the corn came up I put on sixteen bushels of lime-kiln ashes; in a few days I run the cultivator through both ways and commenced hoeing; as soon as the hoeing was finished I put on two hundred of plaster; the second hoeing soon followed the first, when the plants were thinned to four in the hill. I intended to give it a third hoeing, but the corn was so rank and stout I could not get through without damage to the crop. The hoeing was done well and the surface left as level as possible. The potatoes were hoed at the same time and hilled. I gathered ten bushels of seed corn the last of August, which was dry and hard. I cut up, shocked, husked and housed my corn and stalks in September. My stalks are bright, and much better fodder than hay. I have enough, I think, to winter two cows. My corn is all sound and hard; the product of the two acres is,

10 bushels of seed corn, worth $2 per bushel,.		$20 00
161 bushels market corn, weighing 61½ lbs. the bushel, sold for $1 per bushel,...........		161 00
23 bushels of nubbins fed to hogs, worth 87½ cents per bushel,........................		20 13
40 bushels potatoes worth 31 cents per bushel,		12 40
1700 bundles of stalks,......................		16 00
500 pumpkins,.............................		5 00
Value of whole crop,....................		$234 53
EXPENSE OF WHOLE CROP.		
Use of land, ...		$12 00
Drawing manure two days, ...		4 00
Ploughing land,................................		5 00
Rolling, dragging and marking, ...		2 50
Planting, three days, ...		2 25
16 bushels lime kiln ashes,..................		1 60
Putting on ashes,............................		75
Horse and hand with cultivator, three and one fourth days,................................		3 25
First hoeing, six days,........................		4 50
200 lbs. plaster,............................		50
Second hoeing, four days,....................		3 00
Cutting up and shocking corn six days,........		4 50
Husking, twelve days,........................		9 00
Houseing stalks,.............................		1 00
Digging potatoes,............................		1 13
Thrashing corn, ...		3 00
Expenses of whole crop, ...		$57 98
Value of one acre,.................	$117 26½	
Expense of one acre,...............	28 99	
Nett profit of one acre,..........	$88 27½	

JAMES PARKER, Jr.

I hereby certify that I am personally acquainted with the above named James Parker, jr., and believe him to be a person of veracity, and that the truth of his statement may be depended upon.

WHEELER NEWTON, *Justice.*

From my own observation of the above mentioned crop, I consider the above statement correct.

NATHAN COB, *Justice.*

Corn Crop.

J. Buel, Esq.—Dear Sir—I send you a statement of the expense and product of one acre of ground, planted with Indian corn, the small eight rowed yellow variety, together with the mode of cultivation.

Soil and Culture.—The soil a sandy loam, ploughed the first day of May. Sward, which was timothy, and mowed the summer previous, laid flat though not deep; then carried on thirty wagon loads of unfermented manure, rolled and harrowed the ground well, without disturbing the sod. On the 12th and 14th planted the corn, two and a half feet between the rows, and sixteen to eighteen inches between the hills; seed simply wet and plastered; ashed when it first made its appearance; hoed the 11th June, and again dressed with ashes. About the middle of July hoed it the last time, making two hoeings, without hilling the dirt up around the corn any, or but a very little.

Harvesting.—Corn cut up about the middle of September, and shocked in small shocks; the first of October husked and measured.

Product.—Seventy-seven bushels sound corn, and five bushels pig or poorish corn, that grew on the suckers, for they were not taken off, as I did the year before, because my corn stood rather unsound from the fact that it was partly covered by a hired man.

EXPENSES.		
One day ploughing and boarding,.............		$2 00
Rolling and harrowing, one day,..............		2 00
Seed and plaster, ...		0 75
Planting, two days, ...		1 50
Hoeing, three days, ...		2 25
Horse and hand, two days,....................		2 00
Cutting and shocking,.........................		0 75
Husking and housing,.........................		6 00
Ten bushels ashes at one shilling, ...		1 25
Interest on land,..............................		3 50
Thirty loads manure, ...	$7 50	
Carting and spreading,................	7 75	
	$15 25	
Deduct for succeeding crops in rotation,	10 00	
		5 25
Total charges,.............................		$27 25
VALUE OF PRODUCT.		
30 bushels seed corn,.........................		$60 00
47 bushels sound corn,.......................		47 00
5 bushels of pig corn, ...		2 50
4 loads stalks,..............................		8 00
2 loads pumpkins, ...		2 00
		$119 50
Deduct expenses,..........................		27 25
Nett profits,................................		$92 25

HENRY HOPKINS.

I hereby certify that I am personally acquainted with the above named Henry Hopkins; believe him to be a person of veracity, and that the truth of his statement may be depended on.

HARVEY BUTTS, *Justice.*

Laurens, Otsego Co., N. Y. Jan. 15th, 1839.

Morus Multicaulis.

Judge Buel—Sir—Since our communication to you in September last, on the subject of mulberry cultivation and silk growing, we have received addresses from nine different states and several from each state. All these give credit to the columns of the Cultivator, as the organ through which they were informed of our location and business, and many other addresses from the same states, have given equal credit to the Genesee Farmer.

These addresses in general, appear to have originated with men of science, property, talents and enterprize. And considering these a criterion of the hundred addresses received by yourself and others on this subject, it is a sufficient guarantee for us to conclude, that, this business being in such hands, the most skeptical need have no fears of its ultimate success.

For our own part, we are fully satisfied that the silk culture will progress with those who are qualified to appreciate its worth—but to make it more general as an acquisition to the state, it needs legislative aid.

We are therefore, strongly impressed with the opinion, that our legislature will not be last or least in its encouragement to this national movement.

We hazard nothing in saying, there is no agricultural project or domestic enterprize, which appears so feasible and promises so much to the American nation, as the cultivation of the mulberry and raising the silkworm.

A number of our correspondents have solicited from us, our manner of cultivating the mulberry; the best kinds of earth, inclination, &c.

We are young in this cultivation in comparison with some others, but having succeeded fortunately in the little we have done, we cheerfully give a partial synopsis of our former practice and future intention.

We have had but one location, and that a little elevated; has a southeasterly inclination, soil a sandy loam.

We prepare the ground for trees the same as for corn—furrows six feet apart sufficiently deep to receive the roots of the trees; lay the trees in the furrows, roots the lowest, making the most natural disposition of them we can, in this almost horizontal manner cover the roots and pack the dirt around them singly—cover the trunk and limbs about an inch and a half to two inches deep, leaving a hollow in the furrow to fill up after the buds have vegetated sufficient to want hoeing.

For layers or cuttings, prepare a bed as for onions, and for layers mark off drills from three to four feet apart; lay the limbs in these drills, cover from one and a half to two inches.

For cuttings make the rows from two to three feet apart, sticking down the cutting from one to one and a half feet in the row, place the cutting in an oblique direction—inclination to the north—angle about 45 degrees—upper bud on the north side of the cutting, a little below the surface.

For one bud cuttings, pursue the same course as with the upper bud of the second bud cuttings, crowding it a trifle deeper.

Water all at evening, according to circumstances, sufficient to retain a rational moisture that would be proper for other vegetables.

We intend removing to Long Island, near New-York, as soon as navigation will permit after the first of March. All communications, therefore, addressed to us, after the opening of the navigation, should be directed to Brooklyn, Kings county, Long Island. Yours with respect.

S. E. GIBBS & SON.

Troy, Feb. 11, 1839.

Multicaulis.

Coxsackie, N. Y. January 30, 1839.

Mr. Buel—Sir—Permit me to suggest to you my views as regards the Morus Multicaulis mulberry. I have noticed in your publications, at different times, remarks upon them, and representing them as being too tender for our climate, and freezing to the ground in winter. In this I am ready to agree with you, from the experience I have had in them for the last four years. Yet there are good qualities in them, which ought not to be forgotten; and such as stimulate every one who expects to make silk to propagate them. I do not consider their freezing to the ground any objection; as the roots do not freeze; but they shoot forth a greater number of sprouts, and bear larger leaves than older trees, and are more convenient for gathering, as a person may stand upon the ground to gather them. I think these and other advantages they have over the white mulberry, are sufficient to encourage all to propagate them. In this way they may be propagated in hedges or rows, and if the sprouts are wanted to propagate from, they may be cut to the ground every fall without injury. Of the few I have cultivated for the last four years, I have lost but one root. Yours with respect,

W. S. JACKS.

The Bur Oak.

Lake C. H. Ia. Jan. 25, 1839.

J. Buel, Esq.—Dear Sir—Your note of the 31st. ult. is received. I shall send a box or bunch of the Bur oak acorns to you for your own use and distribution, at the first opening of navigation in the spring. If they will grow, I shall feel proud of having introduced a new variety of tree, and a good one, into your section of country. The tree requires a very strong soil. I am now using in my family, pork fatted upon the Bur oak acorns, which is to all appearance as good as corn fed, except it is more dry and less inclined to fry out much fat. The timber, too, when seasoned, is the most solid and strong of all oaks. The tree, when in foliage, is one of the most beautiful in the forest, though it does not grow commonly in "thick timber;" but it is found covering very large tracts of land called "barrens," an intermedium between prairie and timber; after growing so isolated as to have the appearance of a scattering orchard and having a strong resemblance to the work of man. You may travel miles before the country is settled, through these "barrens" with a carriage, without any obstruction. In these barrens the trees never grow large—the soil being deep, the roots are situate so far below the surface that they offer no obstruction to the plough, and these barrens are often ploughed without removing the timber. I remain your friend truly.

SOLON ROBINSON.

School Libraries.

The introduction of libraries into our common schools is becoming daily, a subject of deep interest. Among the libraries presented to our notice, is one selected and prepared by the American Sunday School Union, of which we have only space now to say, that it consists of one hundred and twenty-one volumes, on a variety of subjects; neatly printed and bound, accompanied with fifty descriptive catalogues, and the whole contained in a substantial case, at the low price of thirty-three dollars.

That a highly beneficial influence may be obtained over the minds of the rising generation, through the medium of good books, is beyond doubt, and every one will see the propriety of our urging upon those who are empowered to procure libraries in their respective districts, that they be careful in their selections. We commend to their notice the above mentioned library.

They may be procured of Mr. E. H. Pease, No. 82, State-street.

M.

Note.—We give the above, as we received it, without meaning to adopt its sentiments. We have yet seen no catalogue of a common school library, that we felt willing to recommend for that purpose; not on account of what it *does* contain, but of what it *does not* contain.—*Cond.*

Hints to Silk Growers.

From a Female Correspondent.

Sir—Some years since I was an inmate of a house where the mistress was engaged in the cultivation of silk; without having any fancy for the employment, I became curious on the subject of its introduction ininto this country, as a new branch of industry. I read whatever I could find upon the subject; among other things, Arthur Young's tour through the silk districts of France, made for the purpose of ascertaining whether it could be introduced into England to advantage. He decided that labor was too valuable in England, and I argued that surely then we could not compete with France, Italy and China.

But in reading an account of the growth of silk in China, I learned that the finest made in that country was grown in the southern provinces, where, from the mildness of the climate, the worms were put out on the trees, and left to feed and provide for themselves agreeable hiding places for their cocoons; upon this circumstance it is observed, that the perfection of spinning greatly depends. For a worm, if not satisfied with its position, will change its location several times, spinning a little in each place, and so wasting and tangling the thread; sometimes, when not very well provided, two or three will insist upon working in the same envelope, and so spoil all their cocoons.

Worms are apt to be injured by heavy rains, hot suns, dews, and loud concussions of thunder.

It therefore occurred to me, that a shed, constructed like a rope-walk, would fully protect hedges of mulberry trees, during the time the worms were out, so as to allow them to be at liberty as they are in the south of China; feeding themselves and selecting their places for spinning. The sheds should have a coarse, cheap roof, divided say every eight feet, each part hung at the top, on strong wooden hinges, upon which it should turn entirely over and hang down on the north side, so that when the cocoons were gathered, the trees might be, for the rest of the year, exposed to the rain and sun, with a shelter from the extreme cold of the north wind. The great interest lately expressed on the subject induces me to make these suggestions, in hope that some one of the many speculators employed in the business may gratify me by making the experiment. Much fewer trees would be necessary than when they are stripped, as a large portion of the leaves are left by the worms, and so wasted; it saves the labor of feeding them, and certainly will be less expensive than taking up the mulberries like cabbages, in the winter.

Respectfully yours, &c. M.

Belmont, Va. January 26.

Inducements for entering on Rural Pursuits.

Mr. Editor—We were pleased to see, in looking over a late number of the Cultivator, a circular addressed to the public, on the subject of an agricultural school. We hail with joy, the establishment of such an institution, and we trust the proposal will meet with such favor from the public, as will enable it to be carried into early operation. It is time something effectual should be lone to remove the flood of ignorance and prejudice that has covered the face of a large portion of the agricultural community, for the last half century. The system of agricultural societies, with annual exhibitions, and the unwearying labors of agricultural periodicals, have undoubtedly accomplished much in raising the character of the farming community, and all praise is due to them for it. But we fear, that without farther aids, their utmost endeavors will fail of the object they have in view; the production of a healthy tone and liberal spirit among our farmers. The strong conservative feeling among farmers generally will still, we fear, as it has in a great degree already, prove too strong for them to cope with single handed. They must be *backed up* by the community at large. This correcting an error here, and an error there, this ousting old systems of culture by the partial introduction of new ones, this union of science with practices in husbandry engendered in ignorance, and established by lapse of years, which is so often attempted, cannot, we believe, produce a thorough going reform. It is too much like healing the sores and plague spots that break out upon the diseased body, without attempting to remove the malady that causes them. The evil must be probed to the bottom. Instead of resting our hopes of success in the regeneration of agriculture, solely upon the issue of a struggle with the fondly cherished errors of a majority of our farmers, we must raise up a race of farmers, who never shall have known such errors, and who, by the aid of science and education applied to agriculture from the very outset, as a regular profession, shall be enabled to look upon the culture of the soil with the respect it deserves, to feel its beauties and see its importance to the whole community as well as to individuals.

We hope to see the many inducements for entering into and making agriculture a regular profession, which presents themselves to the thousands of young men of the present day, who are in doubt as to the calling they shall select, set forth by some abler pen than our own; and that very many will be persuaded to avail themselves of the advantages of such a school, in the event of its establishment, to prepare themselves for an honorable an useful pursuit. If, in the selection of their profession, the desire of contributing the greatest amount of good to the greatest number, enter at all into their consideration, let them think well of an agricultural life, before they decide. Let them remember that the avenues to almost all the other pursuits, mercantile, literary and mechanical, are choked even to their very entrances, and that crowds have already entered them fully able to fill their highest stations, and carry off their honors and emoluments. Let them remember, that while to all other pursuits the all pervading influence of education and science has been fully extended, the agriculture of our country, from the absence of that influence, remains almost where it was a half century ago, and that the discoveries of science can be applied here with as wonderful results as they have been in other professions. The trouble is not that too little is known as to the great principles, that should govern agriculture; but that too few know them. The wants of the farming community do not so much demand new improvements and discoveries, as an increase of those, who by their example and precept, may induce others to adopt what is already known.

The researches and labors of a few have amassed information upon the culture of the soil, sufficient, if properly applied, to cause the whole face of our country, to wear the smiles of a garden; and public interest now calls for those, who by the application of this knowledge in every part of our land, may induce all engaged in agriculture to yield to it, and thus render general its influence. Let those who are in doubt as to the choice of a profession, remember, that in taking up agriculture, they have a wide field for action. From the nature of our country and institutions, we must, to a very considerable degree, be an agricultural people; and, as we have already said, there is no one pursuit, that stands so much in need of the aids of science, and the assistance of men professionally educated for it. If, therefore, they would have their names connected with the best interests of their fellow men, if they are ambitious of a reputation that shall be as lasting as honorable, let them become tillers of the soil, and prepare themselves for the duties of the farmer with the same zest and care that they would bestow upon any of the literary professions. And let them also bear in mind, that in agriculture, as in every thing else, as far as their own individual interests are concerned, their success will be commensurate with the amount of information and degree of application they bestow upon the objects that engage their attention. "*Seges votis respondit.*"

The subject may be presented in a different, and perhaps to some, a more pleasing aspect. We speak without the slightest regard to the fanciful pictures of the poets, of rural pleasures, pretty visions of shepherds and shepherdesses, meandering streams, and lover-like grottoes, &c. &c., when we say, that there is scarcely any pursuit that exerts, in an equal degree with that of the farmer, an elevating and refining influence upon the mind, connected with the most unadulterated pleasure. Removed, as it is, from the contracting effects of business and the corroding influence of political strife, it opens one of the grandest fields for the study and admiration of nature's works. The study of her operations, and a knowledge of the laws that govern her, are pre-eminently necessary for any success in agriculture. And what is more, we deal with animated nature. The smallest plant that grows, as well as the animal that demands our constant care, is endowed with vitality, and while it lasts, presents all the curious and wonderful changes incident to life. The creatures that Providence has made dependant on the farmer's care, all possess an individuality; and we soon learn to study and honor their various characters. Indeed, in every department of agriculture, the educated mind may find ever changing material for study and admiration: is constantly "looking through nature up to nature's God." It deals with subjects beyond the influence of mens' passions and prejudices, and is led daily to perceive the littleness of all things human, compared with the least of God's works.

If there be any then, of those still casting about them, in doubt which of the many avocations to enter, who have a taste for rural pursuits, let them gratify that taste, and believe that in so doing, they will at the same time consult their own interest, and that of the public. Let none, in the consideration of this subject, limit their ideas of agriculture, as is too often done, to the plough-tail and the harrow, and suppose that the farmer's operations extend no farther than to the use of the spade and flail. If they do, they will deceive themselves, and do the subject great injustice. Let them rather, if they have no other means of judging, turn to some educated, liberal and high minded agriculturist, if any such they have among their acquaintances, and take a few lessons from his word and example, before they come to any such conclusion. We believe they will find him enjoying the true "otium cum dignitate," drawing upon nature rather more for his occupation and pleasures; dispensing to those around him these pleasures and the information he has acquired; and, in one word, enjoying that great desideratum of human life, "*Mens sana in sano corpore.*" H. V.

Greenfield, Mass. Jan. 19, 1839.

Light wanted—Corn and Potatoes successfully alternated in culture.

Brooklyn, Susquehannah co. Pa. Dec. 1, 1838.

JESSE BUEL, Esquire—Dear Sir—The agricultural interest is of vital importance, for it is upon this that we wholly depend, being not only the source of our wealth, but the medium of our existence. I have long seen that our citizens are too negligent in their avocations, and do not pay that attention to practical publications upon tillage, which their interests severally demand. We go on too much in our own individual and old way, and seemingly spurning the notion of learning and practising upon the well tried experiments of others. I have long wanted to enjoy the profit of reading the practices of farmers in various sections and latitudes, and upon different soils; and when I cast my eyes about me, my anxiety increases; and I would fondly hope that ere long your Cultivator would be both generally taken and read among us. It is true that many modes of tillage on other soils, and in foreign latitudes, may not be well adapted to our own; yet we know that many times, useful hints are taken from events of a foreign nation which prove to be, on trial, very salutary. Our country is new; our citizens are land clearers; and ere long must be either emigrants or land ploughers and grass growers; and every one must, or ought, to see that the most successful mode of doing these without reducing the fertilizing powers of the soil is an object highly desirable. No question can be raised that the most of us, if not all, by following in the too well beaten way of our predecessors and of superstitious practice, sacrifice not only our labor, but the strength of the soil we cultivate. It is indispensable, then, that we should reform. And how shall we do this successfully without that light which practical experience may shed upon us.

I noticed an experiment in your Cultivator, upon planting corn and potatoes together, by alternating the rows of each, and accordingly I tried the same with a small variation. I planted fifty-four perches of ground, after being once ploughed perfectly and well dragged, in the following manner, viz: three rows of potatoes and three of corn, and thus alternately. The corn I planted in rows, three feet and a half by two feet, with three stalks to the hill; the potatoes, in drills from a foot to fifteen inches asunder; planting both on the flat surface. I planted on the last day of May, and harvested on the 15th of September, and obtained twenty-four bushels of ears of corn, three loads of pumpkins, and fifty-five bushels of potatoes. The season was not altogether congenial to the potato with us last summer, being too dry; of course the seed was, by hoeing, raised too high to insure a full crop; and had the ground been lightly furrowed for the potatoes, and ridged for the corn, I think the produce of each would have been considerably increased—that of the potato in particular. The produce of an acre would have been 71 bushels of corn, and 163 of potatoes. This is at the rate of 35½ bushels of shelled corn to the acre, according to the usual mode of planting: and since 40 bushels in this country is counted a tolerable crop, the potatoes might be counted almost a clear gain to reward for the experiment. S. W. NEWTON.

Caterpillar in Wheat, &c.

Warren, Warren co. Pa. Dec 27, 1838.

J. BUEL, Esq.—Dear Sir—In your October number of the Cultivator, you allude to "A new insect enemy to the wheat crop," and invite a description of a worm, said to prey upon the mature grain. Such an enemy has made its appearance here.

I first noticed a worm in 1837, in a small patch of winter wheat sown in my garden. When the heads had just shown themselves, and before being in blossom, some few of them turned yellow, dead. On examining, I found a worm in the upper joint. When the wheat was at maturity, I found the same worm in the kernel, of larger growth, but they were not numerous. They were examined with a magnifying glass. Those in the joint and those in the kernel were alike except in size. My field wheat also had some few of the same worms. In 1838, I began thrashing my winter wheat immediately after harvest; on cleaning up, was surprised to find in the screenings, separated from the heavier and better part of the wheat, a vast army of the new discovered enemy.

I now thought it might be of importance to examine them with a view to an acquaintance with their habits. It is a caterpillar, about 3-8ths of an inch in length, when full grown—is of a straw colour, but viewed through a magnifier, is striped lengthwise, with orange and cream coloured stripes—its head dark brown. All its movements, shape, legs, &c. indicate the caterpillar, and it will suspend itself by its web. The broken kernels indicate plainly that it preys upon the mature grain. I took a handful of screenings and worms and put them into a clear glass decanter, in September. They were very lively, and would have made their escape, but were prevented. After remaining unmolested for some time, they buried themselves under the wheat, where they seemed satisfied to remain, unless disturbed, when they would again endeavor to make their escape. After two or three weeks, they became languid, and in six weeks they had ceased to show any symptoms of life. I have preserved this sample of wheat for the purpose of examination another summer, if perchance a new generation should succeed.

How extensive the ravages of this worm are, I am not imformed. How much influence it may have had in lessening my own crop, I am not prepared to say, but for some cause the yield, on thrashing, is much less than was anticipated. It may have been noticed by others heretofore, but is new to me.—Perhaps it may be comparatively harmless. The increase however from 1837 to 1838, was immense; and a like increase in future would be attended with calamitous effects. Whether such increase will take place, remains to be seen. The insect described by Mr. Murphy, in your November number, differs from this in colour and in size, and he says he saw nothing in the form of legs—this worm has legs like other caterpillars.

In your June number, you gave place to a communication from me, in which I stated that I had sown two bushels of winter wheat in the spring, after having prepared it as recommended by one of your correspondents, see 4th vol. p. 64. The result was not in favor of repeating the experiment, the crop being very late, light, and inferior in quality.

The Italian spring wheat has succeeded with me the past season, better than winter or other spring varieties. My spring wheat, early sown, was but little affected with the above worm. Very respectfully yours,

NATHANIEL SILL.

The Mulberry—Varieties.

Linnæan Garden and Nurseries,
near New-York, February 4th, 1839.

J. BUEL, Esq.—Dear Sir—Having been applied to by numerous persons to decide whether the Morretti mulberry of France, and the tree called "Alpine," are the same, and it having been controverted by some persons, we now state explicitly, that they are identically the same, and that every tree called Alpine was grown from Morretti seed. A quibble is made by some persons, who say the Alpine trees are *selected* Morretti—but we presume they are quite as much selected when under one name as when under the other. The Canton and Nankin mulberries are also identical with each other.

Of all the varieties of the mulberry ever yet introduced to this country, the Morus Expansa is pre-eminent for a northern climate, as it is very hardy, and has leaves equal to the multicaulis in excellence, and second only to it in size. Yours respectfully,

WM. PRINCE & SONS.

Blight in the Pear-Tree.

Near Vincennes, Ia. 16*th January*, 1839.

J. BUEL, Esq.—Dear Sir—As I have been a subscriber to your Cultivator, except the second year, I will say a word about preserving pear trees, from personal experience.

Pear Trees.—The first was as thick as a man's thigh; limbs and leaves turned black; I cut off all that was dying; continued to cut off all but two side limbs; new shoots put out, and the tree now has a fine top. Second, a small tree with a fine top, all the leaves turned black; I cut the limbs all off to near the body, rubbed the body with soft soap, made strong with lye; in two years after I cut off five shoots, from three to five feet long, leaving four shoots on; I have seen no more black leaves on this tree. Third, a pear tree as large as the calf of a man's leg, the top leaves turned yellow, and the under leaves turned black; I cut out ten feet of the top and all the limbs that had black leaves on them, and rubbed the body with soft soap and lye. Since that time it has grown finely; no more black leaves on any of these trees. Yours respectfully,

DANIEL SMITH.

Fish Manure.

Upper Aquebogue, Suffolk co. L. I. Feb. 1, 1839.

J. BUEL—Dear Sir—Mr. Roberts inquires in your November number, whether fish as a manure will impoverish

land. Now as long as land will produce good crops, it is immaterial whether it be rich or poor, and as long as he uses plenty of fish, with an ordinary blessing, he may rely on good crops. I have used fish manure forty years successfully, and my land is much better than when I first commenced fishing. I make use of from fifty thousand to one hundred and fifty thousand of fish, known here by the name of mossbankers, per annum, and could I get a million I should have none to spare. There is no manure that I use equal to fish for a crop of wheat, and all kinds of roots; but they do not have that effect, after repeating, that they have at first; and that is the case with all kinds of manure. Thence the necessity of mixing manures. Ten thousand mossbankers per acre is sufficient for a crop of wheat, without any other manure. My practice is, to put on twelve or fifteen large wagon loads of litter, and five thousand fish per acre, and then I calculate for a good crop of wheat, and after the wheat a good burthen of grass for three or four years. The same quantity of manure makes a good crop of Indian corn. The manure fishery is the making of the east end of our island. I think I may say that the production of our land is three times as much as it was before we commenced fishing. But it must not all be attributed to fish. We exert every means to make and collect manure, for without it we cannot raise our bread. For a farmer to break up a piece of land, and lay it down poorer than it was at first, is like borrowing money to pay his interest. It is astonishing to me that there are some few farmers yet, who will let their manure lie and ferment in the yard, when they must know that they lose half its virtue, for there is no time that it brings forth vegetation so well as when in a state of fermentation under the sod. I might say that our soil is a sandy loam.
JOHN WELLS.

Relics of by-gone Superstition.

Schenectady, January 10th, 1839.

Dear Sir—Your industry and perseverence have enriched the Cultivator with much useful instruction and advice, both for the cultivation of the fields and the minds of farmers. If they will be wise enough to put them in practice, with as much earnestness and zeal as you have composed and published them, our country will soon exhibit beautiful hills and dales, loaded with agricultural wealth.

But sir, there is a quarter of our horizon yet incumbered with the clouds of ignorance, which if you can clear up and expel, it will redound much to the honor and excellence of christianity, over paganism and error, as well as to the improvement of agriculture.

The last time I sat on a grand jury, a woman of Duanesburgh applied for protection from her neighbors, who called her a witch. They sought opportunities to attack her when passing in the street, and attempted to draw blood from her *head* by striking her, believing that if they were successful, it would protect them from her witchcraft. The grand jury indicted several persons who had thus assaulted her. She was Scotch, and one of the grand jurors who lived near to her, said, that some of her neighbors believed that she had lately made a pass to Scotland, over the ocean *in a wash-tub.*

About three or four years ago, Martin Sitterly, a descendant of German parents, in Rotterdam, adjoining this city, stopped at our store, and said he was on his way to the adjoining town of Glenville, to expel the witches from the cattle of a Dutch farmer there, who had sent for him for that purpose. Shortly after, that farmer stopped at the store, and we attempted to admonish him for such folly. He answered with great pathos, that *when his cows all slunk their calves, it was time to do something for them.* My son asked him if he raised rye on his farm, thrashed it in winter, when his cows came about the barn doors, and eat the talings, or winnowings of the rye? He answered in the affirmative. We then told him, that the spur or ergot in the rye, which was eaten by the cows, caused them to lose their calves, and not the witches.

If grand juries would indict, and the courts would condemn to be hanged those convicted of witchcraft, as they formerly did, witches would be as numerous now as then, notwithstanding the boasted light and knowledge of the age.

Did you ever know a farmer make much progress of improvement, to be called a good farmer, who delayed sowing and planting till a certain time of the moon? The moon passes round the earth as the sun does every day of the year alike, and is every day and night equally bright and light; but her light side is not seen by us, except when the earth is between her and the sun, or partly so. Why should her influence then, if any, be greater at one stage of her passage than at another? Until men will cease to believe in the influence of the moon and in witches, they will not make good farmers.

The heathen, who knew not God, saw the sun, and that it gave heat and light, caused the rains, and the growth of vegetables; they thought it the great and good spirit who blessed them, &c. They also reverenced the moon, as she illumined the night; and when they had been instructed by the revelation of Christianity, the force of education was so strong, they could not forget the moon, as the cause of their good things. The glorious sun, without which the moon cannot be seen, gets no share of their praise for warming the earth, and bringing forth the crops, but all is bestowed on the moon, simply because it is all mystery. Eh, every thing which loses the mystery, loses its value, with the ignorant. The moon, like a looking glass, only reflects the light she borrows from the sun; and if she has any influence it must be the light reflected only, for she affords not a particle of heat that can be measured.

Would it not be well for you to advise the almanac makers, or those who print them, to omit the figure of the man in the moon, with the signs, &c. in the second page of the almanac? It is a mere pagan practice, of no value, invented to excite wonder and mystery, and entirely devoid of truth. Most respectfully.
DAVID TOMLINSON.

N. B. I have again to admonish the printer of the Cultivator with a fault, in the Recipe I sent for curing pork hams.

It reads, "*rub with fine salt.*" We never rub salt on any hams or beef which are to be put in pickle. If hams were rubbed with fine salt, and left in a warm place two or three days before put into pickle, they would be salted enough in fifteen or twenty days at most. Let "*rub with fine salt*" be dashed out with ink by each holder of the Cultivator.

A reader of the Cultivator has asked what must be the size of the bags for the hams! We answer, that we dare not incumber the Cultivator with useless remarks—That if a dish of suppaun and milk, with a spoon in it, were placed before a man, he should not ask how he should eat it! My hooks are formed like S—The bags may be put in strong pickle, and then dried to make them more tight if desired. Is not quackgrass a corruption? I call it quickgrass, for it is always alive and quick, unless killed by drying it.

Canal Policy.

Schenectady, January 23, 1839.

Dear friend—When the Erie canal was in making, on the flats in Schenectady, I asked the engineers what objection they had to the Mohawk river—that it was a natural canal, much better and safer than any canal made by art—that the bottom would not fall out, as it and the banks of the one they were making would.

All the answer I received was, that they could not make a towing path! I replied, that half the expense of the tow path they were making, would form one on the banks of the river—but that none would be needed, as the broad sheet of water would allow steam-boats to pass and tow the frieght boats of much larger size, and cheaper than horse boats.

But, the answer of the engineer of the Duke of Bridgewater, when catechised by the committee of the Parliament, appointed to learn the feasibility of the Duke's canal, whether it would be proper for the government to loan him aid to finish it—the question was, what are rivers made for? The pert answer was, *to feed canals, sir.* The answer was well in that place, and when canals are made at right angles to rivers; but to make an artificial canal on the banks of a natural one, the river, for the distance of a hundred miles, was a novelty, and in my opinion, a folly.

I told the engineers, that before ten years should pass the business on the canal would so multiply, as to show its want of capacity to meet the great increase of the country—that the time would soon arrive, when every gallon of water in the Mohawk would be wanted for navigation. I grant that my prophesy was not in exact accordance with events—but, the fact, that the canal was discovered to be of too small capacity for convenience, within the ten years, proved to be correct, although the resort to the natural canal, the river, has not been considered by the engineers and commissioners.

Although it is a noble act in man, to acknowledge errors when discovered, and retract, yet our worthy engineers and commissioners are either slow of discovery, or too proud to acknowledge the error.

When I stated to Judge Wright, the objections to digging up the flats, instead of putting locks in the river, he acknowledged the force of the arguments, and said, *we are merely executing the orders of the commissioners, and are not allowed to exercise our own best judgment.* He said, *the commissioners were appointed to make contracts and oversee the execution, and their pride leads them to become directors of the engineers.*

The legislature placed such unbounded confidence in the canal commissioners, simply because the Erie canal has proved to be a successful project, which every one knew as well, would be the fact, that a canal must be the great desideratum for the internal improvements; therefore, as if the discovery had been the result of their gigantic minds, have given implicit confidence to all their projects of improvement and enlargement of the canal.

After spending fifteen millions of dollars in enlarging the Erie canal, by disturbing the farms and villages, &c. with high and inconvenient bridges over farms and highways, it will soon be seen, that the great error must be corrected by abandoning it, and taking the river, (much safer against breaches) and lakes to make a ship canal.

This cannot be seen now, in looking up the stream: but when the ship canal shall be made around the Niagara falls, and the ships advance down to Oswego, that will open the eyes of the judicious, to see the folly of enlarging the Erie canal from the Hudson to Oswego. From Syracuse to Buffalo, the Erie canal is of sufficient size for internal improvement for many years. But, when ships from the far west reach Oswego, they'll say we must go to New-York and the Ocean, or follow the rival canal now making in the St. Lawrence from Kingston to Montreal for ships, and they will then throw away the enlarged Erie, on the banks of the beautiful Mohawk, and adopt the natural canal, the river. It will not cost half the sum to make the ship canal from Rome to the Hudson, that it will to effect the present project of enlarging the Erie canal, by purchasing the expensive property of individuals, &c. The facility of steam, the enlarged boats and ships, in the enlarged and broad sheet of water of the river, will reduce the freight to one-eighth, as well as save half the time, which are two enormous items.

The surplus and waste waters at the dams in the river, will be worth more than the cost of erecting the dams. The dams and locks may be more frequent, and of less depth, than in the Erie canal.

The locks for descending in the right bank, and for ascending in the left bank of the river, to be made out of the way of the current and ice, would be perfectly safe, and afford more expedition. Rolling dams would allow ice and surplus water to flow over with safety, and the whole valley of the superb and picturesque Mohawk, by means of the surplus water powers, for hydraulic use at the dams, would be converted into one continuous village, from the majestic Hudson to the elegant city of Oswego. My remarks, when the Erie canal was in making, had no force, as I was a humble citizen, and not clothed with the wonderful mystery of *engineer.* But, I venture to prophesy once more, that all the canal will be abandoned for the river, from the Hudson to Oswego, by the next generation, when a new class of men come into charge of the canal, who can see, and dare condemn the errors of those who acted before them, without wounding their own pride.

I address you, sir, on this important subject, because the sphere in which you move, has given to your opinions great celebrity in public improvements. If your mind should accord with mine on this subject, it is not too late to effect the alteration in the improvement of the canal. And, I beg you to give some heed to it, before more of the funds of the state are wasted in an error which the next generation must and will correct, after the great waste of millions. With great respect and esteem,
D. TOMLINSON.

South-Down Sheep.

St. Andrews, New Brunswick, via
Robbinston, Me. 14th January, 1839.

Sir—Being a subscriber to your useful and widely circulated paper the "Cultivator," I take the liberty of addressing you, as you appear from your publication to take so lively an interest in the welfare of your agricultural friends.

During a short visit that I made last summer to the state of Pennsylvania, I was much pleased to find a desire to improve the breed of sheep, by importing South Downs into that state, but the great obstacle that offered itself to the flock-masters there, was the difficulty of obtaining good bred sheep from England, as they corresponded with no person who had an opportunity of procuring them, from some of the first flock-masters in England, where *only* they are to be found. I am aware that many sheep said to be South Downs, have lately been imported into the United States; but I very much doubt if they are of that breed; however, I can only speak with certainty of those that have been pointed out to me as such, which were decidedly merely a cross with the Downs, some with the Dishley, or New-Leicester breed, and others with a sheep known in England as the Romney Marsh sheep; which although they fatten early, and kindly, are only calculated for a rich marsh or pasture grounds.

To obviate the before mentioned difficulty I have offered to procure some ram lambs next fall, for any of the gentlemen in Pennsylvania who may wish a cross with the long established, and much admired stock of my late father, Mr. Ellman, late of Glynde farm in the county of Sussex, in England, which are now in the possession of my brothers, who still defy all Europe to produce sheep equal to them. Should any of your neighbors be desirous of trying a cross with this valuable breed, I shall be happy to facilitate their views, and I will engage to import from the above mentioned flock, at $125 each, to be delivered here, a few ram lambs fully equal in blood to the rams now letting on my brothers farms, at fifty guineas each for the season. The purchasers to pay me all reasonable expenses that I may be at for the keep of the lambs after their arrival here. From hence they can be conveniently shipped on board the Eastport packets direct to New-York, or should any one prefer importing them at their own expense, by making arrangements with me for the payment of the sheep, they shall be deliverd on board either in London or Portsmouth, at $102 each, or £20 sterling, if paid for in London at the time of shipment. Sheep at a more advanced age would of course cost more, and any application to me post paid shall receive my early attention.

I recommended the flock-masters whom I met with last summer to try the South Down sheep, remarking on the good qualities they possess; which it would be useless to repeat, as I observed in your number for November 1836, a hasty description of these sheep, which I am satisfied was taken from a treatise on this breed, written by my late father, who it is well known brought the South Down sheep to their present high state of perfection. If the object of the farmer is length of wool, without regard to fineness of pile, or the quality of the mutton, I would not recommend the South Downs, but where both are an object, they are decidedly to be preferred. It must also be recollected that the cross with the long woolled sheep will not bear hard keeping, they are only adapted for good lands; while the cross with the South Downs will stand any hardship, as no other sheep in England are capable of enduring so much exposure, or are so highly prized: and no sheep show a disposition to fatten so early. If I were to enter at large into the good qualities of these sheep, I should trespass too long upon your time, suffice it at present to say, that I challenge all Europe to produce so much weight of mutton from another breed, as I can produce upon the same keep from the pure South Downs, and yet of such superior flavor: for I know from experience, that no sheep in Europe will live on such short keep, nor can any exceed them in symmetry; and it may also be remarked, that the fleece of the South Down sheep, (that of the ram weighing eight pounds,) has within these few years so much improved in quality, that a great part has been considered fit for the manufacture of superfine cloths.

My brothers have lately exported rams to foreign parts, and a great many to Scotland, by which a cross has been gained that has nearly driven the native breed out of the country.

I must in conclusion observe, that as I hold a situation under government, and have no lands at my disposal, I am unwilling to import these sheep, unless I see a certainty of disposing of them, and I can without hesitation warrant those to be of the purest blood.

If you consider these remarks worthy of attention, I will thank you to give them a place in your valuable columns. I am, sir, your very obedient servant,

WM. ELLMAN.

J. Buel, Esq.

Remarks.—We make no pretensions to be a judge of sheep, but we do profess to have an opinion of *mutton*. We have tried the South Down mutton several times during the past year; and we would cheerfully pay one cent a pound more for it than for any other sheep's meat we ever ate. The wool of the South Down bears a higher price in the English wool market than that of any other native breed of sheep.—*Cond. Cult.*

Ruta Baga.

Easton, Pa. January 8th, 1839.

J. Buel, Esq.—Dear Sir—Last season I have raised about one and a half acres of ruta bagas, yielding a little over 700 bushels. I am well pleased with the crop, as respects the quantity, considering the very dry and unfavorable season for roots; they are of great benefit to my cows, producing much richer milk and cream than any thing else I have ever fed them during the winter season, the milk being entirely free from any taste of the turnips, giving my cows a little salt every day. But with all these advantages, I have been much discouraged in the raising of this crop, it having been an immensely troublesome and expensive one to me; they were sown on ridges, in drills, with Merchant's drill-barrow, and owing to the very dry weather, came up very thin, slow, and delicate and were immediately attacked by millions of insects (turnip fleas,) which I tried to stop by sowing all the drills with ashes and lime slaked in urine, but succeeded only partly, and was obliged to water the whole of them with urine from the cistern attached to my stables, which cleared them effectually from all insects. But during these operations the plants of course grew but very little and the weeds entirely overpowered them; (the ground being very rich) then after the horse hoeing, commenced a very slow and tedious hand hoeing, the plants in some places being hardly perceptible amongst the rank and thrifty weeds. A week or two afterwards we had to repeat the same tedious operation, and only after that, and after a few refreshing showers they took a start and commenced growing; when after one more horse hoeing there was nothing more done to them. Now my object is to ask Mr. Buel's advice as to the practicability of a plan which I think of adopting hereafter, and by which it appears to me that in the raising of the valuable roots, the above described, expensive, laborious, uncertain, and I think, general mode of culture, would in a great measure be overcome. It is this: I thought of sowing my seed eight days earlier in a well prepared seed bed, where all the plants for one or two acres would be in a very small plat of ground, and where with little trouble they can be watered and protected from the flea. A few days before I commence transplanting them, I would prepare my field for receiving the plants which I then think would be too strong to be injured by insects or to be outgrown by weeds. (I judge from the few I transplanted last summer, from where they stood too thick in drills, and which at that time were very large and strong, and which all grew and turned out as fine turnips as any in the field, and besides, they were more smooth and had not so many roots as those not transplanted.) First I should commence removing the largest plants from my seed bed, and prepare and plant part of my field according to the number of plants that would be fit; by these means thinning them out and giving the smaller ones air and room to come on, for I think it of much importance to have all the plants stout and strong before they are removed, in which case the stems of the leaves will remain green and erect, and they will take a start immediately, and will then of course be out of the way of weeds and insects. Another advantage I see in this mode, is that the plants will all be placed at regular distances and exactly as I want them; which cannot be the case if they are not transplanted, for some of them will be so placed that, if in thinning them out you remove the one, there will be too much space between the remaining and the next one, and if you remove neither, they will stand too close. I have often heard ruta bagas much praised as a vegetable for the table, but cannot make use of any of mine; we have tried them frequently and could never boil them soft; they would after three to four hours boiling still be hard; or are there different kinds, and mine perhaps not of a good kind for the table?

I hope Mr. Buel will excuse this long letter, about a matter in which I may be entirely wrong, and in reference to which any advice from him would be thankfully received. I have never seen the above manner of raising ruta bagas recommended, and have therefore thought best to ask advice, before I attempted it, of a person in whose extensive knowledge in all agricultural matters I have the greatest regard and confidence. Very respectfully yours,

FREDK. SEITZ.

N. B. I consider the trouble of transplanting the ruta bagas nothing to be compared to the advantages arising from doing it.

Remarks.—Our correspondent suggests the same mode of avoiding the turnip fly, and of obtaining a large crop, that Cobbett employed while farming on Long Island, viz. *transplanting into fresh ploughed ground*—and which he strenuously recommended to others. He obtained in this way, thirty-three tons of roots to an acre, and the transplanting of an acre, occupied him and one hand the morning and evening of three days, the middle of the day (August) having been too warm to work. The great difficulty is to get hands who can use the dibble with facility, and use it well. A smart man will transplant nearly one thousand in an hour, the plants being furnished to his hand by a boy. We have had ruta baga that would not readily boil soft; and we consider such of inferior kind, or planted too early, which is apt to render them ligneous or woody.—*Conductor.*

Culture and profits of Melons.

Narrows, L. I. January 18th, 1839.

Mr. Buel—I will now endeavor to describe the manner in which we cultivate musk melons, and also state the produce and amount of sales from my crops of the preceding four years.

The kind which we at present cultivate, and with which the New-York market is principally supplied, is known among us by the name of Skillman melons. They average about six inches in diameter, are nearly round, have a rough skin, and their flesh is of a green colour. This is the sixth variety which has been in vogue during my recollection, and the finest of them all. The seed from which all these varieties originated, I believe to have been imported from the coasts of the Mediterranean. They soon degenerate unless care is taken in the selection of the seed. We prefer for melons a rich sandy soil, and on this they flourish better than on any other, and are not so liable to speck in rainy weather. When planted on a red clover sod I have seldom failed having a good crop, but when this is not to be had, we prefer preparing the ground by sowing with rye in August or September of the preceding year, as described in my former communication on the cultivation of cucumbers: the ground is also prepared in a similar manner in the spring, except that the hills are furrowed five feet apart, and the same kind and quantity of manure made use of.

We generally commence planting about a week later than we do cucumbers, but occasionally at the same time, dropping from twenty to thirty seeds into a hill, and covering them about an inch deep with fine soil. Eight or ten days after putting in the first seed we commence planting over, which we seldom perform the second time unless by examination we find the first seed about to fail. The seed of melons is not as liable to rot as that of cucumbers, but long storms are very apt to destroy the young plants, and they will even produce great injury when the plants have vined from off the hills. In 1837, a succession of wet weather caused the ends of the principal part of the melon vines in our vicinity to die as late as the 8th of July, but mine fortunately did not suffer as much as those of my neighbors. We cultivate the plants in the same manner as cucumbers, except that in hoeing, it is generally necessary to remove a small portion of the soil from between them, in consequence of their being too short to admit of the young weeds being covered without injury to the plants. We gradually thin them down to four in a hill, standing from five to six inches apart. The plants are liable to the depredations of the same species of insects which prey upon cucumbers, and they are destroyed in the same manner.

Melon vines are in bearing from five to six weeks; whenever a drought occurs, this period is much less, for that of 1838 finished mine in four weeks. They often bear a second crop which answers for pickling, but I have known this crop to come to perfection.

When the fruit is ripe, it requires to be gathered every day, otherwise there would be large quantities lost in consequence of becoming too ripe and soft. When ripe they have a yellowish colour, but such as are cracked around the stem and come off easily from the vines, we always gather, for they will be fit for eating by the next day, when sold in the markets.

To ensure good crops, melons should not be planted two years in succession on the same ground; they require a rotation. Marshall, an English writer, recommends the carrying of cucumber and melon seeds a week or two in the breeches pockets previous to planting, to dry away some of the more watery particles: were we believers of this doctrine, it would be a difficult matter and require large pockets, or a regiment of small ones to carry it into practice, since some of us, to secure our crops, plant from three to four bushels of seed in a season.

The following is the number of hills planted, produce (large quantities of unsaleable ones fed to the hogs excepted) and amount of sales for the preceding four years, viz.

Year.	Hills planted.	Bushels sold.	Amount received.
1835,	6,664	1,133	$939 10
1836,	7,850	561	590 57
1837,	8,011	990	913 56
1838,	7,590	823	713 96

Yours, TUNIS G. BERGEN.

Great product of Sugar Beets.

Albany, January 1838.

Mr. Buel—Sir—The following account of a most extraordinary yield of the sugar beet, was communicated to me, in a letter, from Mr. Samuel Guthrie of Sacket's Harbor. I regret he omitted to give his mode of culture, nature of the soil, &c. &c. as we could then probably profit by his experience.

I cultivated a small patch last season, of sugar beets and carrots, but my crop did not begin to compare with his—still I am so well convinced and satisfied with their value for feeding stock, that I have determined to try them again, the coming season, should my life be spared.

My cows, calves and hogs, prefered them to the ruta baga, while my sheep prefered the latter.

I feed my horses carrots, one meal per day, and think them equal to oats—bushel for bushel—it not only keeps them loose, but gives them fine glossy coats.

CALEB N. BEMENT.

THE EXTRACT.

"I observe in the Cultivator," says Mr. Guthrie, "that you had great success, last winter, in wintering hogs on ruta bagas. You have not probably given a trial to the French sugar beet. From some experiments I am induced to think that the French sugar beets will prove to be the best and most economical food for the hog, to be found among the root tribe. In the same enclosure, last summer, I raised, in the ratio to the amount of ruta baga of about 500 bushels, of carrots 937, and of French sugar beet the very large quantity of 2176 bushels to the acre. The soil and advantages of culture the same in each. The ruta baga was greatly injured by insects, *while the beet was without an enemy*. The cost of the sugar beets, which, by the bye, were almost as white and smooth as hens eggs, scarcely exceeded one cent per bushel. I washed and sliced a quantity of ruta baga, carrots and beets, and fed all at once to my hogs, on a few occasions, and was induced to believe that the hogs gave the preference to the sugar beet. I am zealously preparing for the purpose, and intend to feed a few thousand bushels of French sugar beets another winter, at all times thoroughly steamed, with a slight admixture of bran, shorts, or ground screenings, and I have no doubt but I will winter a swarm of hogs in this way for a less expense than has ever been heretofore done."

Hints to those who raise great Crops.

New-York, January 18, 1839.

Mr. Buel—Dear Sir—I take my pen with reluctance, inasmuch as I fear some unpleasant feelings may arise from what I have to say; but as I have no object in view but to vindicate the propriety of fairness and truth, I hope none will be offended. I have all the volumes of the Cultivator, and the pleasure they have afforded me, has induced me to obtain several subscribers to the work. In so doing, I used no other argument than this, viz. that it contained more matter of fact than any other agricultural periodical I had ever met with, and I am sorry to say, that some recent communications are calculated to create wrong impressions. While reading the last number, my attention was drawn to a close examination of the several statements in relation to the corn and ruta baga crops, each of which foots up a large amount of profit, and that is the only point I shall now consider. Statements made up in this manner, are calculated to do injury, not to the experienced farmer, but to the new beginners and persons unacquainted with agricultural pursuits. If you examine the statement of Mr Osburn, I think you will sustain me in this position. He states that he planted and cultivated three acres of corn, and that the cost of so doing was $61.80, and that the best acre produced a nett profit $87.71; had the other two acres produced as well, the whole profit would have been $263.13; i. e. if the statement is a fair one. I think it an unfair one, and believe many others will form the same opinion. It is difficult for us city people, who do little with corn but cook and eat it, to see how a farmer can buy and fence land and then furnish 50 loads of manure to the acre; and think the expense too trifling to occupy a place in the accounts of his farming operations. This is what I complain of, telling the truth, but not all of it, leaving the uninformed to guess at what is omitted in the debit side of the account, or pass it as unimportant, whilst on the other side, we find every thing set down with the most scrupulous accuracy, even to the stalks and pumpkins, and yet the land, manure, replanting, shelling, gathering pumpkins and stalks are forgotten. Now I can believe that 118 bushels of corn were raised on the acre, but must protest against the claim to so great an amount of the proceeds as profit—profit, you know is the pith of every thing, in these days, and if the farmers take the Frenchman's plan of calling the amount of sales nett profit, I fear the stock will fail. But let us look a little farther, and see how the profit is made out. First, one man, two boys, one horse, and two cattle, worked at the manure ten days for $10. Only look at that to begin with. Why, sir, you or I would have asked that amount for the board and keeping of the cattle during that time, and thought it little enough too. Then look at the hoeing; thirty-four days work of men and boys, horse and cultivator all for $13.87. Who could not realize large profits from any business with labor at that price. I do not mean to infer that more wages was given than was stated, but is it fair to publish it to prove the profit of raising corn? Look at it again; divide $61.80 by the number of days spent by men, boys and beasts in cultivating this crop, and you will find that the amount of each day's work would purchase about 23lbs. of this same corn. Now the beasts might live upon this quantity of food, but the men and boys could not, and buy their lindsey woolsey too. In choosing the statement of Mr. Joseph S. Osburn as the subject of these remarks, I entirely disclaim every thing of an invidious character. Many of the remarks would apply equally well to other statements found in the Cultivator, and I shall leave it to your correspondents to apply them where they will suit best, and respectfully ask them to continue giving us the result of their labor and experiments—give us the truth —the whole truth—sound conclusions, drawn from the new, enlightening and profit working doctrines taught and practised by the ablest agriculturists of our country; then, only, will we rightly understand and profit by each other's experience. The day is not very far distant, when one man and one acre will produce more than two men and two acres now do, taking the state together. All that is necessary to bring about a result so desirable, is to encourage and circulate sound and well conducted agricultural papers, particularly those which give as much practice as theory. Then those who will may learn farming as they learned their multiplication tables—learn to connect facts as they connect figures, and learn too the relation they bear to each other.

I have continued this scribbling to an unreasonable length, but must urge one thing which is worth more than all the rest. Let every farmer and mechanic learn the science of his business—or in other words, the connection of parts, and how each and every one is related to the other, that he may be enabled to place each part in the most advantageous position. When the mind and body are engaged in the same business, the hands forget to tire. Study is therefore no hindrance. If any of the above is worth publishing you are at liberty to select and use it as you think proper. Respectfully yours, &c.

JOHN M. DODD.

☞ There is much truth in the remarks of our correspondent. We could wish that these details were given with more accuracy; but we do not feel at liberty to correct them in this respect. Our object in offering the premium, was to increase the average profit of the corn crop, by concentrating labor, and inducing a more enlightened mode of culture. We consider this object has been promoted in the culture of the crops which have been presented for premium—that the soil has been made to yield a greater product, without a corresponding increase of expense. We looked simply to the fact, that while the expense of culture was no greater than is ordinary, or should be, the crops were three-fold greater than common. Our correspondent is not aware of the fact, that manure has not yet hardly a nominal value in the west, and that many farmers are glad to have it removed without price. These corn crops afford a demonstration of its intrinsic value—and hence, too, results in a benefit to the public.—*Cond.*

National Agricultural School.

Washington City, January 22, 1839.

Jesse Buel, Esq.—Sir—I learned with great pleasure, from your letter of the first inst: that you approve of my proposition, of having an agricultural school erected from portion of the Smithsonian legacy.

The most effective way of carrying this object, would be by petition to Congress from the agricultural societies, from several parts of the Union, and principally, as you mentioned to me, in discussing it in the agricultural journals.

Probably you have received my memorial on the manufacture of beet sugar; I do myself the honor of presenting you that of the proposed agricultural institute.

I take the liberty of sending you two packets, which I request to deliver to the addressed assemblies of the coming month.

Should I go to Europe this coming spring, I shall take a tour of the continent, to investigate not only the new improvements in the manufacture of beet sugar, but also agriculture in general. Should you or the assemblies honor me with orders, I should feel happy to at tend to them. Very respectfully,

CHARLES LEWIS FLEISCHMANN.

Queries.

Morristown, Feb. 7, 1839.

Jesse Buel, Esq.—Dear Sir—Will you be good enough to give to a subscriber information upon the following points, 1st. If a farmer go to the expense of sending to Albany for a pair of Bement's Berkshire pigs, what course or rules of breeding must he adopt to keep his stock pure, or in other words, how shall he prevent the degenerating effects of breeding "in-and in?" 2nd. (As extracted from the *Farmers' Cabinet.*) "What is the best method known among our builders and mechanics of protecting northeast brick walls, and generally of keeping stone and brick houses dry?" 3rd. Has the French *Asphaltum*, which is now used in France and England, for roofs, side-walks, &c. been applied in our country to protect northeast brick walls, from our heavy storms?—if so, where, what is the expense per square yard, and with what success?

If you have not turned your attention sufficiently to the last question, to give the requisite information, will some one of your numerous subscribers answer the same. For although it may not be strictly an agricultural question, yet it relates to the protection and preservation of brick walls, in which many of your readers are equally interested with the SUBSCRIBER.

REMARKS.

1. The degenerating effects of breeding in-and-in, can only be avoided by crossing with other families or other breeds.

2. For protecting the northern walls of houses from the weather, or of keeping stone or brick houses dry, the only expedients we have known to be adopted, are to cover the exterior with cement, to saturate it with oil paint, or to cover it with a coat of white wash. Mr. Coke uses the latter as a preservative to wood as well as walls. For this purpose the lime is used fresh from the kiln, and clean sharp sand, and mixed with hot water, and laid on hot. Our brick walls have been covered with a lime-wash, we believe with the addition of a little salt. The wash appears nearly as durable as paint; and although we consider it some protection, it does not prevent the interior of the walls becoming damp in the spring and during long spells of damp weather.

3. Asphaltum has not been applied in America, that we have learnt, to the purposes noted by our correspondent. Asphaltum is a species of mineral tar, composed according to the analysis of Klaproth, of 32 parts of bituminous oil, 30 of charcoal, and 20.50 of water, silex, alumine, lime, and the oxides of iron and manganese. It abounds in the West Indies, and particularly in the island of Trinidad. It becomes solid on exposure to the atmosphere, and burns readily. We are not acquainted with the foreign modes of preparing it for pavements and roofs. We invite some one capable to supply our deficiencies in this matter.—*Cond.*

Mode of destroying Pea Bugs, &c.

North Mansfield, Feb. 14th, 1839.

J. Buel—Dear Sir—For about ten years, I have directed my attention specially to the cultivation of select kinds of the garden pea, *for seed*. By care, and the selection of the purest and ripest seed from year to year, the quality of the seed became greatly improved; and practice enabled me to ascertain the most successful mode of cultivation. My garden contains one acre; upon one fourth part of this, I have raised in different years from four to seven bushels of pure seed, in value from five to six dollars per bushel.

I have frequently seen it stated, that *worm eaten* peas were not materially injured for seed; but I have proved by experiment, that they are of little value. Such of them as vegetate are of feeble growth, and a very considerable proportion will not germinate at all.

As soon as my seed is *well ripened,* I put it in large jugs, of any convenient size, well corked and sealed. The egg of the insect, within the pea, is at this time in such a state as not to injure the seed, and not being able to change its form, or to grow *without air*, the seed remains until needed for use, entirely without injury. Seed of this kind is of more than double value, compared with that ordinarily sold; and by repeatedly sowing such seed, *the ravages of the pea bug*, I suppose may be in a great measure prevented. Families should be careful to reserve their *earliest and best seed,* and as soon as it is perfectly mature, seal it in bottles. If the seed is not *dead ripe,* the matchless and some other delicate varieties, will to an extent fail of coming up; and any considerable delay in bottling will allow the bug time to commence his work.

My principal object in writing to you, is to name a disease, which in this region, for a few years past, has seriously affected the culture of the garden pea: how far the field pea has suffered from the same cause, I am unable to state; though there is evidence, in some cases, of a new form of blight.

About four years ago, I observed that the plants in a few distinct places in my beds, began, after two or three weeks growth, to appear sickly, and gradually to turn yellow. I examined the roots, but could perceive no evidence of any insect. From that time to this, the disease has extended, till the profit of culture is destroyed. I first heard complaints on this subject in dry gardens, perhaps six or eight years ago, and attributed the evil to the quality of the manure, but am now convinced, that the cause was the same from which the gardens in Connecticut are extensively suffering.

The following facts I have ascertained relative to the disease mentioned.

1. It appears in places widely remote from each other, and in instances in which the seed is obtained from different sources.

2. Dry soils, which ordinarily are best adapted to the cultivation of the early pea, suffer most; and heating manures cannot be used in such soils.

3. The early pea is most subject to the disease; but even the hardy garden marrowfat, is often diminished in its products one half. Many plants prematurely turn yellow and some entirely die.

4. Ground planted with the pea for successive years, bears the most decisive marks of the disease; but change of soil does not entirely remove the evil.

This calamity, if it should extend, will be very serious. It has nearly ruined the profits of my garden, the last four years. I design to apply remedies the ensuing season, and shall employ *salt*, first of all. If you can communicate any facts with reference to the disease, or its remedies, you doubtless will oblige very many.

I will only add, that a disease, *something similar*, has in a few instances affected whole fields of maize, without any appearance of insects at the root, as I have myself observed. A few spots upon the leaves were the first indications of disease, while the plants were from one to two feet in height; and soon the whole field changed its colour to a sickly yellow, and scarcely any product was obtained, though the plants reached about their usual size. A neighbor pointed out this disease in a field of mine, two years ago, and his predictions of the result were more than realized. Truly yours, a constant reader, GULIELMUS CLERICUS.

Advice Asked.

New-Baltimore, Va. Feb. 11, 1839.

Dear Sir—I think the advice which you give in the Cultivator, is generally excellent, but owing to circumstances it does not always meet our cases. Your soil is better than ours, your farms smaller, and your laborers different. I will describe a concern here which actually exists, and ask you to conceive yourself the proprietor, and say what your course would be. Agricola has a farm of 490 acres, about 350 acres of it open, and in cultivation; the soil a mixture of sand and clay, the preponderance rather in favor of the former. The yield from seven barrels to one of corn to the acre, planted at right angles, four feet distance, two stocks in a hill—of wheat, about fifteen to three bushels per acre, when fallowed; on corn land, less; about seventy-five acres of the farm in clover, a small portion of low land, but the greater part is high and rolling; the whole farm under pretty good enclosure, laid off into nine fields. He has a family consisting of himself, wife, and six children, all daughters excepting the two youngest, entirely unable to labor; also nine slaves, of whom, one is a man, another a woman, a lad and two smaller boys, the rest children unable to work. He has a tolerable supply of horses, cattle, hogs, and sheep; and of farming utensils; a year's allowance, and but little money. Hirelings cost from $8 to $10 per month. Now as this is a real case, you will oblige a subscriber by saying how you would proceed, if you were the proprietor. Let your answers come out in the March number, if convenient. Yours most respectfully,

JNO. OGILVIE.

Plaster costs from $5 to $6 a ton—lime too far off to be procured at reasonable cost, and no manure to be obtained, besides what is raised on the farm. J. O.

ANSWER TO THE ABOVE.

Agricola works 350 acres of land, from all appearances materially good, with two grown persons and three lads, besides himself, the whole not exceeding five efficient hands, being about seventy acres to each laborer; and he gets an average product of twenty bushels of corn, and nine of wheat, taking the mean of his numbers, from an acre! In other words, he barely makes out to live upon the product of his 490 acre farm, while many a Yankee not only lives, but lays up money, upon a tenth of these acres. The difference in the two cases arises principally, we suspect, from the capital, the labor and the skill, which are employed on the smaller, and not on the larger farm. And the best way of equaling the Yankee in profits, is to imitate him in practice. We therefore advise Agricola, to concentrate his spare capital, his manures, and his labor, upon fifty acres—forgetting that he has any more, except for the range of his cattle—and to confine his efforts to the improvement of these fifty acres, till he can grow upon each and any of them, sixty bushels or twelve barrels of corn, and at least twenty bushels of wheat. Manure is the first requisite to improvement. Let him save, therefore, every refuse animal and vegetable substance, and apply it economically. Clover may contribute much to fertility, if ploughed under before it has run out, or been eaten down to the ground. The beet and Swedish turnip, besides affording much to the farm stock, return much to the soil in the form of manure. Let him plant no more corn than he can manure well; and sow no wheat till he can grow sixteeen bushels an acre. Let him alternate grain, and grass and roots. In this way, with Yankee industry, in six or seven years, we think the fifty acres will be made to yield him more than 150 acres do now, and with one third of the labor he now bestows, or ought to bestow, upon the latter. Let him keep up the fertility of this fifty acres by the same means that he raises it; and he may then apply his surplus means, the profits of the fifty well cultivated acres, to grapple and bring forward fifty other acres to a like condition.

We commend to the notice of our correspondent the communication of Mr. Garth, of his state, inserted in our last number, and our notice in this sheet, of the excellent practice of Mr. Brewer, of this state—both detailing the means successfully adopted for renovating lands, and rendering them fertile—*Cond.*

A new Wheat.

Galena 24th Jan. 1839-

Jesse Buel—Dear Sir—I send you enclosed some few grains of my many headed Santa Fee wheat—I am yet at a loss to find, whether the kind I have is the winter or spring variety—(they have both in New-Mexico) the berries I send you, were produced from a sowing made on the 20th of May last—they are defective; I have planted some of that grain last fall, as winter wheat. I hope yet that some one may succeed in raising that grain to perfection, as I am convinced of its superiority both in yield and quality, over any other wheat raised in this country. I have had some single straws produce as many as fourteen lateral ears, besides the centre or main ear, the laterals being about one-third of the length of the main ear. I have several valuable varieties of Indian corn or maize; two kinds procured from the Indian tribes that inhabit this section of country, both very early, productive, prone to succoring and producing ears on them, besides other kinds; if you are desirous of obtaining some of those kinds, I will forward them to you *post paid*. I cultivated last summer, for the first time, some of your Buel corn, which I take to be the same as the Dutton—I am satisfied that it is two weeks earlier in this climate, than it is in yours, or in the same latitudes in your state. I prefer other larger kinds of maize which we cultivate in this climate, although not quite as early, ripens well here, and bears larger ears, long seeds and small cobs, and will shell out a struck bushel of grains to three half bushels in the ears, heaped. I forward you also enclosed, a few grains of a kind of white corn, which having a large cob and desirable seed, I transplanted upon the cob of a yellow variety—in this way the corn I got was the production of the two kinds above mentioned, of course a mixture of white and yellow grains, mostly, however, upon the large cob. I however found a few ears that retained the desirable small cobs and a mixed seed; from these I selected carefully all the *perfectly* white grains, planted them apart from other varieties, and raised the beautiful white grains now sent you, without a single yellow grain, and retaining the small cob. This variety, I am confident, will be found early enough for your climate, and preferred from the whiteness of its grain. I am very respectfully, &c. JAMES G. SOULARD.

We believe yellow corn is generally more rich in nutritious matter, and the meal from it more grateful to northern palates, than the meal from white varieties.—*Cond.*

Queries and Answers.

Tuckasaga P. O. Mecklenburgh co. N. C. Feb. 4, 1839.

J. Buel—Sir—Will you or some of your correspondents please to answer the following queries. 1st. What is the best mode of destroying broomsedge or broom grass in meadows? 2nd. What is the best mode of destroying dock in meadows? 3rd. At what time, and how, ought bees to be put into the bee house, to be raised and managed on the housing plan? 4th. How is the horizontal hill side ditch and graduated furrow laid off, at what part of the field or hill side, is the best to commence at, and how many inches descent in the rafter level of twelve feet span is necessary to prevent hill sides from washing? I would like very much to hear the whole process explained, as I understand it is practised pretty extensively in some parts of Virginia. Respectfully yours. [illegible] H. McHEARY, P. M.

ANSWERS BY THE CONDUCTOR.

We leave the first and last part of the fourth query to be answered by some Virginia correspondent, where we believe broomsedge grows, and where the business of preventing and healing gauls is pretty extensively practised; and proceed to answer the other queries.

2. The only effectual mode of extirpating dock in meadows, is to destroy entirely the root and top; and the best mode of doing this is to pull them up, before the grass is mown, which may generally be affected with ease, by seizing the seed stock near the surface, and drawing up the roots. The entire plants should be gathered in piles by boys, and when dry enough, burnt to ashes. The labor is not great.

3. Bees should be put in the bee house the evening after the new swarm has come out—or any other time will answer.

4. If we understand the fourth query, the first part relates to draining on a wet side hill. The ditch or under drain should be laid off just above where the appearance of the surface indicates an excess of water, and dug through the porous or watery stratum, and so far into the subsoil or pan, or till, as to form a channel in the latter for the conveyance of the water; and it should not have so great a descent as to cause the water to wear upon the bottom or sides of the drain. A second and a third drain are often necessary below the first, in consequence of spouts or springs bursting out there.

Prevention of Smut—Lunar influence.

Clinton, N. Y. January 26, 1839.

Mr. Buel—Sir—With your permission, I will briefly state the result of my efforts to prevent smut in wheat. I prepared the seed for one field by washing (not steeping) in a strong brine, following with lime in the usual way, and sowing immediately. The result was an almost perfectly clean crop. For another field, the seed was merely washed in fresh water, and limed as before. As the sowing commenced, it began to rain, and continued until the seed was all harrowed in. At harvest, I found a very smutty crop. I am inclined to account for this by the substitution of fresh water for brine, or putting the seed in during a rain, or by both united. The latter I am now *sure* was a great error; *suspected* so in the time of it, and hope not to commit the like again.

With respect to "lunar influence," I wish to say a word. If it be as great as some suppose, the subject is a very important one. Without having any decided opinion as to its nature or extent, I entertain some doubts whether the facts stated by your Plymouth correspondent, in the Cultivator for December, are the result of "lunar influence." Some years since, hearing the remark that pork killed in the new of the moon would swell in cooking, and noticing that my pork that year did swell finely during that process, I at once referred to the time of butchering, and found it to have been performed at precisely the opposite period. I think the result was similar in another instance. It would seem, at least, that if the common saying is *sometimes* verified, it is not *always* the case. Very respectfully yours, G. BUTLER.

P. S. I will just mention that I made an experiment last spring, with the contents of an old vault or privy, notwithstanding the fears of some, that it would prove the death of vegetation. It was applied to corn ground, in the hill, at the rate of about twelve loads to the acre. Perhaps a less quantity would have done as well, and a compost form I now think the best way of applying it. The result, however, was astonishing, producing a most luxuriant growth, far exceeding that portion of the field prepared with manure from the hog-pen. A heavy and destructive wind about earing time swept over the field, breaking a large number of stalks, of course greatly reducing the crop. G. B.

New Implement—New variety of Corn.

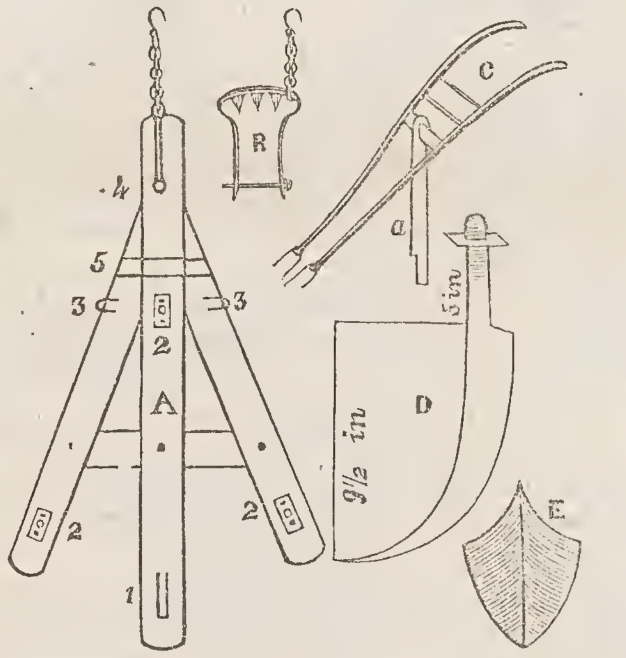
Madison, Ia. January 1, 1839.

J. Buel—Dear Sir—The drag or harrow, here described, is the best implement for the cornfield, market garden and "truckpatch," I have ever seen. It is prefered to and takes the place of the *cultivator*, where both are known, the superiority consisting mainly in the circumstance of its getting deeper into the ground and leaving it in a situation much less likely to *bake*. I obtained a drawing and description from my brother in Maryland for the benefit of this state; a copy is annexed for the benefit of mankind.

Do you eat roasting ears? so called because they are almost always boiled—If you do, plant Tuscarora and sugar corn together in equal quantities, and you will obtain an article superior to any thing you have ever tasted in the shape of corn. I raised a small quantity this year, which was the "town talk." It appears from that which I have saved for seed, that the sugar-corn mixes with the Tuscarora, and not the Tuscarora with the sugar. I will send you a few ears of that mixt corn. Would not the *sugar grains* in these ears, as they are much larger, produce a sugar corn superior to the old? I mean to try it. Yours with much regard,

G. FITZHUGH.

[Fig. No. 3.]



DESERIFTION.

The frame is made of good oak timber, 3 inches broad on top, by $3\frac{1}{2}$ inches deep. The middle piece is 3 feet 2 inches long—the clevis hole seen at 4 is $4\frac{1}{2}$ inches from the end; the front tooth in the same piece is $10\frac{1}{2}$ inches from the end, and seen at 2 in a square long plate with a round hole for the neck of the tooth, to come through; at $2\frac{1}{2}$ inches from the hind end of same piece is a vertical mortise, $2\frac{1}{2}$ inches long and 1 inch broad, for a post to support the handles—the post is made of strong timber $2\frac{1}{2}$ by 3 inches square, and is $19\frac{1}{2}$ inches long—it has a tenon $3\frac{3}{4}$ long by $2\frac{1}{4}$ broad and 1 inch thick, to fit into the mortice at 1—at 11 inches from the shoulder of the post, commences another mortise (in a different direction of the tenon) $2\frac{2}{3}$ inches deep and 1 inch wide, into which is to be fitted a cross to support the handles, tapered and rounded to go into the handles which fit on both sides of the cross, with $\frac{7}{8}$ hole about 2 feet 3 inches from their lower ends, and extend back about the same distance, having a round behind the cross to confine them together, at 1 foot 5 inches from the upper ends, and are 1 foot 6 inches wide at the round. The side pieces are 2 feet 6 inches long, and join the middle piece opposite the clevis hole, and are united to the centre piece by a slat $3\frac{1}{3}$ inches broad at one end, and 3 inches the other, 1 inch thick and 18 inches long, the mortice for it to commence $7\frac{1}{4}$ inches from ends of side pieces. The teeth are placed in these at the distance of $5\frac{1}{2}$ inches from the ends as in the number 2. The teeth are made of best bar iron $1\frac{7}{8}$ by $\frac{7}{8}$ inches—the necks are 5 inches long, and are at the shoulder $1\frac{1}{4}$ inches by $\frac{7}{8}$ square, and are tapered and rounded at the top for a strong screw—in the side pieces they must be placed obliquely that their tracks may be parallel with the middle. They must have strong plates for the bottom, say $\frac{1}{4}$ inch thick, $2\frac{1}{4}$ broad, $4\frac{1}{2}$ long, and well nailed on; the top plates much lighter, and the holes for the teeth in the bottom plates must fit the necks well and of course must be cut into the sides obliquely to give the proper direction as before intimated—the shoulders of the teeth must fit well; with a cold punch, indent the numbers respectively behind the shoulder of each tooth, and on each plate and nut, to distinguish their places.

N. Y. State Agricultural Convention.

Tuesday, February 5, 1839.

The Convention met in the Assembly Chamber at 4 P. M. Judge VAN BERGEN, of Greene county, was called to the chair, and Messrs. Bird, of Erie, and Fry, of Montgomery, were appointed Secretaries.

On motion of Mr. Buel, of Albany, a committee of eight was appointed to nominate officers of the convention. The committee, after consultation, reported the following:

DERICK SIBLEY, of Monroe, *President.*
John Crary, of Washington,
Corn's Bergen, of Kings, } *Vice-Presidents.*
J. L. Voorhees, of Onondaga,
Nathan Clark, of Washington,
W. A. Bird, of Erie,
Richard Keese, of Essex, } *Secretaries.*
Z. Barton Stout, of Ontario,

The counties were called alphabetically, and the gentlemen present from each were desired to hand in their names to the Secretaries. The number of gentlemen who thus identified themselves with the Convention, amounted to between one hundred and eighty and two hundred.

Mr. Buel read a letter from C. L. Fleischmann, a graduate of the Agricultural School of Bavaria, transmitting copies of two memorials which he had presented to Congress, one for the establishment of a National Agricultural School, from a part of the Smithson legacy; and the other, giving the history of the sugar beet business down to the present time, and detailing the recent improvements in the manufacture. From the latter document, which was read in Convention, it appears, that by a summary and cheap process of drying, the beet root may be preserved so as to be manufactured at any season; that the process of drying so lessens its volume and weight, that it may be transported at one-fourth of the former expense; that the beet is now made to yield ten per cent of sugar, and that the process of manufacture has been so simplified and cheapened, that refined sugar, equal to our loaf, can be sold for seven and a half cents per pound.

The thanks of the Convention were voted to Mr. Fleischmann for his communication.

On motion of L. F. Allen, a committee, consisting of Messrs. Buel of Albany, Walsh of Rensselaer, Ogden of Chemung, Bergen of Kings, Sacket of Seneca, Patterson of Livingston, Tiffany of Montgomery, and Potter of Dutchess, was appointed to report the business to be presented to the Convention for its consideration.

Mr. L. F. Allen offered a resolution in favor of a memorial to the legislature, requiring assessors in the several towns and cities to ascertain the annual quantity of agricultural products, and the value of our domestic manufactures.

The resolution was debated by Messrs. Allen, Petrie of Herkimer, Chandler of New-York, Clark of Washington, Beardsley of Otsego, and Strong of Monroe; and before the question was taken, the Convention adjourned to 7 o'clock.

7 o'clock, P. M.

Mr. Allen offered the following, as a substitute for the resolution which he had before moved in the Convention; and after some debate, it was adopted.

Resolved, That this Convention respectfully request the Legislature of this State to pass an act making it the duty of the assessors in each city and town in this State annually to ascertain the whole amount of the produce of said city and town, including agricultural, mechanical and manufactures of every description, designating each separately, in proper tables, so that the specific produce of said city or town may be seen by the items respectively; and in order to obtain particularity and uniformity, the Secretary of State be required to make blank tables or forms, such as he may deem proper and necessary, to ascertain the entire produce of the State of every description; that such blanks may be furnished to the clerks of each city and town in order that they may be distributed to such officers whose duty it is to obtain such information; that said officer be required to make due return thereof in such manner as shall be designated by the Legislature, and that the Secretary of State may make due report of all such information so acquired, to the Legislature annually, in the month of January.

Mr. Buel, from the committee appointed to prepare business for the Convention, reported, in part, the following resolutions:—

1. *Resolved*, That in the opinion of this Convention, the culture of silk is an object well worthy of legislative encouragement by the offering of bounties for a limited number of years for its production.

2. *Resolved*, That this Convention regard the culture of the sugar beet, with a view to the production of sugar, as a branch of agriculture, which may be prosecuted to the very great advancement of the prosperity of the State, and recommend it as well entitled to legislative encouragement by the offer of liberal bounties.

3. *Resolved*, That this Convention regard it of very great importance that a brief treatise, containing plain directions for the growing of the mulberry and the management of silk worms, should be prepared and distributed to each of the common schools in this State.

4. *Resolved*, That the introduction into all the common schools of this State, of a short practical treatise containing plain, simple directions for growing the sugar beet, and extracting the sugar therefrom, according to the latest and best process, would in the opinion of this Con-

vention greatly contribute to the general introduction of this new branch of national industry, which promises so greatly to increase the prosperity and promote the welfare of the people of this State.

5. *Resolved,* That this Convention cordially concur in the recommendation of his excellency the Governor, in his annual message to the present Legislature, that publications upon Agriculture, Horticulture and Rural Economy, ought to constitute a part of every common school library.

6. *Resolved,* That this Convention respectfully and earnestly recommend, that the Legislature make provisions for procuring and distributing the above named publications, and that the expense thereof be defrayed out of the fund appropriated for common school libraries.

After some debate, in which several gentlemen took part, the three first resolutions were adopted, when the Convention adjourned till 4 P. M. on Wednesday.

Wednesday, Feb. 6.

The three last resolutions submitted yesterday, by Mr. Buel, were taken up, discussed, and adopted.

Mr. Buel, from the committee appointed to propose business for the Convention, reported the following resolutions.

7. *Resolved,* That as agriculture is the great business of the state—whether we regard the numbers it employs, the magnitude of its products, or the wealth and comfort which it confers—so it ought, at all times, to receive the peculiar and fostering care of the representatives of the people.

8. *Resolved,* That in the opinion of this Convention, agriculture has not hitherto received, from the people's representatives, that stimulus to improvement which sound policy would justify, and which equal justice and the best interests of the state demand.

9. *Resolved,* That the products of our soil may be vastly increased, our revenue augmented, the wealth and comfort of every class of our citizens promoted, and the character and prospects of our state elevated—by a judicious and liberal appropriation of public moneys, to enlighten, to stimulate and to reward, that numerous portion of our fellow-citizens who are employed in the business of agriculture.

10. *Resolved,* That an annual appropriation of twenty-five thousand dollars of public, moneys ought to be made, for a term of years, to encourage improvements in agriculture; and that in the opinion of this Convention it will return an annual interest to the treasury, and compound interest to the state.

11. *Resolved,* That the general principles of the bill, to encourage agriculture, reported at the last session of the legislature, by the committee on agriculture, meet the views of this Convention, and that we respectfully request that those principles be adopted by the Legislature now in session.

12. *Resolved,* That the American Institute richly deserves the fostering care and liberal patronage of the Legislature, as an institution which has already done much good to the state, and which is eminently calculated to promote great and rapid improvement in the mechanic and manufacturing arts, and materially to aid in the improvement of agriculture.

13. *Resolved,* That the offer of liberal rewards for the discovery of preventives to the depredations of the grain worm, weevil, Hessian fly, and other insect enemies, which prey upon and seriously injure our farm crops, while it might effect much good, by leading to useful discoveries, could not result in loss to the state, inasmuch as the benefits of the discovery, if any should be made deserving of the rewards, would greatly overbalance their amount.

14. *Resolved,* That the establishment of common school libraries will form an important era in our history, and is eminently calculated to advance us in the march of useful knowledge, to multiply our domestic and social comforts, and to elevate our character—provided that judicious selections of books are made for such libraries—adapted to the capacities and understandings of those whom they are designed to benefit, to the wants and improvement of the various branches of productive industry, and to the promotion of industrious and moral habits in the rising generation;—and that in this view of the subject, the appointment of a competent board to prepare, or cause to be prepared, a selection of books for common school libraries, by the Legislature, at least so far as the public moneys are to be applied to this object, is called for by the highest considerations of public usefulness.

After some discussion, the above resolutions were severally adopted, except the 13th; for which Mr. Clark, of Washington, offered the following substitute, which was adopted in its stead.

Whereas, the growing of wheat is a business of great importance, not only to the agricultural but also to the mercantile, manufacturing, commercial and financial interests of this state:—*And whereas,* the eastern and northern portions of the state have, for some years past, been visited by the ravages of insects which have destroyed the crops therein, and reduced the farming interests thereof to dependence on their western neighbors for their supplies of flour:—*And whereas,* this Convention view with alarm, the rapid spread of this evil towards the fine wheat districts of the west:—

Therefore, in hopes to stop the progress of this scourge in our land, this Convention do most earnestly and confidently call upon and request the legislature now in session, to authorize the governor or some other suitable person or persons, to offer a reward to any person or persons who shall discover and make public any remedy for preventing or counteracting the effects of these insects. Such bounty to be paid out of the treasury of this State.

And whereas, also, a knowledge of the character and habits of these insects may lead to the discovery of a course of husbandry which may avoid the deleterious effects of the labors of these insects,

Therefore, this Convention do also request that the Governor may be further authorized and required to offer a reward for the best treatise on the habits, character and nature of these insects. Such treatise to be submitted to and determined by a board for that purpose to be appointed.

Gen. Clark offered the following resolution, which was adopted, and Messrs. J. B. Wakeman of New-York, C. Bergen and Gen. Johnson of Kings, P. Potter of Dutchess, J. J. Viele of Rensselaer, and A. Van Bergen of Greene, were appointed a committee to prepare the report.

Resolved, That a committee of six members of this Convention be appointed to prepare a Report on the future prospects of Agriculture, Manufactures and the Mechanic Arts in this State, to be illustrated by such statistics as the committee may deem appropriate, and that the Report, when completed, be published in the Cultivator, the Genesee Farmer, and the Journal of the American Institute.

Mr. Walsh of Rensselaer, offered the following resolution, which was adopted, and the committee appointed thereon were Messrs. Duane of Schenectady, Sacket of Seneca, Strong of Monroe, Allen of Erie, and Clark of Washington.

Resolved, That a committee of five be appointed to confer with the members of our Legislature on the expediency of making an appropriation of public moneys in aid of the improvement of our husbandry.

On motion of Mr. Fry of Montgomery,

Resolved, That this Convention recommend the holding of a State Agricultural Convention, in the Capitol, in the city of Albany, on the first Tuesday of February, 1840.

On motion of Mr. Buel,

Resolved, That the thanks of this Convention are due to Charles L. Fleishman, for his communication made to them, of his memorials to Congress, on the subject of a National Agricultural School, and on the history and improvements in the Beet Sugar business; and that a memorial to Congress, expressive of the desire of this Convention to favor the establishment of a National Agricultural School, from a portion of the Smithsonian legacy, be drawn up and signed by the officers of this Convention.

On motion of Mr. Allen,

Resolved, That the thanks of this Convention be given to the presiding officers and Secretaries, for their dignified and able discharge of the duties imposed upon them.

On motion of Mr. Youngs, of Tompkins,

Resolved, That Messrs. Buel, Cheever and Bement be appointed a committee for the express purpose of conferring with the Agricultural Committee of both Houses of the Legislature, upon the subject of the proposed reward, in relation to the wheat insect.

The Convention then adjourned *sine die.*

During the last day's meeting, a report was read by Mr. Buel, on the subject of the grain worm, and another report, by Judge Cheever, upon the improvement of common roads.

The gentlemen who principally participated in the discussions upon the adoption of the resolutions, were Messrs. Culver, Clark and Richards of Washington, Mack of Tompkins, Allen of Erie, Tiffany of Montgomery, Potter of Dutchess, Buel of Albany, Viele of Rensselaer, and Young of Tompkins.

Report on the Grain-Worm.

The committee designated at the last State Agricultural Convention, to continue the investigation in regard to the grain worm, report—

That since the last meeting it has been discovered, that there are two species of insects which depredate upon the wheat crop, viz. the *Cecydomia tritici* of Kirby, a yellow and apparently inert insect, not to exceed *one* eighth of an inch in length, and an unnamed creeping thing, *three* eighths of an inch long. The first, which was noticed in last year's report, preys only upon the grain in its milky state, or upon the pollen of the grain; the latter is said to prey upon the ripened grain, and to be found among it in great quantities when passed through the fanning mill. The first appeared ten to twelve years ago, near the borders of Canada, and has been extending annually since, east, west, north and south. The latter has been seen occasionally for several years, and during the last year has been found in great numbers in the wheat crops of West New-York and Northern Pennsylvania. The former is believed to be far the most injurious. The two insects have been so confounded, in the accounts of their depredations, that it is difficult to discriminate, or to determine the extent to which each has spread among us.

In their former report upon the grain-worm the committee quoted from Kirby, the entomologist, that the insect first makes its appearance "under the form of an orange coloured gnat, which introducing its long retractile ovipositor into the centre of the corolla, there deposits its eggs. These being hatched, the larvæ, perhaps by eating the pollen, prevent the impregnation of the grain, &c." and the committee added, on the authority of Prof. Low, that the progeny feed upon the young grain; that they are very small, from two to fourteen being sometimes found in one grain; and are distinguished by being of a bright orange colour; that they *do not extend beyond the grain in which they are born;* that the larvæ, after a period, fall down to the earth, in which they burrow, and remain there until the following summer when they ascend from the earth in the form of the beautiful fly, or gnat, which has been mentioned. The committee will make a further quotation in regard to the habits and depredations of the *Cecydomia tritici* from the recent edition of Loudon's Encyclopædia of Agriculture.

"The wheat-fly generally makes its appearance about the end of June; and according to the evidence of Mr. Sheriff they exist about thirty-nine days. The hue of the fly is orange, the wings transparent, and changing colour according to the light in which they are viewed. It lays its eggs within the glumes of the florets, in clusters varying from two to ten, or even to fifteen, and the larvæ feed upon the grain. They are produced from eggs in the course of eight or ten days; they are first perfectly transparent, and assume a yellow colour a few days afterwards; they travel not from one floret to another, and forty-seven have been numbered in one. Occasionally there are found in the same floret, larvæ and a grain which is shrivelled, as if deprived of nourishment; and although the pollen may furnish the larvæ with food in the first instance, they soon crowd around the lower part of the germen, and subsist, in all probability, on the matter destined to form the grain. Mr. Gorrie estimates the loss sustained by the farming interests, in the carse of Gowry district alone, by the wheat-fly, at £20,000 in 1827; at £30,000 in 1828; and at £36,000 in 1829."

Such as above described is precisely the appearance of the fly, of its larvæ, and of its habits and depredations, that have fallen under our observation; and although your committee think it has extended as far west as the Genesee valley, they are in doubt whether it has been there identified as the wheat destroyer. So far as our observation has extended, the insect is but seldom found in the wheat ear at harvest. The chairman sowed a sample of early May wheat, received from Gen. Cock, of Virginia, late last fall, and another early this spring. He watched it daily and narrowly on its coming into head. The small fly or gnat was seen in great numbers upon it before and after sunset. The heads were filled with larvæ, hardly a kernel in fifty escaped; and yet, on gathering a bundle of the straw at maturity, there was hardly found an insect remaining in the wheat heads.

The committee are happy to be able to confirm, in a measure, the truth of the intimation given in their last report, viz. that late sown spring wheat will escape the ravages of the worm. By late sowing they mean from and after the 20th May at Albany—earlier at the south, and later at the north, according to latitude and altitude, or the forwardness of spring vegetation. They give the following in proof of the correctness of this conclusion.

All wheat sown before the tenth of May, that came under their observation last summer, was more or less injured by the worm. All that was sown after the 20th of May escaped its ravages. Of that which was sown between the 10th and the 20th, some escaped injury, and some was considerably injured. One of the committee sowed Italian and tea wheat on the 16th. The fly was seen upon it for a few days after it came into head; though no material injury to the crop was perceptible.

An excellent and observing farmer in Wallingford, Vt. nearly 100 miles north of Albany, sowed parcels severally on the 25th of April, on the 19th and on the 25th May. The first sown was virtually destroyed by the worm; the second partially so; while that sown on the 25th May entirely escaped, and was a full crop.

The committee will close their report by quoting from a letter to one of them, from an intelligent Scotch farmer, Mr. Robert Forsyth, residing at Champlain, the northern town in our state, who seems to be an accurately observing man.

"1833. Sowed my wheat the 7th of April, the first season the worm was discovered in this part.

"1834. Sowed on the 15th April. The worm destroyed more than they did last year.

"1835. Sowed the 7th May. Wheat all destroyed by the worm. Some farmers in the neighborhood burnt their straw on the ground. Reserved an acre and a half, which I did not sow till the 24th of May; which gave a good crop—no worms.

"1836 and 1837. Sowed both years on the 24th of May—no worms.

"1838. Sowed on the 14th and 15th of May. A few worms observed. All wheat that I examined this season, had worms, less or more, in it, some half destroyed. Since 1833 I have examined every patch of wheat in the neighborhood, and some in the adjoining towns, and every patch sown before the 18th May had more or less worms—all sown about the 1st of May, very much destroyed. I have found the same worm in barley, oats and rye, and in herdsgrass (timothy) also.

"In June, 1834, as the ear began to form in the blade, I opened a number every day. I began to do so on a Monday, but I did not note the day of the month, which I think is of no consequence.

"For the first seven days, I could observe nothing in the heads prognosticating the worm.

"Monday the 8th day of observation. The ears nearly all out of the blade—observed nothing.

"Tuesday and Wednesday—nothing.

"Thursday. I thought I observed something like a small speck of fluid matter on some of the grains in the ear.

"Friday. The matter was more visible.

"Saturday. It was very plain to be seen.

"Sabbath day. Appeared yellow, but still a fluid matter.

"Monday. Appearance much as yesterday.

"Tuesday. The matter appeared more thick—colour yellow.

"Wednesday. It appeared like worms, but not very plain.

"Thursday. Perfect worms as I have ever seen since. I counted nine in one grain, and seventy in one ear."

Mr. Forsyth concludes his letter by saying, that the worm falls from the ear to the ground, and comes forth next season a fly, as he never could find any of the worms in the ear after the wheat was ripe.

J. BUEL, *Chairman.*

Report of the Committee on Common Roads.

The committee, appointed at the last State Agricultural Convention, upon the subject of improving our public highways, respectfully report:

That amongst the various improvements which have been carried forward in this state, that of improving our public highways, has been much overlooked. There are some reasons why this is not much to be regretted. Had their improvement been extensively entered upon, before the construction of our canals or our rail-roads, it is probable that much money would have been expended, which the construction of these works would, to a considerable extent, have rendered unnecessary. For instance, had a McAdam road been made from Albany to Buffalo, to carry freight, as is the case over many parts of England, the construction of the Erie canal would, for that purpose, mainly have superseded its usefulness.

So, also, had such a road been constructed for the transportation of passengers by post coaches, the rail-roads now completed and going forward in that direction, would have rendered it, to some extent, a useless expenditure. Wherever, therefore, canals have been made, or are to be made, for the transportation of freight, or rail-roads for the transportation of freight and passengers, the improvement of the public highways, for the accommodation of the long freight or the long travel, is of less importance.

As our public highways, so far as they relate to our agricultural interests, are to be connected with our canals, the committee think it not impertinent to refer to that branch of our public improvements. In casting our eyes over the state, it will be found that very much has been done.

It is now 21 years since the commencement of the Erie canal. That important work, extending from nigh the eastern boundary of the state to the western, has long since been completed.

At Utica, less than 100 miles from Albany, the Chenango canal runs off at right angles, and parallel with the Hudson river, nearly to the line of Pennsylvania.

At Montezuma, 95 miles further west, the Cayuga and Seneca canals bring the borders of Cayuga and Seneca Lakes to canal navigation.

The Crooked Lake canal, passing from Seneca Lake westward to Crooked Lake, opens the shores of the latter to a like navigation.

The Chemung canal, commencing at the southern termination of Seneca Lake, extends canal navigation south to the Chemung river, nigh the line of Pennsylvania again.

At Rochester, 64 miles further west, the Genesee Valley canal, now constructing, carries canal navigation over to Pennsylvania at Olean.

Again—at the north, the Champlain canal carries a similar navigation to that lake and to the Canada line.

At Rome, 110 miles from Albany, the Black River canal, now constructing, leaves the Erie canal at right angles, and runs off northerly to Lake Ontario.

At Syracuse, 50 miles further west, the Oswego canal leaves the Erie again, and reaches Lake Ontario in 38 miles, at Oswego.

It may, therefore, be asserted, that there are comparatively but few cultivated farms in this state, whose produce, when made, is more than one day's drive, with a horse team, from canal or tide water. And it is gratifying to know, that these improvements have been so made, and hitherto so conducted, as to furnish the means of their own support, and will ultimately pay the expense of construction, without leaving a debt chargeable upon the taxable property of the state.

It is believed that lines of rail-roads will, at no distant day, be constructed from New-York, crossing the lateral canals, through the southern counties, to Lake Erie.

From New-York, by the way of Albany and the Erie canal to Buffalo.

From Albany and Troy, by way of Saratoga, to Lake Champlain at Whitehall, and probably from Lake Champlain to Ogdensburgh.

England has expended her millions of pounds in McAdam and paved roads, for which vast improvement she is often triumphantly referred to. But what she has done in such roads, is now already done and soon to be done for us in the shape of canals and rail-roads.

The improvement of our public highways, therefore, so far as they relate to the transportation of our produce and merchandize, or the accommodation of our public stage travel, will be mainly to connect the improved parts of our country with our canals and rail-roads; very much remains then to be done.

Our public highways are generally laid at an early period in the settlement of the country, when but little attention is paid to their grade. The settler selects the most eligible spot for his house, and then arranges to bring the road to it, and frequently without reference to general direction or elevation. The inconvenience of travelling over crooked and hilly roads follows, and we see it submitted to long after the wealth and business of the country demand their improvement.

The market towns of our farmers are distributed over the state, at the most accessible points on the canals or rail-roads. To these points should our public highways be directed and improved.

The value of the produce of a farm, and of course of the farm itself, so far at least as relates to the surplus, depend upon the price in market, and the expense of placing it there.

The produce which requires a team to travel one day to market, and another to return, is worth to the owner about $5 per load less on the farm than in market.

If, therefore, by the improvement of his market road, he can carry 24 hundred where he now carries 16, or 30 where he now carries 20, he will save $2.50 on every load he takes to his market. If his farm produces ten loads, he saves $25 per year.

The one-half, or even the one-fourth of this sum in a town or county tax, judiciously laid out in the improvement of his market road, would soon place it in a condition to reduce the expense of transportation in the above proportions.

The first step to be taken towards such improvement should be, so to change the line of the road as to bring it as nigh as possible to a level grade. To go round the hills instead of going over them, for distance is of but little consequence in the transportation of tonnage, compared with elevation. But in many instances, both distance and elevation may be saved by the proper laying of the road.

The laying out or altering of highways, is now confided to a board of commissioners, annually elected in each town.—The principal roads of a town cannot be materially changed in their lines, without interfering more or less with the private interests of some of its inhabitants. This would in many instances create an interest which would displace a board of town commissioners, who should fearlessly attempt to discharge their duty in a way best to promote the public interests. Besides, it would be necessary in many, and perhaps most instances, to extend the alterations or the new lines through several towns. In that event, the benefits of the improvements in one town, might be defeated by the refusal of the next to carry them forward.

These objections could be obviated by the appointment of a board of commissioners of highways for each county, or for each senate district, either by the governor and senate, or by election, who should hold their offices for three or five years. It should be their duty, upon the application of a certain number of freeholders in any town to examine the country where a new road or an alteration of an old one is proposed, and if, in their opinion, the public good required it, they should lay out, or alter any public highway in or through any town or number of towns in their district. And where the benefits of the road are mainly confined to the town, let the expense be assessed upon the town, but where they are extended to the whole county, then upon the county.

Such commissioners should be authorized, if they deem it necessary, to employ suitable engineers to aid in laying out such roads. Such roads, when laid out, should be opened and worked under the direction of the commissioners or one of them. This is an important step towards obtaining good roads, and should be first taken. A suitable sum of money should be raised by the town or county, as the case might be, to be expended in opening such road, and placing it in a good condition for travel.

Let a suitable sum of money be annually raised in each county, and placed in the hands of such commissioners, to be expended in facing such roads, and the other principal market roads in each county, with broken stone or coarse gravel, of sufficient width for one team or more, according to the amount of travel upon the road. Such foundation could be made to the width of eight to ten feet, at a moderate expense, almost any where, and a foundation of that width, well imbedded and shaped to correspond with the adjoining surface of the road, and kept in repair, would always secure a good track for one team, which would be sufficient in most cases. The turning out of wagons to pass each other, would not cut up the parts of the road not imbedded so as to injure its usefulness.

This hard facing should be commenced upon the parts of the road most travelled, which would generally be nighest the market town, and carried back as the means furnished would permit. In this way, every person contributing to the expense of the improvement, would share at once in its benefits.

If the principal roads in each county were placed under the control of such board of commissioners, and an annual fund put in their hands, to be raised by a light tax, and to be expended in laying out, altering, grading, draining and facing the roads in a proper and economical manner, our principal roads would immediately put on a different appearance.

The farmer would find an ample equivalent for his tax, in the reduced expense of taking his produce to market, and every body else in the comfort and convenience of good roads in their various errands of business or pleasure.

The ordinary repairs of the common and more domestic roads of each town, may be left, at least for the present, to the management of the present town commissioners.

The committee take this occasion however, to remark, that the present mode of assessments of labor for the repairs and improvements of our common roads, has, for the amount nominally expended, produced but little beneficial effect. The committee do not believe they exceed the fact, when they say, that one-fourth the amount in cash, expended by skilful and faithful hands, would produce more effect than the present expenditure. And could our farmers feel the force of the maxim that "*time is money*," it is believed they would cheerfully submit to the payment of the lesser amount in money rather than the larger in labor. But as this branch of the subject—that is to say, the repairs of the less important roads in each town by the town commissioners—is not necessarily connected with what is deemed of the greater importance, to wit—the improvement of our more important and market roads, under the plan above suggested—the measures should be kept distinct. The success of one should not be made to depend upon the fate of the other.

To show the comparative expense of drawing one ton over one mile, at different rates of acclivity, by a stage coach and by a wagon, the committee give the following table, furnished by John McNiel, Esq. civil engineer, to a committee of the House of Commons of Great-Britain, on the 12th of October, 1831. By this table, it will be seen, that it costs to carry in a wagon, upon an ascent of 1 foot in 10, or 5 degrees and 42 minutes elevation, 52d.07; and upon an acclivity of 1 in 15, or 3 degrees and 40 minutes, 28d.70. Whilst upon an acclivity of 1 in 60, or about 1 degree, it costs 15d.20—that is, it costs about one-half as much to transport over a road of one degree in its acclivities, compared with one of three and a half degrees; and less than one-third upon a road of one degree, to that upon a road of five and a half degrees, and the expense still diminishes as we approach to a level.

Four horse stage coach, average speed ten miles per hour.		Wagon and four horses, average speed two and a half miles per hour.	
Rates of acclivity.	Pence and decimals.	Rates of acclivity.	Pence and decimals.
	d.		d.
1 in 10	77 24	1 in 10	52 07
1 15	57 78	1 15	28 70
1 20	50 44	1 20	22 83
1 30	44 15	1 30	18 55
1 40	41 25	1 40	16 76
1 50	39 56	1 50	15 82
1 60	38 46	1 60	15 20
1 70	37 68	1 70	14 77
1 80	37 09	1 80	14 46
1 90	36 64	1 90	14 22
1 100	36 28	1 100	14 04
1 150	35 19	1 150	13 46
1 200	34 64	1 200	13 18
1 300	34 09	1 300	12 91
1 500	33 65	1 500	12 69
1 1000	33 32	1 1000	12 53
Horizontal	32 98	Horizontal	12 36

By this table, it will be seen, that we have no cause to regret that we have made canals instead of stone roads, for the transportation of our freight. The last item in the table shows that it costs 12.36 pence sterling, or about 25 cents, to transport a ton a mile on their stone roads, whilst upon our canals it does not exceed one-sixth that amount.

There are many roads in this state, over which considerable tonnage is carried, and over which post coaches are drawn, whose acclivity is as high as five degrees. In a large proportion of such instances, a skilful board of commissioners could so lay out a road as to reduce the ascent one-half or two-thirds. The committee believe there are more or less important roads in almost every county in this state, whose lines may be so improved, and whose beds may, at a moderate expense, be so formed, as to reduce the expense of transportation upon them fifty per cent, and add an equal proportion to their convenience and safety in travelling upon them for business or pleasure.

S. CHEEVER, *Chairman.*

Albany, February 6, 1839.

N. Y. State Agricultural Society.

The society convened, pursuant to adjournment, at the City Hall, in Albany, on the first Tuesday in February, 1839, Alex. Walsh, Esq. of Rensselaer, in the chair, and James L'Amoreux, Esq. Secretary *pro tem.*

Mr. Buel read a letter from Dr. L. C. Beck, transmitting a resolution of the board of Geology, appointing Messrs. Beck, Emmons and Hall a committee to confer with the State Agricultural Society, in regard to the points especially worthy of attention in the examination of the soils of the state. Whereupon it was

Resolved, That Messrs. Nott, Beckman, Buel, Rotch, Cooper and Spencer, of Madison, be a committee to confer with the state geologists on the matters above referred to.

It was resolved to reduce the annual payments required from the society from two dollars to one dollar.

The annual report of the Treasurer was read and accepted.

Messrs. Buel, Allen, Viele, Van Bergen and Spencer were appointed a committee to report the names of officers of the society for the coming year, who after consultation reported the following, and the report was adopted.

ANTHONY VAN BERGEN, of Greene, *President*

W. A. S. North, of Schenectady, J. S. Spencer, of Madison, Alex. Walsh, of Rensselaer, E. Smith, of J. B. Nott, of Albany,	*V. Presidents.*

J. Buel, *Corresponding Secretary,*
William Cooper, of Albany, *Secretary.*
C. N. Bement, of Albany, *Treasurer.*

John Townsend, Jesse Buel, and James L'Amoreux, of Albany, H. D. Grove, of Rensselaer, and L. F. Allen, of Erie, *Executive Committee.*

Mr. Buel read a communication from C. L. Fleischmann, accompanied with two memorials to Congress, one for the establishment of a National Agricultural School, and the other containing interesting and valuable data in regard to the culture of the sugar beet, and the manufacture of sugar therefrom

On motion, it was resolved, that the thanks of the society be returned to Mr. Fleishmann for his communication, and that Messrs. Nott, Buel and Potter be a committee to memorialize Congress for the establishment of a National School of agriculture, from a portion of the Smithsonian legacy.

The society then adjourned to meet in the Assembly Chamber at 4 P. M.

Assembly Chamber, 4 P. M. February 5.

The society met pursuant to adjournment.

The annual address was delivered by John J. Viele, Esq. of Rensselaer.

Mr. North then presented a report, *on farm yard management, as it relates to the wintering of cattle, and the augmentation of manures.*

Mr. Rotch presented a report *on the feeding and management of sheep in winter.*

Mr. Buel presented a report *on the best vegetable or root crops for feeding cattle, and the best manner of cultivating the same.*

Mr. Bement presented a report *on the most profitable mode of fattening pork and rearing swine.*

Mr. Allen presented a report *on meadow and pasture lands, and the best mode of renovating them, and seeding down lands to grass.*

[The address will be published as early as our limits will permit with the aid of an eight page supplement.]

The society then adjourned to meet at the City-Hall at 10 o'clock to-morrow morning.

City-Hall, February, 6th.

Messrs. North, Grove, Fry and Nott, being appointed to designate subjects to be reported upon at the next meeting of the society, reported in due time the following :—

1. On the most approved method of stall-feeding oxen and other neat cattle. [Committee Wm. H. Strong and Samuel Clark, of Seneca county.]
2. On converting green crops and other vegetable matters into manure. [Committee, Messrs. Ball and Walsh, of Rensselaer.]
3. On the tillage proper for the different kinds of soils —as clay, sand, gravel. [Each soil to form the subject of a distinct report, and J. P. Beekman to report on gravel, A. Van Bergen on clay, and J. Buel on sand.]
4. On the proper time to cut timothy and clover, and the most approved method of curing the same. [Committee, A. Van Bergen and W. Salisbury, of Greene co.]
5. On the effects of lime, and its application to different soils. [Committee Messrs. Buel, Viele and Mather.]
6. On the best means of eradicating the Canada thistle. [Committee, Messrs. North and Duane.]
7. On the manufacture of sugar from beets. [Committee, Messrs. Wardwell and Marshall of Jefferson, and Cheever, of Albany.]
8. On the comparative economy of employing oxen and horses in the usual business of the farm. [Committee, Messrs L. F. & R. L. Allen. of Erie.]
9. On the best mode of cultivating the potato. [Committee, Messrs. Buel and Whiteside.]

10. On the comparative value of potatoes, ruta baga and mangold wurtzel, as food for cattle and sheep. [Committee, Messrs. Grove and Rotch.]

11. On the value of apples for neat cattle, sheep and hogs. [Committee, Messrs. Grove, Ball and Armstrong.]

On motion of L. F. Allen,

Resolved, That J. B. Nott, C. N. Bement and Volkert Bullock, be a committee to examine such agricultural implements as may come under observation, and present their views of the utility of the same at the next annual meeting of the society.

On motion of Mr. Allen, Messrs. Allen, Buel and Nott were appointed a committee to memorialize the legislature, in behalf of this society, to pass a law for the improvement of agriculture, in accordance with the report and bill introduced by the committee on agriculture at the last session.

On motion, it was resolved, That the Hon. Ambrose Spencer, Paraclete Potter, John P. Beekman, Anthony Van Bergen, and J. B. Duane, be appointed a committee to take into consideration, and to report at the next annual meeting of the society, the present state of the silk business in the United States, together with such information and recommendations for public use, as may best, in their judgment, promote its future increase and prosperity.

On motion, it was resolved, unanimously, that the thanks of this society be presented to John J. Viele, Esq. for his interesting and highly valuable address, delivered yesterday before the society in the Assembly Chamber; and that Gen. Clark and Judge L'Amoreux be a committee to present the thanks of the society to Mr. Viele, and to request a copy of the address for publication.

Resolved, That the thanks of the society be given to the presiding officer, for the able and dignified manner in which he has discharged the duties of the chair.

The society then adjourned to the first Tuesday in February, 1840.

On Farm-Yard Management.

The committee to whom was assigned the duty of furnishing an essay on the above subject, have the honor to report as follows.

As the business of farming is one of the utmost importance to the community, it is not only necessary that those engaged in it should be well acquainted with the theory, but also with the minutia of the practice in all its forms, and he who farms it on theoretical principles alone, will in nine cases out of ten be most wofully disappointed in his calculations.

Our subject involves one of the lesser branches of this art, and may be said to be, that sort of management that relates to the business of wintering the different kinds of domestic animals, and the making and preserving the best and largest quantity of manure to be derived from them.

Whatever can contribute to the former, either as to their accommodation or subsistence during the winter, and to the latter as to the quantity and quality of the manure, is of the utmost consequence. Upon the good order and economy of the farm yard and buildings, and the care and attention bestowed, depend in a great measure the health and thriftiness of the stock, and the vigor and productiveness of the land to be manured by them.

To compass these ends, farm buildings should be put up with a view to convenience in foddering out the hay, in accommodating the stock, and in taking care of the manure.

On grazing farms, good roomy sheds, facing the south and east, are absolutely necessary. In proof of which it may be stated, that on farms, not overstocked, and where fodder is abundant, cattle may be wintered as well under open sheds, as they would have been if housed, and better than they would have been, if tied up in the cold open ricketty stables of the slovenly farmer.

The yard should be divided into as many compartments as there are different kinds of stock, and different grades of the same stock, to be wintered; that is to say, the young stock should be separated from the old, and the calves from the young stock and yearlings—thus subdividing them, they are not restive, but feed quietly and do better. Sheep, which are kept to some extent by all our farmers, should never be suffered to run with the neat stock, they are liable to be hooked, to lose their wool and be defrauded of their provender. They should have a comfortable shed, furnished with racks, troughs, and a yard proportionate to their number.

The common practice of watering stock at an adjoining pond or brook is not a good one. If there should be no spring in the vicinity which can be brought into the yard, a well should be dug and furnished with a pump, whence the water might be led by conductors into each yard, and the cattle, sheep, &c. might drink as often as they pleased; it is said they will drink half a dozen times a day, when the water is at hand. In going some distance to water a great deal of manure is lost, and in cold boisterous weather they will suffer thirst a long time before they go at all.

To keep the yard dry, and to preserve the liquid manure, there should be a shallow basin in the middle of it, into which all the weeds, parings of the road side, old rubbish, and every thing that will make manure, should be deposited; these being well mixed with the stalings of the cattle, make a strong and rich compost which answers well on grass lands. By following up this practice during the summer and fall a great amount of good manure may be obtained. A farm yard kept dry and well littered with straw, keeps the stock clean and comfortable, and by absorbing the moisture, is converted into manure, and adds greatly to the dung heap.

As soon as the foddering season arrives, the cattle should be brought up and folded in their respective yards during the day, by which practice lots of manure are saved, which would otherwise be scattered abroad and lost—at night they are tied up, with chains or ropes in a well ventilated but warm stable, the floor of which should have descent enough to carry off the stalings of the animals into the gutter behind them, and be thence carried into a receptacle prepared for it, or if there be no such place, into a heap of manure which may at least retain a share of it.

It is said that neat stock thrive better, and consume less fodder when stabled, than when left to take their chance in the barn yard. It is certain they do not waste so much. But it is necessary, in order to reap the advantages to be derived from stabling them, that the stables should be warm and the stalls roomy and well bedded with straw, that the curry comb or card be applied every morning, and that a portion of carrots, potatoes or turnips, be allowed them daily; and here let it be remembered, that it is the interest of every farmer to keep his stock in as high condition as possible—the cows will pay for it when the milking season comes, and the young stock will sooner get their growth and be saleable at any time.

It has not in this country been the practice of our farmers, to raise root crops expressly for the purpose of feeding store cattle during the winter. Feeble attempts are only now being made to introduce the cultivation of turnips for sheep, but it is hoped that a new era of better husbandry is beginning to dawn upon us, and that farmers will ere long see the necessity of growing all coarser, but invaluable root crops; the liberal feeding of which during the foddering season, will be sure to keep their stock in a progressive state of improvement, besides lessening the consumption of hay and grain. In wintering young stock and yearlings it is not customary, nor indeed is it necessary to tie them up in stalls; a good warm shed well littered for them to lie under, abundance of good hay, with a little corn or a few roots daily, will keep them in a growing state, and having the run of the yard, will always present a clean healthy appearance.

In bringing calves through the winter it is necessary to be more careful than with any other species of stock. The common practice of giving them a little skimmed milk or whey from the cheese tub, during the summer, with what grass they can get in a paddock, is not enough to put them in a condition to bear our cold winters with impunity. They should be taught to eat a little oil cake, or ship stuffs, or meal of any kind, which will keep them growing and generally healthy. If at any time, they are attacked with purging, which is a common disease with them, as either too much or too little feed will bring it on, a little chalk or ashes mixed with their meal will generally remove it. In the cold wet storms of the fall of the year it is highly proper to house them, the strongest and thriftiest apart from the weakest; during the winter they should be fed with roots of some kind or other, morning and evening, and at noon with ship stuffs mixed with ground oats. This way of bringing calves through the winter, may be thought to be rather extra and expensive, but it is not so, for when a year old, they will be as large and far more likely than the common half starved animal of twice the age. Upon turning them out to grass in the spring, it will not be advisable to discontinue their accustomed supply of meal or bran on a sudden, it ought to be done gradually, and as their natural food increases, they will learn to do without it.

There are various other small matters, relating to the good order and economy of the farm yard in the disposition of stock, other than neat cattle, which we will mention before quitting this part of the subject; much of what has been said of them will apply to horses; all they require is to be kept clean, well fed and well worked.

Sheep, as has been observed, should have a yard and shed to themselves, and supplied with water. The fashion of compelling them to eat snow in order to quench thirst, is a bad one and ought to be abandoned. Turnips or some other vegetable should be allowed them during the winter, and these roots are particularly useful to them as the lambing season approaches If a portion of the flock should be weak and sickly they should be removed and put by themselves, and meal or ground oats given them in addition to their ordinary food. The ewes about lambing, should also be separated from the flock; they will be more likely to save their lambs, and if young ewes to own them.

The shed should be well littered with straw and kept dry, and as wet and moisture is deleterious to them, they should always be brought up and housed in stormy weather. Salt should occasionally be given them; as it should also to all the stock indiscriminately.

It will be seen then from what has been said, that all that is necessary to bring a man's stock through the winter in a thriving condition is to keep them clean and warm, and to give them abundance of food and water. In many cases the common mode of wintering stock on dry hay and drier straw may be attributed to ignorance The great body of our small farmers whose habits and situation in life do not lead them to acquire information, seem to think the great art in wintering their stock, consists in getting them through with the least possible quantity of provender. A saving disposition with a view to present profit appears to animate the whole fraternity, while a liberal expenditure, holding out certain promises of ulterior benefit to them, seems to meet with no favor. Their sole object is to force a living out of the earth some how or other, regardless of the good to be derived from adopting the improvements daily making in every branch of farming. They go on in the old track of their fathers, and transmit the same nearly unchanged to their children.

In the business of saving manures they are equally remiss; the forming of composts, and manfacturing large quantities of manure by mixing the various vegetable matters with topsoils, with lime and with mud, is seldom or ever thought of.

To save the greatest quantity of manure, and to preserve it from losing its strength, it should be protected from the weather. If this cannot be done under cover, it is advisable to stack it, so that it will shed rain, and escape the dissipating effects of the sun and the wind; during frosty weather it will lose none of it virtue, but in the spring, the stacks must be attended to, and as the bed of the farm yard feels the influence of the sun and begins to thaw, the manure should be scraped up and added to the stacks; this should never be omitted, otherwise the strength of it runs off or is dissipated, leaving nothing but the unfermented straw behind. Any means that will save it from being leached by rain should be adopted, and in addition, and to prevent the yards being flooded by heavy rains, the buildings adjacent to it should be furnished with gutters and drains to lead off the water; without these precautions a great share of the manure in every barn yard will be exhausted of its best properties before it is applied to the land. It is not uncommon to hear farmers complain, that manure has little or no effect on their land. And such manure as some of them make, which has lain for months exposed to all the vicissitudes of the weather, can have no effect. Perhaps it is drawn out in the winter, spread abroad in small heaps, and not turned under till nearly all its useful properties are extracted by frequent washings. Now nowithstanding the great value of manures to the farmer, the increasing, preserving and judicious employment of them seems to be a secondary object: considerable quantities are daily lost about every farm, and what is collected is of little value owing to the manner in which it is treated. No farmer can expect to succeed in his agricultural operations without the aid of good manure and plenty of it, still its augmentation and preservation seems to be little cared for; provided his barn yard is cleaned out once a year, he thinks he has done enough.

It is feared that advances in this branch of farming, in common with others, will not be very rapid until our rulers, influenced by the true principles of a wise political economy, shall see fit to do something for the cause. The rage for speculation and the desire to gather riches too fast, which but lately filled the whole community with golden dreams, has in a measure subsided, and peoples minds now being sobered down to realities of life, they are willing to go to work for a living. It seems then, there never was a time when the fostering care of the government might be extended to the interests of the farming part of the community with a better prospect of advancing the permanent good of the whole than the present.

The art of farming in all its various details, is an employment requiring constant care and attention, as well as judgment in bringing its operations to a successful issue.

It is the great employment of the rank and file of the country, and as such deserves to be considered by our rulers, and were they seriously to entertain the purpose of encouraging it, the zeal of its followers would be sharpened and their efforts redoubled to place this science, to which our country owes so much of its prosperity, upon a proper footing. Committees of agriculture, it is true, are appointed year after year, in our national and state legislatures, to watch over its interests, but what have they done for the cause which feeds and clothes them. The silk business may have been talked over in the former, and the Canada thistle choked in the latter, but no important measure for its encouragement has been passed, at least of late years. Every other great interest of the country seems to have been cared for but the one under consideration; commerce, manufactures, education, civil and military, the fisheries, &c. are all bountifully endowed by government, while for the benefit of the profession, to which the great mass of the people belong, there is no board formed, no school house raised, nor bounty for its amelioration or encouragement offered. Is it neglected by our rulers, because it is less useful or needs less help than others? It has, to be sure, by its own life supporting power, felled the forest of the west, and converted the howling wilderness into fertile fields; but it has not yet succeeded in rendering us independent of other nations, for the very staff of life. The fact alone, that bread stuffs to a large amount were lately imported from abroad, and potatoes are even now being imported from Nova Scotia and elsewhere, would seem to call upon the government in the loudest terms to embrace the patriotic as well as popular measure of encouraging agriculture. Individual enterprise has done much for the cause, by disseminating among us by means of periodicals, the results of experiments and good advice in every department of farming. But these means of information are very limited in their circulation. The attachment to old habits, the dislike to book farming, and the utter ignorance of what is going on in the agricultural world, are also serious drawbacks to improvement; which it is feared, nothing can remedy but the formation of agricultural societies in every county of the state, under the patronage of the government.

Under such a system, the results of good farming and an improved state of culture, would be brought home to every man. Knowledge would be more generally diffused, and great improvements consequently made in every branch of rural economy. Discoveries in agriculture are continually making, and must continue to be made ad infinitum, for no limits can be assigned to the capabilities of the earth, in producing the necessaries as well as the luxuries of life. There seems to be no end to the improvement of the qualities and perfections of domestic animals—yet how few of our common farmers are aware of these facts. They know little or nothing of the principles of vegetation, or of the management and effect of the different kinds of manure, nor have they any very clear ideas on the subject of breeding the different kinds of domestic animals.

Until a spirit of emulation is aroused by means of agricultural societies this state of things must continue. To get up such a spirit, has been and is the aim of the agricultural society of this state. It has thus far struggled through a feeble existence, upheld alone by the exertions of a few spirited individuals, headed by the patriotic and intelligent editor of the Cultivator. Under better auspices than we have yet had cause to boast of, the society might flourish and be productive of incalculable good—but unless a favorable ear is turned to our petitions for aid to the cause, there is reason to fear that after this meeting, it will be adjourned to meet no more. W. AUG. S. NORTH, *Chairman.*

Report on the mangement of Sheep.

Your committee, on "The feeding and management of sheep in winter," while they are fully aware of the importance of the subject thus brought under their notice, feel, that though they can suggest but little that is new and instructive to the intelligent farmer or flock-master, in the home management of sheep as now practised, yet are inclined to believe there is much, both interesting and useful, which may be gathered from a knowledge of sheep husbandry in other countries, where its vast importance, (forming as it does, in some cases, the very wealth of the nation,) has called to its aid all that education, science and close observation could suggest for its improvements; and there are instances where this valuable amount of intelligence has been practically applied in this state, with a success that warrants your committee in offering some suggestions from the German practice, that may materially improve the winter management of sheep in this state.

The main body of sheep in the northern and middle states produce wool of an improved quality, being more or less mixed with the Merino, or the improved Merino of the Saxony family, and are principally kept for their fleece; the carcass being a secondary consideration; but within a few years this has become more valuable, from causes which it is not necessary here to examine, as they are self-evident to every observing mind. Your committee would therefore have it understood, that their attention on this occasion has been nearly confined to the management of the Spanish sheep in all its various grades, as found in this country.

Many plans have been recommended, rules have been prescribed, maxims laid down, and the requisite quantities of food stated, for maintaining a sheep in thriving and good condition. But all these can only be relatively understood, for we ought to take the size of the animal into consideration; and it must be borne in mind, that a large sheep requires more food than a small one, and that a sheep which gives five or six pounds of wool, must consume more than one which gives but three pounds.

These considerations lead to a proposition which has received but little or no attention from the great mass of our farmers who keep sheep, namely:

The influence or effect of feed on the quantity and quality of the wool and carcass.

It may be laid down as a rule, that two pounds of good hay, or its equivalent in grain, roots and straw per day, fed regularly at three fodderings, are sufficient for a grown sheep of the Merino family, producing three pounds of fine wool, provided it enters winter quarters healthy and in *good condition.* For breeding ewes, or a larger race of sheep, this quantity would not be sufficient; and for a race by nature small and weak, it would be more than they require, and if fed to them would greatly diminish the quality of the wool, though it increased its quantity.

Farmers in Germany generally allow their sheep an average of from one and three-fourths to two pounds of hay daily, including the whole flock, and their sheep are vigorous, healthy and in good condition, and attended with the best effect upon the wool. Others allow their sheep one and a half pounds daily, and they do not suffer by this quantity, but are healthy and rather thriving upon it; still they do not yield so much wool, nor is the carcass so heavy; while others, through ill-advised economy, limit their sheep to one and one-fourth pounds of hay daily; but it was found that they sheared from ten to sixteen ounces less of wool per head; that the constitution of the animal could not be matured, and he ultimately became a diminutive and feeble animal. The wool from such sheep is termed "*hungerfine,*" and appears to possess a high degree of fineness upon the sheep's back, and is extremely mild and soft to the touch. "But," says Mr. Elsner, a writer on sheep husbandry, "this kind of mildness is as exceptionable as its fineness, both arising from the poverty of the animal; for after shearing and washing, it lessens to an unusual degree in volume." It is deficient in strength, elasticity and the felting properties, and it does not make as perfect and durable a fabric, as it would, had the sheep been kept in a thriving condition. Its intrinsic value, therefore, to the manufacturer, is not so great as its apparent fineness would indicate, and the grower who anticipated a "good clip" of wool from his flock, is very unpleasantly awakened from his dreams, when he finds that they shear much less than he expected; and this we fear is too often the case with many of our economists who undertake to keep flocks of fine woolled sheep.

It is, however, certainly a most erroneous conclusion, that sheep produce an increased or extra quantity of wool in proportion to an increased or extra quantity of feed. "Farmers who were deceived by this theory," says Mr. Elsner, the author above quoted, "have been disappointed; for the increased quantity of wool was scarcely half in proportion to the extra quantity of feed, and the quality was considerably deteriorated." Such is the opinion of one of the most intelligent breeders and close observers of the economy of sheep in Germany. The experience of one of your committee fully goes to confirm the above position. And his experiments, made with great attention and exactness for a series of years, both here in and Germany, enable him confidently to offer the following result: That sheep of good size, superior fineness and thick fleece, when rightly fed and managed, produce on an average two and three-fourths to three pounds of clean wool, washed on the sheep's back. But a flock is only rightly fed and managed, when they are not allowed quite as much as they would eat, thus insuring thriftiness and bodily health. To effect this desirable object, as has been already stated, two pounds of good hay, or its equivalent in grain, roots and straw, per day, are required; whereas, the same sheep, were they allowed as much hay as they could eat, would consume over three pounds or its equivalent in grain, roots and straw. Now in order that the increased or extra quantity of wool be equal to the increased or extra quantity of hay, they ought to shear from four and an eighth to four and a half pounds of wool per head. But this is not the case: the increase seldom amounts to more than 25 instead of 50 per cent. In other words, six pounds of hay fed to three sheep produced from eight and one-fourth to nine pounds, while the same quantity and of the same quality, fed to two sheep daily produced from six and seven-eighths to seven and a half pounds of wool only, leaving a balance in favor of the former of from one and three-eighths to one and a half pounds; an item in the profits of a sheep establishment of some importance, especially where large flocks are kept. But this is not the only disadvantage of high feeding, for while it ruins the natural constitution of the animal, it injures the wool.

Some German writers on sheep husbandry estimate this reduction in quality at ten per cent, and maintain that the greater waste in cleansing it increases the loss to twenty per cent; such wool containing a larger quantity of oily or greasy substances, which go far to make up the increased weight of the fleece. Assuming this to be a correct estimate—and it is believed to be a fair one—it will be found that for an outlay of 50 per cent in extra feed, only five—at the most ten—per cent of wool is obtained in return. It would, however, increase the carcass and the quantity of manure, but this would be done at too great a price. If, however, the sheep were intended for the shambles it would alter the case.

Having considered the influence or effect of feed upon the quality and quantity of the wool, and shown that either extreme, *the too little,* or *the too much,* is unprofitable to the wool-grower, your committee will, in the next place, proceed to the consideration of the care and management of sheep during winter.

It may be classed under three heads—*Feeding, Watering* and *Shelter.*

Food—Should be such as to agree with the habits and economy of the sheep, and should contain nourishment and bulk equivalent to two pounds of hay.

The varieties of winter provender, to be considered, are hay of all the cultivated grasses, such as clover, lucerne, &c. &c. hay from natural but dry meadows; sound oat straw, barley, rye and wheat, well cured vetches and pea vines; all kinds of grain, but with the exception of the less healthy rye, roots, such as potatoes, carrots, ruta baga, mangold wurtzel, turnips and the different kinds of beets; all are conducive to the health, prosperity and internal economy of the sheep.

Of the different kinds of hay, white and red clover, sainfoin and timothy, stand first, and seem to be best adapted to the nature of the sheep; they eat it with great avidity, and with but little abatement in appetite through the whole of a long winter. Of red clover, there are two kinds, the northern and southern—the latter makes much the best hay. Sheep should be made to eat their hay up clean when it is cut at the right time and well cured, and that time is, when clover, lucerne and sainfoin is in full bloom, and timothy when about one-quarter to one-half of the blossom is off. But if the growth is large, lodged or decayed at the bottom, then they should not be forced to eat it clean; but an allowance must be made, as the decayed parts, were they compelled to eat them, would prove hurtful. And if hay is somewhat injured by rains during the process of curing, then again an allowance should be made. Mow burnt or mouldy hay should never be used in the sheep cot, for it causes a general debility of the system, and if continued would ultimately create the *rot.*

Hay from low land meadows is not so good as that from the uplands; if these can be renovated by occasional ploughing and reseeding, it improves the quality; but in portioning out the quantity of hay to sheep a suitable allowance should be made, and the more of the wild and sour grasses are mixed in with it, the greater should that allowance be.

Hay from wet meadows is not wholesome for sheep, and should never be given them unless from necessity; then double the usual quantity must be allowed. Were they confined to such hay and compelled to eat it nearly or quite clean, it would prove ruinous to the flock.

Hay from meadows that have been very highly enriched by top dressings, afford a luxuriance and rankness of growth possessing a laxative property, and should be dealt out to sheep very cautiously, especially to lambs, and if it is pretty freely salted with a view of preserving it, the greater caution is necessary. Sheep will then eat it greedily, especially if salt has been withheld from them for some length of time, but it is then the more dangerous; as foddering from it a few days in succession, even a few times, creates great thirst. Sheep drink an unusual quantity of water, and scouring is produced, which often proves to be very fatal.

But before entering upon any course of feeding, it is advisable to divide the sheep into different flocks. The breeding ewes into one flock — the wethers into another—and the lambs into a third. From these main divisions, subdivisions may be made as circumstances require, taking care that the individuals composing the different flocks, are as nearly as possible, of equal size and strength; if not, the weaker portion are not apt to get a due share of the fodder. And if there are any individuals that are old, feeble, &c. an invalid department ought to be added, and extra care and attention bestowed upon it.

Having all the different arrangements completed, a careful supervision must be extended over the whole, and the course of treatment regulated by circumstances.

Supposing the breeding ewes to be in good condition, they should receive one and a half pounds of hay and one and a quarter pounds of grain per day, until the rutting season is over; the grain must be then withheld and the flock go through the winter on hay, increasing it to two and a quarter pounds, and an occasional foddering of straw, until within five or six weeks of lambing, when it is decreased a little and roots substituted, commencing by degrees, with one bushel of potatoes, or one bushel and five-eighths of ruta baga to one hundred ewes, and increasing the quantity gradually, of potatoes to three bushels, and of ruta baga to four and three-quarter bushels per day. With this kind of treatment, there will be but very little difficulty in raising lambs.

But if a flock of ewes are not in such condition, and require therefore more feed and better treatment, two pounds of hay and one-quarter of a pound of grain ought to be fed daily until the rutting season is over, when the grain is withdrawn, and roots immediately given, of potatoes two or ruta baga three bushels to a hundred per day, until about lambing time, when that quantity is increased to three bushels of the former, and four and three-quarter bushels of the latter. Both flocks receive a foddering of straw or good corn-fodder, three times a week, generally at night, of which they will eat a considerable portion, and the orts serve for litter.

The three years' old wethers will go through the winter on hay, with an occasional foddering of straw, the orts of which serve them for litter. But the younger wethers require better feed, and being hard to winter, the best of hay should be given them, with some small additions of grain or roots, say one-fifth of a pound of grain, or three-quarters of a pound of potatoes, or one and a quarter pounds of ruta baga.

It being very desirable that the lambs should go through the winter in the best possible condition, much care is required, and having given them a few sheaves of oats every evening, before they were taken out of the pasture, it remains now to be determined the kind and quantity of feed they are to receive. This ought to be the best of hay, and as much of it as they will eat without cloying them. If it is well mixed with white and red clover, and was cut in good season and well cured, it should be eaten up clean. In addition to this, from a quarter to half a bushel of oats per hundred may be their daily allowance, as circumstances require.

The flock of invalids having been placed in the warmest situation, claim every care and attention, and no pains nor trouble must be spared, to carry them through the winter; so that the old ewes shall be enabled to raise a lamb each, which will pay for all the extra expense and trouble the whole has cost.

In view of the foregoing remarks, it becomes necessary to ascertain the feeding properties of grain, roots and straw, as compared with hay, to enable the farmer to make his estimate of the quantity he will require, and to calculate the probable profit or loss of raising certain crops, and feeding them to sheep.

The experiments of Mr. De Raumer, of Kaltwasser, in Silesia, in Germany, go far to establish certain facts on this subject. They are interesting to the inquiring mind, and may be considered as conclusive evidence. Mr. De Raumer is a thorough, practical and scientific farmer, and is considered high authority on agricultural subjects; his farm establishment is very extensive, and his experiments may be relied upon.

"REMARKS.

"*Potatoes* raw and cut into slices, sheep eat with continued good appetite and greediness; they ate seven pounds per head daily, with an allowance of straw. The animals remained healthy and lively, and drank one and a half quarts of water per head daily.

"*Mangold wurtzel,* sheep eat with less greediness; they ate in duration eight pounds per head daily, straw as with the potatoes, and drank scarcely one quart of water. The animals remained likewise healthy.

KINDS OF FEED.	Increase of weight in the live animal.	Produced of wool.		Produced tallow.	
		lbs.	oz.	lbs.	oz.
1000 pounds raw potatoes, with salt,	46½	6	8¾	12	5½
1000 do do without salt	44	6	8	10	14½
1000 do raw mangold wurtzel,	38	5	3½	6	5½
1000 do peas,	134½	14	11	41	6
1000 do wheat,	155	13	13½	59	9
1000 do rye, with salt,	90	13	14½	35	11½
1000 do do without salt,	83	12	10½	33	8½
1000 do oats,	146	9	12	40	8
1000 do barley,	136	11	6½	60	1
1000 do buckwheat,	120	10	4½	33	8
1000 do good hay	58	7	10½	12	14
1000 do hay, with straw, without other fodder,	31	15	8	6	11
1000 lbs. whiskey still grains or wash,	35	6	1	4	0

"*Peas,* sheep eat very eagerly, two pounds per head per day, drank two to three quarts of water in twenty-four hours, and the animals remained perfectly healthy. In an unsoaked condition, they are hard for sheep to eat and affect their teeth.

"*Wheat,* sheep eat greedily, two pounds per head daily, and disposes them to great liveliness—drank from two to three quarts of water in twenty-four hours, and remained perfectly healthy.

"*Rye,* sheep do not eat readily, and does not suit them well, as the above results in the increase of weight show—they drank from two to three quarts of water.

"*Barley,* sheep ate two and a half pounds per head daily—they thrived upon it, and drank three quarts of water in twenty-four hours.

"*Oats,* the same as barley.

"*Buckwheat,* sheep ate with great avidity and with the best results as to health and liveliness. A sheep can eat from three to four pounds, and drink from two and a half to three quarts of water in twenty-four hours.

"*Of good hay,* a sheep can consume four and a half pounds, and drink from two and a half to three quarts of water in twenty-four hours."

Mr. W. A. Kreisig, a celebrated farmer in East Prussia, considers that one pound of oil-cake meal is as nutritious as two pounds of good hay.

80 lbs. clover hay* equal to 100 lbs. meadow hay;
80 lbs. lucerne and sainfoin, equal to 100 lbs. of meadow hay;
200 lbs. sound and well cured vetches and pea vines to 100 do.
300 lbs. sound barley and oat straw, equal to 100 lbs. do.
400 lbs. sound wheat and rye straw, equal to 100 lbs. do.
100 lbs. water turnips, equal to 40 lbs. of potatoes, or 50 lbs. of mangold wurtzel.

Mr. John Philip Wagner says, in his work entitled "Contributions to the Science and Treatment of Wool and Sheep," that "200 pounds of potatoes, 266 pounds of carrots, 350 pounds of ruta baga, and 90 pounds of clover hay, lucerne and sainfoin, are each of them equal to 100 pounds of good hay."

Your committee beg leave further to cite the practice of a few of the most celebrated breeders of sheep in Germany, and firstly that of Mr. Albricht Thaer, of Moeglin, in Prussia.—Potatoes and straw constitute the main feed for his large flock of 1500 during winter He cuts them into small slices, feeding them alternately with straw. When his pastures, in the fall of the year, begin to fail, he commences feeding potatoes by scattering them in the field in such quantities as he deems sufficient, with the best effect upon their health and condition; his flock fully attests that sheep may be kept principally on roots and straw; and one of your committee, who has been familiar with sheep husbandry, both here and in Germany, confidently believes, from his knowledge on the subject, that the same practice can be profitably applied in our sheep husbandry.

Mr. Block, of Schieraw, in Silesia, Germany, one of the most intelligent and experienced breeders of sheep, keeps a flock of 500, in the following manner. He fodders six times a day.

1st fodder—208 lbs rye straw, of which they ate..		52 lbs.
2d fodder—130 lbs. oat do do do ..		97 lbs.
3d fodder—the dry sheep received 160 lbs. of pea vines, of which they ate		120 lbs.
the ewes received hay		120 lbs.
4th fodder—potatoes mixed with cut straw	750 lbs.	
rye bran,	31 lbs.	
oil cake meal,	8 lbs.	
barley meal,	33 lbs.	
		822 lbs.
5th fodder—the ewes received hay,		120 lbs.
the wethers rec'd 160 lbs. pea vines, of which they ate		120 lbs.
6th & last fodder—208 lbs. of rye and wheat straw, of which they ate		52 lbs.
Total amount consumed per day,		1651 lbs.

The flock was of superior quality, the animals large and always in excellent condition.

Count Magnis, of Eckhardsdorf, gave to 100 breeding ewes, the following per day:

1st fodder—straw and clover hacker,	69 lbs.
2d fodder—the same,	69 lbs.
3d fodder—clover hay,	100 lbs.
4th fodder—potatoes and straw hacker,	72 lbs.
5th fodder—straw,	75 lbs.
Total,	385 lbs.

The Electoral flock of Rennesdorf, the private property of the king of Saxony, consisting of 400 breeding ewes and rams, 1,000 pounds of hay in two meals, and at night a foddering of straw, was their daily portion.

Although there might be many other valuable practices of the German shepherds cited, but your committee fearing that they have already exhausted your patience, forbear to enlarge upon them, they therefore leave that subject and proceed to the consideration of the second proposition, namely, water.

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* *Note by the Translator.*—The clover in Germany grows finer than the clover in this section of country—it resembles more the Pennsylvania clover—and yields two crops a season. It is cut when in full blow, and well cured in cocks.

All domestic animals require water in proportion to the quantity of dry provender they consume; and sheep require particular attention in this respect, as well as some care in regulating the quantity, according to circumstances. Warm springs are always to be preferred, though individuals are frequently to be seen eating snow, which may generally be attributed to fever; and is by no means to be considered a substitute for water.

It is desirable that the flock should be able to drink without wetting their feet or wading into mud, both which are not only very injurious by creating disease in the foot, but deter sheep from drinking as often as inclination prompts.

Protection against the inclemencies of the season is the third consideration in the "feeding and management of sheep in winter." It is almost as necessary to their health and prosperity as food itself, and for this reason, comfortable shelters should be built for them; they not only do much better, but it is a great saving of time, fodder and manure. It will be found that ten tons of hay, fed to sheep that have warm shelter, will go further than twelve tons fed out to them from a stack, and when they have no other protection from the inclemencies of the weather than the side of a stack or fence. Such stables, if properly constructed, will at least pay from 15 to 25 per cent interest annually. This alone should prompt the owner of a flock to provide comfortable lodging places for them. But "*a merciful man is merciful to his beast.*"

Each full grown sheep requires six square feet of room, including racks. The stable should be eight feet high, with windows in the upper part, that may be closed as circumstances require. The floor over head ought to be made tight, that nothing can fall through. They must be well littered, as it will add much to the health and comfort of the animal. If they are not well littered, the dung accumulates, and creates an offensive smell; sheep are then very loth to enter them. It is but too often the case, that when farmers *do* shelter their sheep, the stables contain a mass of dung, so offensive that the flock would not enter them, and if forced in and confined there, would prove injurious; and hence the prejudice, "that housing sheep is injurious to their health."

Your committee regret, that circumstances over which they had no control, prevented their coming together sufficiently early to do justice to the importance of the subject committed to them. FRANCIS ROTCH, *Chairman.*

Report of the Committee on Root Culture.

The committee appointed at the last meeting of the Society, to "report on the best vegetable or root crops for feeding cattle, and the best means of cultivating the same," report as follows:—

The culture of roots, as farm crops, for feeding and fattening domestic animals, is of such recent introduction, and so limited, among us,—and the few experiments that have been made, to ascertain the relative value of these roots, have been so loosely managed, that the committee do not possess the data that they could desire, to make a satisfactory report, adapted exactly to our practice. But they are nevertheless satisfied, from the numerous experiments which have been made in Europe, in a climate very similar to our own, and from the partial ones which have been made among us, that the culture of roots is destined to effect here, what it has effected elsewhere—a great and salutary change in husbandry; —not only as furnishing the easiest and cheapest means of feeding and fattening domestic animals, but as an important source of fertility to the farm,—and of securing the main point —ultimate profit—to the owner or cultivator.

Under these strong impressions of the advantages of encouraging and extending root culture, your committee proceed, with the limited means at their command, to fulfil the duties assigned to them by the Society.

The Highland Agricultural Society of Scotland have recently awarded liberal premiums for experiments in fattening neat cattle,—*first*, upon different kinds of roots, as the potato, turnip and mangold wurtzel;—*second*, upon raw and cooked food; and *third*, upon roots entirely, and a mixture of roots, grain, pulse and oil-cake. These experiments have been made with a view of accurately ascertaining the comparative value of each kind of root and other food, and the economy of each mode of feeding it. The experiments have been numerous. They have been made upon ten to thirty head of cattle at a time; and they have been continued from three to six months. The animals were weighed or measured at the time of starting the experiment, at the close of it, and generally at intermediate periods, particularly when the food was varied; and the quantity of roots and other food given was accurately noted,—so that the result has indicated the relative value of each kind of food in the fattening process, and the best mode of feeding it. The committee proceed to state, in a summary way, the results of some of these experiments.

1. *The relative value of different roots.*

Mr. Howden, with a view to the experiment, set apart the product of two acres of mangold wurtzel, amounting to fifty tons, five acres of Swedish turnips, being 140 tons, and two acres of potatoes, weighing 29 tons 4 cwt. The experiment was made with 21 head of cattle, which received, in addition to the roots, a few distillers grains and a little straw. The following table shows the roots appropriated to each lot, and the monthly increase of the animals in girth. The abstract is made from the prize essays of the society, which cannot now be referred to; but the impression is, that in all the experiments which we quote, the roots fed to each lot was precisely the same in weight. Lot No. 1 was fed from the product of one acre of potatoes, one acre of mangold wurtzel, and one acre of Swedish turnips; No. 2 from one acre of potatoes and two acres of Swedish turnips; and No. 3 from one acre of mangold wurtzel and two acres of Swedish turnips.

Date.	Lot No 1	Lot No. 2	Lot No. 3
1831, Nov. 30,.	35ft. 8 inches,	35ft. 9 inches,	35ft. 8 inches,
Dec. 30,.	36 " 6 "	36 " 7 "	36 " 6 "
1832, Jan. 30,..	38 " 2 "	38 " 4 "	38 " 2 "
March 1,	39 " 7 "	39 " 8 "	39 " 6 "
" 30,	40 " 8 "	40 "10 "	40 " 6 "
April 30,	41 " 4 "	41 " 7 "	41 " 3 "

Twenty-eight tons of mangold wurzel and Swedish turnips were withdrawn to feed other stock.

On the 30th January Mr. Howden took a pair of cattle out of each lot, and fed No. 1 with potatoes and water, No. 2 with Swedish turnips, and No. 3 with mangold wurtzel. The following shows their relative increase in three months.

Date.	Lot 1 Potatoes.	Lot 2 Swed. turnips.	Lot 3 Man. wurtzel.
1832, Jan. 30,..	10ft. 8 inches,	10ft. 5 inches,	10ft. 4 inches,
April 30,.	11 " 6 "	11 " 3 "	11 " 2 "

When the cattle were sold, the purchasers agreed that the lot fed on Swedish turnips were from 7s. to 10s. ($1.54 to $2.22) a head better than the other lots. The average advance upon the original value of each was £6.12, and the cost of the grains being deducted, there remained £120 ($532.-80) in return for the eight acres of produce consumed, or $66.60 for each acre.

From the above statement it would seem there is no great difference in the fattening properties of the three kinds of roots; and that so far as measure or weight is concerned, it matters little which are employed in feeding. We will note here for future reference, the product per acre, of each kind of roots, upon Mr. Howden's ground, adding the product in bushels of 56 lbs.

The potatoes gave 12 tons 4 cwt. equal to 483 bushels.
The mangold wurtzel 25 tons " 1,000 "
The ruta baga 28 tons " 1,120 "

2. *The comparative economy of feeding raw or prepared food.*

In 1833 the society offered a premium of 30 sovereigns for the best report, founded on actual experiment made for that purpose, on a number of oxen or heifers, not fewer than six, the animals to be of the same breed, age and sex, and the term of feeding not less than three months. Several reports were received and published in 1834. From these we abstract the following:

Mr. Walker made his experiment with six two year old heifers, and four two year old steers. Each parcel was divided into two lots, and fed on like food, except that one half received their food raw, and the other half in a steamed or cooked state. The food consisted of Swedish turnips, potatoes and crushed beans, with a little salt and straw. At the end of three months, it was found that the three heifers fed on steamed food had gained 48½ stone, or 679 lbs. and the three heifers fed upon raw food had gained 45½ stone; but the quantity consumed by the first lot exceeded that of the latter.

Cost of feeding on steamed food,........... £14 1 3
" on raw food, ... 10 8 7½

The first cost more than the last £3 14 8½

Deducting the first cost, and the price of fattening from the price paid by the butcher, there remained a profit on the three heifers fed with steamed food, of 9s; while the profit on the three fattened with raw food amounted to £3 10s 6d. By a like estimate, the loss on the steers fed with steamed food was 3s. 8d. and the profit on those fed with raw food 10s. 6.

Andrew Howden made a like experiment with 18 cattle, in six lots. Their increase, and expense of keeping for three months, from the 20th March to the 20th June, were as follows:

	Incr. in lbs.	*Expense.*
Three heifers on raw turnips,.......	392	£6 18 0
" on steamed turnips,.......	532	8 18 0
" on raw potatoes,.......	600	10 7 0
" on steamed potatoes,.......	572	10 7 0
Three steers on raw potatoes and corn,	722	9 4 0
" on boiled potatoes and corn,	639	9 5 0

John Baswell fed ten horned cattle. The expense of keeping the five cattle on raw food was £32 2. 1, while that of the cattle on prepared food was £34 5 10. On being slaughtered the two lots appeared to be very similar, but the particular weight is not mentioned.

3. *Relative economy of feeding with turnips alone, or with turnips and other more expensive food.*

Robert Stevenson was the successful competitor for the society's premium. He took 18 oxen; their live weight was ascertained at the beginning, at the end, and at intermediate periods of the experiment, which continued 119 days. The cattle were divided into three lots of six beasts each, and a correct account was kept of the weight of food consumed by each lot. Lot 1, was allowed lintseed cake, bruised beans, and bruised oats, in addition to turnips, and during the last 24 days of the experiment, 20 lbs. of potatoes were given per day to each. Lot 2, received the same allowance except the lintseed cake, and half the potatoes. And lot 3, was fed upon turnips alone. The cost of the keep of each animal, during the 119 days, was as follows:

Total cost of feeding one beast of lot 1,.......£5 2 7
do do do of lot 2,....... 3 17 0
do do do of lot 3,....... 1 18 7½

The improvement in live weight was as follows,

First lot increased in weight........ 108 stone.
Second do do .... 101 "
Third do do .... 49 "

Abstracting the cost of feeding from the value of the increased weight, the loss and profit would stand as below:

Loss on feeding lot 1, ...£3 15 8¾
Profit on feeding lot 2, ... 1 19 3½
Profit on feeding lot 3, ... 2 11 1

"Thus, when turnips alone were used, a profit of twenty-two per cent was realized; where beans and oats were used along with the turnips, the profit was diminished to eight and a half per cent; but when still more expensive food was tried, that is, grain and lintseed cake, along with turnips and potatoes, a loss was sustained of no less than 12 3.16 per cent."

Lot 1, were the largest oxen. They were fed each with 132 lbs per day of Swedish turnips; lot 2, were fed each with 120 lbs. of the same per day; and lot 3, being the smallest, received but 115 lbs. per day, and for twenty-four days but ninety two pounds.

Lot 1, cost 4.484 pence for every pound of increased live wt.
Lot 2, " 3.92 " " "
Lot 3, " 3.39 " " "

The turnips were estimated at four pence per cwt; the potatoes at 1s. 6d. per cwt.; oats and beans at 3s. 6d. per bushel, and lintseed cake at three-fourths of a penny per pound.

"In conclusion " says Mr. Stevenson," on this part of the subject, " we give it as our opinion, that whoever feeds cattle on *turnips alone*, will have no reason, on the score of profit, to regret their not having employed more expensive auxiliaries to hasten the fattening process."

It would seem pretty evident, from the foregoing experiments, that ruta baga and mangold wurtzel are the best root crops for feeding cattle. The profit of cultivating and feeding these roots will be more manifest, if we compare their acreable product with that of hay, potatoes, and the coarse grains which we feed to fattening animals. To enable the committee to make this comparison, they assume the following as the average products of crops, and attach to each of these an estimate of their marketable value. Both the product and the prices will greatly vary; but those assumed are deemed sufficiently correct for comparison.

An acre of grass,	2 tons at $10,.			....	$20 00
do corn,	40 bushels at 75 cts.			......	30 00
do oats,	30	do	at 37½ cts.	.....	11 20
do buckwheat,	30	do	at 50 cts.	......	15 00
do potatoes,	150	do	at 25 cts.	......	37 50
do ruta baga,	600	do	at 25 cts.	......	150 00
do man. wurtzel,	600	do	at 25 cts.	......	150 00

Estimating the cost of the roots, in labor, at twenty dollars an acre more than that of the hay, oats and buckwheat, it still leaves a great disparity in the profits; and considering the cost of culture equal to that of Indian corn, there is a manifest advantage in the turnips and mangold wurtzel over the corn crop, as a material for cattle food. Good beef cannot be made on hay alone, in winter: and those who do not feed roots, must resort to some more expensive food, as the meal of Indian corn, oats, buckwheat, &c. The turnips and mangold wurtzel, on the contrary, with the aid of perhaps a little straw, will serve of themselves to feed and fatten animals.

In this matter the chairman can speak from experience. He purchased four oxen a little before Christmas, and kept them till some time in April; after a short time, they ate each two bushels a day of ruta baga;—they would eat very little else, though laid before them, not even lintseed cake. They made good beef, and afforded a handsome profit on the turnips consumed.

If we now assume that an ox will require a quarter of a hundred of hay per diem to keep him in good condition, and that it will require an addition of four quarts of corn meal, or eight quarts of crushed oats or buckwheat, per diem, to fatten him; and if we consider 112 pounds or two bushels of roots equivalent to a ration of hay and grain, then the several crops will feed an animal as below.

One acre of grass, and half an acre of corn will feed 160 days.
One and a half acres of mangold wurtzel, or Swedish turnips will feed......................... 450 days.
One acre of grass, and one acre of oats or buckwheat will feed .... 160 days.
Two acres of Swedish turnips or mangold wurzel will feed .... 600 days.
One acre of potatoes will feed .... 75 days.
One acre of Swedish turnips or mangold wurtzel will feed .... 300 days.

Making very liberal allowance for the difference in the expense of raising these crops, and for any error the committee may have made in fixing the daily rations, or in the acreable produce of each, they think that no doubt can for a moment be entertained, that the Swedish turnip and the mangold wurtzel are decidedly the best crops that can be raised for feeding and fattening cattle.

The committee have no doubt that the sugar beet and the carrot offer advantages nearly or quite equal to the roots above recommended. Their product and nutrient properties are very similar, and the expense of culture is not very dissimilar. The sugar beet is probably richer in nutriment than the mangold wurtzel, though its product is ordinarily less. The carrot may require more labor in the culture; but it is superior as food, particularly for horses.

Arthur Young highly extols the carrot. Upon the product of three acres of this root, he assures us, he kept for more than five months, twenty work horses, four bullocks, and six milch cows; nor did the animals, during that period, he adds, taste any food, except a little hay. Our enterprising fellow citizen, Col. Meacham, of Oswego, has gone largely into the culture of carrots, as cattle feed, as well as many of his neighbors; and they speak highly of the profits of the culture.

Some highly satisfactory experiments have also been made among us, on a limited scale, in cultivating and feeding the sugar beet. There seems to be little doubt, from the high state of perfection and of profit, which the business has arrived at in France and Germany, that the culture of this beet will soon be extensively gone into in this country, for the purpose of making sugar; and if so, the residium of the beet will form an important item in the material for fattening cattle.

There are other advantages resulting from root culture which should not be overlooked. It tends greatly to increase the quantity of manure on the farm, to meliorate the texture of the soil, and to furnish excellent alternating crops in convertible husbandry. In selecting for culture, the farmer should choose the roots that are best adapted to his soil. The turnips prefer a dry sandy soil; the beet a clay loam.

As to the best means of cultivating these crops, the committee summarily remark, that the product and profit will materially depend upon the following contingencies: viz, that the soil be dry; that it be rich; that it be deeply worked; that it be well pulverized; and that the after culture be well managed. The implements necessary to cultivate them advantageously, in addition to the plough and harrow, are the drill-barrow and cultivator. The season for sowing the beet is from 10th to the 20th May;—of sowing the Swedish turnip, from the 10th to the 25th June. The drill or row culture is decidedly the best. A detail of the whole process of culture would occupy too much space for this report, and is unnecessary, as these processes are already understood by many, and have been minutely described in the agricultural periodicals of the day. The committee will merely recommend in conclusion, that the roots be always cut, previously to being fed to cattle, for which machines may be procured, at a moderate charge, which will cut a bushel in one to three minutes. If cut, the roots are eaten entirely; if not cut, a portion is apt to be rejected and wasted.

The chairman has received a communication from Col. Meacham, stating his mode of cultivating the carrot, the product, and manner of using the crop. He cultivates them in drills, from 20 to 24 inches apart—he gets one thousand bushels an acre, at an expense of $25 to $30; he kept six work horses on them from Nov. 1836 to June 1837, without grain, and they remained in good plight, and performed as well as he ever had horses perform;—and he thinks they are worth double as much for stock as ruta baga.

Upon the subject of the carrot culture, which is perhaps less understood among us than that of the beet and turnip, the committee will add, that this root thrives best in a sandy loam, light, moist, but not wet, and of great depth; in which the plough, going to the beam, brings to the surface nothing that is not fit for vegetation. The ground should be ploughed immediately preceding the sowing. In Suffolk, Eng. they sow 8 lbs. seed, broadcast, to the acre; and the crop is from 400 to 500 bushels. To horses they are considered superior to any other food. Two bushels of carrots and one of chaff is the per diem allowance to a horse; or 7 bushels of carrots and one bushel of oats is the allowance for a week. They are also profitably fed to all other farm stock. They are raised in Suffolk without dung, at an expense of 9d. (16 cents) per bushel. The yield of the carrot is often 700 to 1000 bushels the acre. The crop is gathered by making a deep furrow near to the drill; when a man seizes, draws the top to the furrow, and pulls them up with great facility.

Another root, the parsnip, is deserving of notice, though its partial culture, hitherto, will hardly entitle it to be classed among field crops. It is believed to be the most nutritious root of any that have been named; is as easy cultivated as the carrot or the beet: and has this advantage over all the others, that its value is not impaired by frost.

From the preceding views, the committee do not hesitate to recommend the extention of root culture, as the most ready means of keeping up the fertility of our farms, and of increasing the profits of their cultivation. J. BUEL, *Ch'n.*

Report of the Committee on Swine.

Until recently, very little attention has been paid to the breeds of our farm stock; and pigs being considered an inferior species of domestic animals, have been the last to engage the attention of the farmer; and even at the present day in many districts of our country, the old unprofitable kinds of this animal continue to prevail. Indeed, systematic breeding with a view to improve the form and value of the animal, may be said to have hardly commenced among us, the improvements which are perceptible, being rather the fruits of European than American skill.

A common error in this country, has been to regard more the size of the animal, than its symmetry or good points—to estimate a breed according to the great weight which it could be made to attain—rather than the profit with which it would be fitted to the hands of the butcher—the most material point to the farmer. But experience is teaching us a new lesson on this head. Butchers now judge of an animal, not according to its gross weight, but according to the good points, or most valuable meat, which it carries. Breeders have learned to prefer those which, with a given quantity of food, will lay on the most meat. And the consumer has learned, too, that meat that shows the most solid fat, is neither the most healthy, the most savory, nor the most economical. It is the due admixture of fat and lean, or the prevalence of what is termed *fat-lean*—such as is seen in the Devonshire ox and the South Down sheep—that gives the greatest value to the butcher's meat.

It was lately remarked by an eminent breeder of England, Mr. Gray, at an agricultural dinner, that he could feed on an acre of land, a greater number of pounds of mutton, in carcasses from 18 to 20 lbs. per quarter than in carcasses from 28 to 30 lbs. per quarter, and that a quarter of mutton from a sheep of 18 to 20 lbs. weight per qr. is worth more in proportion than from a sheep of 30 lbs. per quarter; and that, consequently, the advantage is on the side of the smaller carcasses. And he assigned this, among other reasons, that in case of drought or scarcity, a small animal can collect as much food as a larger one, and having a smaller carcass it derives more advantage from it; that whilst the larger is losing in condition, the smaller one, if not improving, is remaining stationary; and when the period arrives at which an abundance of food can be obtained, it almost immediately reassumes its position, and is fit to go to market sooner than the larger animal.

These remarks are found to hold good in regard to swine, as well as sheep. The same quantum of food that will give 600 pounds to hogs of a very large breed, will fatten two hogs of 300 pounds each: and the meat of the latter, though not so fat, will be of the better quality. This, and other considerations, have given to what is termed the Berkshires, a decided superiority both in England and America, over most other breeds.

The history of the introduction of this breed among us, was stated in the report upon swine, made at the last meeting of this society. Since that time, the demand for this breed of pigs, from almost every state in the Union, has greatly increased, and prices, in some cases, have almost exceeded credulity. Two hundred and fifty, three hundred, and even five hundred dollars a pair, have been paid for them. Nor have they been found deficient in weight, when they have had time to mature their growth. They have been fattened to weigh five, six, and seven hundred pounds; and one was brought to this market last week, from Fulton county, eighteen months old, purchased of Judge Buel a little more than one year ago, which weighed, when dressed, 633 lbs. the carcass of which sold in the market at about $56.

But it is not the great weight which this breed of hogs are brought to, that gives them their great intrinsic value. They are docile, quiet, come to early maturity, have but little offal, give a large and excellent ham, one of the most valuable parts, sweet, sound and high flavored pork, and is believed, make as great, if not greater returns for the food consumed, than any other breed amongst us.

It is a matter of congratulation to the admirer of this breed of hogs, that Mr. Lossing of this city, has recently imported three animals of this breed, carefully selected by Mr. Hawes, in England. This, it is hoped, will prevent the necessity of breeding in-and-in, and thus preserve to us the breed in its purity.

In corroboration of the high opinion entertained of this breed of hogs, I will state, that Col. Williams, a spirited and wealthy gentleman, residing on Long-Island, desirous of procuring a superior breed of hogs, wrote to his friend and agent at Liverpool, to procure for him, *without regard to price, six pigs of the best breed in England*, and to take time and satisfy himself before purchasing. After diligent inquiry, his friend finally settled on the Berkshire, as being considered, taking all things into view, the best and most approved breed, and purchased seven, four males and three females, being the entire litter, (the owner refusing to sell a part,) and forwarding them to New-York, where they arrived in October last. One of the male pigs will be forwarded to the chairman of this committee in the spring, which will go still further to keep the breed from degenerating.

There are other good breeds of hogs in some sections of the country, each of which have their advocates and admirers, such as the Bedford or Woburn, Mackey, Leicesters, Mocho, China, Byfield and Grass-breed, as they are termed.

Much loss has been sustained by our farmers, in not keeping up the purity of blood, when possessed: the importance of which has been too little regarded, and before they were aware of it, the good qualities were lost, either by breeding in-and-in, or by crossing with inferior animals.

As regards the choice of hogs for breeding, it is recommended that the male should be small headed, deep and broad in the chest, the chine rather arched, the ribs and barrel well rounded. and the hams falling full down nearly to the hock. He should also be more compact in his form, and rather smaller than the female, for if she be coarse, her progeny will be improved in form and flesh by the cross, and the more roomy she is, the better chance will she afford of producing a large and healthy litter. Respecting her make, no other observation need be made than to choose her of a deep and capacious body with a good appearance, and belonging to as good a race as can be found.

The boar should be well fed, and when young, used sparingly. The sow should also be kept in good condition, so as to support her offspring, but should not be made too fat; for if in very high order she will probably bring but a weak and indifferent litter of pigs. She should not be allowed to farrow in the winter, as the young are then extremely tender, and of all animals the least able to endure cold, and thrive with great difficulty. The months of March and the first of April for the spring, and the months of August and September, for the fall litters, are therefore to be preferred for farrowing.

When breeders possess a good kind of stock, they are too apt to follow it up, by breeding what is termed "in-and-in" with the same family; a practice which is well known cannot be successfully persevered in, for they will become bad feeders, grow delicate, fall off in size, and almost entirely give up breeding; and should they casually have a litter, the pigs will be small, weak and, and die almost as soon as they are born.

It not unfrequently happens, that a young sow will devour her young; she should, therefore, be carefully watched, and well fed, when about to farrow: which may be known by her carrying straw in her mouth, about to form her bed. It is a good precaution to sponge the backs of the pigs immediately after they are born, with a strong infusion of aloes, in lukewarm water, as its bitter taste will prevent her from destroying them, care should also be taken before farrowing to separate her from other hogs. She should have a dry and warm place, and be provided with a good supply of straw cut short, to prevent the pigs from getting entangled, in which case she is apt to lay on and kill them. To protect the pigs, an open frame or strong rail on each side of her, elevated a few inches from the ground, under which the pigs may run, has been recommended. Eight or ten days after farrowing, the sow may be allowed to leave her stye for a short time every day, and when the pigs acquire a little strength, they may accompany her. A grass field is the best place, for the herbage improves the sow's milk; the pigs grow faster as well as more healthy, and the stye is rendered more sweet by their absence. If the brood be numerous, they should be lessened, in order to relieve the sow, to eight or at most nine: though from ten to thirteen have been brought up in perfect order, without any apparent injury to the mother. In such cases, however, she should be a strong and healthy animal, as well as supplied with an abundance of the most nutritious food. During the whole period of her nursing, the offals of the kitchen or dairy wash, with ship stuffs, ground oats, barley, buckwheat or corn, mixed and given lukewarm, morning and evening, and in the middle of the day, boiled potatoes, beets or carrots, with a little Indian meal or peas and barley ground and mixed, or something equally nutritious.

The young pigs, even while sucklers, should not be left wholly to the nourishment offered by the sow, but should be furnished, two or three times a day, with skim-milk, or buttermilk-whey or pot liquor, made lukewarm, and having a little meal, shorts and boiled roots, mixed up with it: or if this be thought too troublesome, skim-milk, with a small quantity of meal may be left constantly for them, in a part of the stye to which the sow cannot have access. In six or seven weeks, they will generally weigh from thirty to thirty-five pounds and be strong enough to wean. After weaning they should not only be kept dry and clean, but regularly fed.

The importance of the value of swine, with regard to the consuming of the refuse or coarse grain of the farm, and production of manure, is too well known to the farmer to require further notice.

Pigs that come in March, and are intended to be killed in December, should be well fed with the wash of the kitchen and dairy, from the time of weaning, and have a run in good clover where there is plenty of water, and as soon as peas will answer, a small quantity added to their feed daily, and the quantity increased as they increase in size; as feeding and fattening hogs exclusively on corn, at the present high prices, it is evident to every one, would be a losing and ruinous concern. It is therefore recommended, that as soon as the harvesting of potatoes commences, the hogs should be confined and fed with boiled or steamed potatoes, with a few pumpkins, beets or carrots; and peas, oats and buckwheat, ground together, should be well mixed, when hot, and fed lukewarm, regularly three times per day. Great care should be taken not to cloy their appetites, by feeding more than they will eat at each time, and as they advance, it is recommended to feed them a little at a time, several times in the day. To keep them easy and quiet, much depends on regularity, for they keep much better time than many are aware of.

To harden and give solidity to their flesh, about two or three weeks previous to their slaughtering, they should be plentifully fed with corn and pure water, but it would be more economical to have the corn reduced to meal, and if convenient made into mush or pudding, adding a little salt by way of relish. A small quantity of fine charcoal thrown into their pens occasionally, and a small quantity of sulphur, mixed with the food, will add much to their health.

It has been ascertained that one bushel of grain, ground and cooked, will go nearly as far as two, in its whole state. The above remarks will apply equally well to grown hogs.

March pigs, well fattened, weighing from 200 to 250 pounds and killed in December, will command in this market the highest price; but for consumption on the farm, an older and larger hog is recommended, say from 300 to 400 pounds.

Hogs treated as above, if of a good breed, will require from six to eight weeks to fatten them sufficiently for slaughtering. C. N. BEMENT, *Chairman.*

Report on Grasses and Grass Lands.

The committee on laying down grass lands, &c. report:

In the consideration of this subject, but two distinct propositions submit themselves to the reflection of the committee, and first: Our soils in the northern states may be ranged, for the purposes of this essay, into two classes: the tenacious, consisting of clayey, loamy and vegetable: and the silicious or sandy. These are sufficiently well known to every farmer, without analyzation, and the committee believe that the long practical experience and observation of their several properties, need only to be here confirmed and reiterated.—The first division of these soils may be termed "natural grass lands;" the second requires the grasses to be frequently cultivated by rotation with other crops; and for the present purpose, may be termed "artificial" soils for grasses.

In the management of the first, the committee feel warranted in the assertion, (and for the truth of this, they appeal to the innumerable instances afforded in all parts of the northern states, when large and productive tracts of meadow and pastures, have been in uninterrupted grass culture for more than half a century,) that so far as has yet been tried, lands may be kept in grass culture for such time as "the memory of man runneth not to the contrary." It is true that these soils, more than others, will not bear continual cropping without occasional nourishment, with impunity; but when once well seeded, by the application of various manures, among which that of the barn yard is the best, and the absence of close after-feeding, they will yield grass, in common parlance, "almost forever."

In many sections of our country, when the vegetable loam preponderates upon a clayey, or a hard-pan subsoil, the ploughing up of meadows and pasture lands for many years is almost destructive to their future production of grass, and it is only by long and regular applications of mixed and rich manures, that they can be brought back to their primitive luxuriance. In proof of this remark, your committee need only refer to some of the most celebrated and productive grazing districts of the state, where the staple grasses of our country have been *always* successfully cultivated. In frequent instances, perhaps in a large majority of cases, lands of this description, which have been cleared within the last fifty years, and now occupied as pasture and meadow, have *never* been ploughed, but remain in the same uneven condition of surface, as they were left, when the harrow followed the first grain and grass seed which were deposited in them after clearing. Great reluctance is usually manifested in disturbing these fields, although somewhat inconvenient to the mower, so well satisfied are their proprietors with their annual crops, as to prefer the old adage, and "let well enough alone."—Your committee have witnessed instances of this description of soils thirty years in grass, and but slightly manured, and under very ordinary cultivation, producing in a common season, two to three tons of the finest hay per acre. Such, however, are extraordinary cases in favorable positions. An ordinary crop may be one to two tons per acre, according to the care and attention of the farmer.

It is true that these lands may become exhausted, and the grass "run out," as the term goes, by bad husbandry and neglect; but the application of yard manures, of new grass seeds and the harrow, will in nearly all instances, restore them to their wonted luxuriance. It need hardly here be stated, that irrigation, draining and other artificial stimulants may be important acquisitions to the productiveness of the meadow and the pasture, but as these always suggest themselves to the judgment and good sense of the cultivator, they do not necessarily come within the province of this discussion. The quantity of seed sown to the acre for either pasture or meadow, should not be less than half a bushel; the kind or variety to depend somewhat upon the soil and its situation. For mowing, the red clover, timothy and red top are the best and most desirable. For pastures, the same, with the addition of white clover and blue or June grass, which are almost everywhere indigenous to the soil, and are among the richest and most nutritious of all our grasses. In fine, the simplest methods compatible with the established rules of good husbandry, your committee believe, with such soils, are the best for their profitable and perpetual cultivation.

In the discussion of the second proposition of the subject, viz. the cultivation of grasses on the lighter soils, your committee will remark, that much will necessarily be left to the judgment of the cultivator, in the time that his lands are to be kept in grass, and his own necessities or requirements of his soil. As a general rule, if the raising of grass be an object, so long as the lands produce well, either from their natural fertility, or by the application of artificial stimulants, they should not be disturbed; but when the object is a regular rotation, with a strict regard to profit, two to four years is sufficient for the benefit of the land, and as long as such soils will usually yield a grass crop to profit. It is better that the soils be properly prepared, by previous grain or root crops and abundant manuring, harrowing and rolling, for the reception of grass seeds, and that the manures of the farm, save, perhaps, lime, ashes and plaster, be withheld for the use of the current ploughed crops, than to expend them upon the grasses; yet much must depend upon the local position of the ground, the climate, and the dry or moist condition of the soil.

The descriptions of grasses best fitted for these soils are, so far as our experience has yet tested, the red clover and timothy. They are strong, hardy and rich in their properties, universally known and cultivated, and have, in competition with all rival experiments, maintained their reputation and superiority. The proportions of seed to be distributed on the soil, may vary with the requirements of the cultivator, whether for hay or for pasture; but may range from one to two-thirds of either variety; but in no case for *thorough* seeding, should the combined quantity be less than half a bushel to three pecks per acre. The great fault with our farmers is, to not half seed their grass lands, the usual allowance being less than half the quantity recommended. The time and manner of seeding, your committee unhesitatingly recommend, as the earliest spring, on a light loam; or if that be wanting, while the ground is yet unsettled, on a crop of winter grain. If this mode be not practicable, the best other plan would be either by sowing with spring grains, or seeding in the summer, with buckwheat or turnips as the occasion may demand.

The ploughing into the soil, of an occasional grass crop for its renovation, in the absence of stimulating manures, cannot be too highly recommended in the lighter soils; and for succeeding crops of almost any description, this process is highly advantageous, and may, without hesitation, be always recommended.

As the discussion of this subject at greater length, would lead your committee into minute details, although highly profitable in its results, yet not required by their duties for this occasion, they beg leave to close their communication with the following suggestion to all who would cultivate grasses:

Read attentively, and follow the experimental and practical rules laid down in the agricultural papers of the day, and no intelligent farmer need be at a loss to understand how to best cultivate his lands with grasses.

L. F. ALLEN, *Chairman.*

EXTRACTS.

[*From the Journal of the American Silk Society.*]

Address to the People of the United States.

Fellow Citizens—A convention of the friends of the silk culture assembled in Baltimore on the 11th ult. and remained in session for three days. Delegates were present from eleven states, and the District of Columbia, amounting in number to nearly three hundred; and, we believe, that for intelligence and respectability, this assembly would not suffer in comparison, with any body, of equal numbers, which any of the great interests of our country have brought together. Among those assembled were a number who have been practically engaged either in the culture or the manufacture of silk, and they exhibited various specimens of this beautiful and valuable article, which certainly gave fair promise of success to those who shall engage in the business. This convention, in the course of its transactions, appointed the undersigned to address you on the importance of the silk culture; and we now ask your attention while we endeavor to show that you will promote both the interests of the country, and your own individual prosperity, by giving this business a fair trial.

That it is desirable the United States should become a silk growing country, provided it can be done with a fair profit to those engaged in the business, is so evident that little need be said upon the subject. The consumption of this article has been rapidly increasing, particularly within the last few years. In 1821, the amount of the silks imported, as ascertained from the custom-house returns, was not quite $4,000,000. In 1825, the amount had arisen to nearly $10,500,000; and in 1837 to over $20,000,000. It should be borne in mind too, that we import other articles either of necessity or luxury, nearly or quite equivalent in cost to the value of all our exports; and the consequence is, that we must either run in debt for the principal part of the silks we use, or be subject to a constant drain of the precious metals. A system like this cannot be long continued consistently with the prosperity of the country. We must curtail our imports of this article, or we must produce the raw material ourselves, and export it to pay for such of the silk fabrics as we cannot with profit manufacture for ourselves.

We might extend our observations upon this branch of the subject, did we not believe that no further argument is necessary to satisfy you, that we ought to become a silk growing country provided the business will yield a fair profit to those who undertake it. Let us proceed then to this inquiry.

In the first place it may be stated that the climate of our country, and much of the soil, are such that the silk we make is not excelled, either in beauty or strength by that of any country in the world. For the truth of this fact we may appeal to the testimony of every foreigner, capable of judging, who has had an opportunity of testing our silk. Shortly prior to the revolutionary war, no less than 10,000 lbs. of raw silk were sent from the colony of Georgia to London, and its quality was such that it commanded from two to three shilling sterling per pound, more than that of any other country. We are not aware that any considerable quantity has been sent to Europe from states farther north, but European manufacturers have frequently examined it, and they have uniformly given it the character stated above. We can produce then excellent silk, in the various parts of our country, and to any desirable amount. But we are frequently met with the argument, that although our soil and climate are both very favorable to this culture, still labor is so high that we cannot compete with the silk growing countries of Europe and Asia, where the price of labor is extremely low.

Many of you will no doubt recollect that prior to the war 1812, although we were growing large amounts of cotton, we received all our more common and substantial muslins from India. During the war, when our commerce was greatly reduced and the prices of all imported articles became very high, cotton manufactories were commenced in some of the eastern states, and helped to supply the deficiency. When the times of peace again arrived and commerce revived, it was very generally predicted that those manufacturing establishments must be broken up, as the principal articles they then made were such as to bring them into direct competition with those countries where the price of labor was at its lowest point. Was this prediction verified? Far from it. Those manufactories have been greatly extended, and they now give us muslins for less than half the price we formerly paid for those of India, and of a quality greatly superior. In fact we now export such muslins to India, and sell them at a good profit. The high price of labor, in this case, then, has not prevented a successful competition with those countries where the wages are such as scarcely to afford the most meagre subsistence to the population engaged in it. Why then should the high price of labor prevent our raising silk to a good profit? The fact is, and it may be applied to all cases, that those countries where labor is very low, business is carried on much more sluggishly than where it is high, and their implements are more rude and less adapted to the purpose; so that the same amount expended will not produce more in the former case than in the latter.

But we need not proceed further with general arguments, to prove that the silk culture will be a profitable branch of national industry; facts were elicited during the sittings of the convention, which are more to the purpose than any arguments we could use. The Rev. D. V. McLean, of Freehold, New-Jersey, stated that, in order to try what amount of silk could be made from a given portion of ground, and that too by a person who had no practical knowledge of the business, be planted a small lot of known dimensions, with morus multicaulis, in the spring of the past year, and that he made during the summer, from this lot, at the rate of 510 lbs. of cocoons or 51 lbs. of raw silk per acre. He further stated that, for want of a sufficiency of the silk worms' eggs, he did not feed nearly so large a number as his foliage would have supported. But suppose we take this amount as the average per acre, and it is certainly not too high, and we shall presently find that the business will yield a large profit. The value of the raw silk is not less than $5 per pound, which will give us $255 as the gross produce per acre. The gentleman above named did not keep any account of the expense of collecting the leaves, attending to the worms, &c; but, a Mr. Smith, a very respectable farmer of Amherst, Massachusetts, who has been for several years engaged in the culture, stated that he knew from actual experiments, that when he paid the full price for labor it did not cost him more than $2 per pound for the raw silk he obtained. Other gentlemen present, who had considerable experience in the business, corroborated his statement—suppose, however, that in order to be perfectly safe in our estimate, we add 25 per cent. to this amount making the expense of producing the pound of raw silk $2.50 or $127.50 for the 51 lbs. and we have a nett profit of $127.50 per acre. Permit us now to ask you, what branch of your usual business yields a profit any thing like this?

We see then that if the silk culture is undertaken by the farmer as an exclusive business, it will yield him a rich return, even when he has to pay the full price for all the labor employed. But if ever the United States shall become extensively engaged in this branch of industry, and that it will eventually become so engaged we have not the shadow of a doubt, by far the greater portion of the article will be produced by farmers or planters, who are at the same time raising their ordinary crops. Most of the labor can be as well, and as expeditiously, performed by children of from nine to twelve years of age as by robust men; and thus a large proportion of our population, who are consumers but produce nothing, may be most profitably employed during a portion of the year. Every farmer who has a family of children about him, by planting a small portion of his ground with morus multicaulis, may make from 50 to 200 lbs. of raw silk per year, with very little interruption to his other pursuits, and at a very trifling expense; and thus add largely to his yearly income.

But suppose he has no family of children of his own and is obliged to hire those of his poorer neighbors; he is then increasing his own profits by this business, at the same time that he is rescuing these children from the evils of an idle life, and giving them food to eat and raiment to wear.

There is still another view of this subject which is of great importance, particularly to the citizens of many of the Atlantic states. In all of these we find large quantities of land, either naturally poor, or so reduced by culture as to yield no profit to the cultivator. The consequence is, that the people of these states are rapidly emigrating to the more fertile regions of the west to seek a subsistence for themselves and their families; giving cause for fear, that, unless some means can be found to remove this necessity, some of those states will soon be in a measure depopulated. Now it fortunately happens, that poor, sandy, and almost worn-out lands yield the very best of silk; and although the quantity will not be so large as from more fertile lands, the profits will be such as to leave no inducement to the inhabitants to leave the homes of their fathers, in order to raise wheat, corn, tobacco, or cotton, in the fertile valley of the Mississippi.

We think we have, in the few remarks we have made, shown you sufficient inducements to make a fair trial of the silk culture. We might add many more facts if we thought it necessary, but these you will find stated more at large in the periodical publications which are devoted to this cause, and particularly in the "Journal of the American Silk Society," published in Baltimore, and to which we refer you, in the full confidence that you will there find all the directions necessary for propagating the trees, feeding the worms, and reeling the silk, as well as full and authentic intelligence as to the state of the silk market and trade—to be procured by maintaining a regular correspondence with our public functionaries and others, at home and abroad, possessing most experience and having access to the best sources of information. To commence the business upon a moderate scale will involve but a small outlay of capital; and even this will yield as speedy a return, and a much larger one, than you could hope to receive from almost any other investment.

GIDEON B. SMITH,
WM. GIBBONS,
S. R. GUMMERE.

January, 1839.

☞ Our Four First Volumes,

Have been reprinted, and a quantity of them bound, some two volumes in one, and some four in one, have been forwarded to our agents in Boston, New-York, Philadelphia, Baltimore, Washington, Richmond, Augusta, St. Louis and New-Orleans· and they will be forwarded to Hartford, and other places where they may be ordered, as soon as navigation will permit. They cannot be sent, bound, by mail; but will be sent to order in a stitched form.

☞ Receipts are often requested to be sent for moneys received. The receipts of five dollars and over will be acknowledged in the Cultivator; and for less sums, the receipt of the papers for which money is sent, by the subscriber, is an acknowledgement that we have received it. This arrangement will save the writing of many letters and much postage.

Mulberry seed, we are desired to advertise the public, is for sale by W. Coleman, bookseller, New-York, and by J. F. Callan, bookseller, Washington City.

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Beans, white, bushel,	....	1 35.. 2 00
Beef, per cwt.	....	7 00.. 8 25
Bacon, western, lb.	....	0 12.. 0 13
Butter, fresh, lb.	0 18.. 0 25	0 18.. 0 30
Cheese, pound,	0 08.. 9 10	0 08.. 0 10
Cotton, pound,	0 13.. 0 18	
Flour, best, barrel,	8 25.. 8 75	8 87.. 9 22
Grain—Wheat, bushel,	1 80.. 1 82	
Rye, do	1 12.. 1 15	1 20.. 1 25
Oats, do	0 45.. 0 50	0 56.. 0 58
Corn, do	0 83.. 0 85	0 95.. 0 97
Hams, pork, lb.	0 13.. 0 14	0 14.. 0 15
Pork, in hog,	....	10 00.. 11 00
Red Clover Seed, bushel,	12 50.. 14 50	13 00.. 14 00

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Agricultural Schools.

We may learn wisdom from the infidel Turk, notwithstanding the low grade in the scale of civilization in which we choose to place him. Ali Pacha, the sovereign of Egypt, rightly appreciating the value of agricultural improvement in his dominions, has established, among other national schools, one for instruction in the theory and practice of agriculture, and another for instruction in the veterinary science. When shall we become as wise in these matters as the Pacha of Egypt? Answer—when our representatives are willing to forego personal and sectional aggrandizement to promote the common good; when they will make patriotism, which consults the good of the whole, paramount to the contracted notions which yoke them to the car of party—to the interests of a few aspiring individuals.

Premiums for 1839.

We offer the following premiums for the current year—the time for competing for the first to terminate on the first of September, after which the essays and drawings already received, and which may be received, or at least such as may be deemed to possess the most merit, will be published. The essays, &c. for the other premiums, will be received any time before the tenth of January next, and will be published in the February and March numbers.

1.	For the best plan of a farm dwelling-house, of stone, brick or wood, to cost from $600 to $2,000, a premium of	$20 00
2.	For the most profitable acre of corn,	10 00
3.	For the second best do	5 00
4.	For the most profitable acre of ruta baga,	10 00
5.	For the second best do	5 00
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9.	For the best sample of ten pounds of beet sugar produced by household process,	10 00
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Note.—Plans of dwelling-houses must be accompanied by drawings of the elevation and ground plan, and must comprise estimates of expense for wood, brick or stone. The sugar must be presented before next new-years' day. To give uniformity, labor in raising the crops must be estimated at $2 per day for man and double team, $1.37½ for man and single team, 75 cents for man, and 50 cents for every load of manure, when spread. The same statements of modes of culture, labor, expense, produce and profits will be required as heretofore, and the same evidence of the credibility of the competitor. The product of corn must be over 80, and of the roots over 600 bushels per acre.

Useful Mode of Teaching.

We have been very much interested, and highly gratified withal, by the perusal of a letter from E. E. Barney, principal of an academy at Dayton, Ohio, detailing the mode of instruction pursued with some classes of young men under his charge. The letter was not written for the public eye, but preliminary to a request to know at what discount we would put a number of Cultivators to serve as a class-book. We very willingly replied, that for such a noble object, we would discount one-third of the subscription price, a proposition which will be extended to any academy, which may choose to adopt Mr. Barney's excellent example. In the letter accepting our proposition, we have permission to publish Mr. Barney's mode of instruction, which follows.

"In the academy of this place, of which I have charge, I have a class in reading of forty boys. I have taken the Common School Assistant, one for two boys: when the class are called for reading, I distribute to them the papers, with the injunction, that no scholar turn over a leaf, or look at any other part of the paper, till the first page is read in order. Sometimes only one scholar reads; the rest of the hour is taken up in commenting on the subject read, and in answering questions and inquiries suggested to the minds of the class, by the topic under consideration. Thus topics of interest, and such as elicit discussion, are constantly coming up. We always have something new, as none are permitted to look upon any part of the paper, except that containing the lesson for the day. At the close of the recitation, the papers are taken away and locked up. This frequently happens in the midst of an interesting discussion, when every member of the class is anxious to express his opinion—(which they manifest by raising the hand, none speaking without permission)—and thus they return to the recitation with increasing interest each day. * * * *

"I have taken the Cultivator from the beginning, and consider it invaluable to the farming interest. Many of the boys in the first named class are studying chemistry. I have read many extracts from the Cultivator to them, showing how a knowledge of this science would aid an intelligent farmer in cultivating the soil. The result has been, that many of the class now view farming in an entirely new light. *They had before looked upon it as only fit for the ignorant and clownish;** but many of them now view it as a profession, *to be studied and learned, and worthy the time and attention of the most gifted intellect. Many who had before been hesitating in the choice of a business for life, begin to look upon farming as combining the three requisites*—HONOR, PROFIT *and* HAPPINESS."

"At the end of the year, the papers can be bound in volumes, to be used again by other classes. At the close of each paragraph, the class are permitted and encouraged to ask questions, on the subject read. The teacher also questions the class, and ascertains not only that each word is understood, but that the general scope and bearing of the whole subject is comprehended. If this course be adopted and carried out fully, it will enable the teacher to communicate a vast amount of knowledge in the most agreeable form, and in a way that will be treasured up by the pupil. And more than this, he will be able to mould the mind of the pupil to habits of correct thinking, to eradicate error, and to instil right principles—a matter more important than any other in education. The amount read, in learning to read, is of little consequence,—every thing depends on the manner. Again, it is of little service to learn to call the words correctly, unless the pupil be so instructed that each word is a picture to the child's mind of an idea. And even the advantages of this instruction is problematical, unless such principles be inculcated at the same time as will insure the right application of such knowledge in after life.

"It is for these reasons that I have adopted the plan here detailed. My experience thus far most fully sanctions it."

School-Houses.

We have been obligingly favored with the report of the Secretary of the Massachusetts Board of Education, on the subject of school-houses. No person can read it without being forcibly struck with the glaring defects which are seen to exist in most school-houses of the present day, and some of which are calculated to produce the most serious and lasting evils upon teachers and children. Gen. Mann has discussed the subject under the heads of *Ventilation and warming—Size—Desks, seats, &c.—Location of school-houses—Light—Windows—Yards or play grounds*—and *the duty of instructors in relation to school-houses.* He has also submitted plans of school-houses; and subjoined letters from gentlemen of medical and scientific celebrity in confirmation of the opinions he has advanced.

Considering the subject one of great importance to the whole community, and one that has been but little investigated, or understood, we shall attempt to give a brief abstract of the report, and accompany it with two of the plans.

Ventilation and warming.—The importance of pure air to health, we have particularly explained in an article upon that subject, in another column, the perusal of which we think will satisfy every reflecting mind, that children in a crowded school, especially in winter, suffer seriously, and often fatally, from the confined and vitiated air of school-rooms. Dr. Woodward has stated, that in a close room of thirty feet square, and nine feet high, fifty scholars will so poison the air by breathing, that in forty minutes it is wholly unfit for respiration. One of the strongest cases cited, of the destructive influence of air which has become vitiated by breathing, is that of the Black Hole in Calcutta, a room eighteen feet square, into which one hundred and forty-six persons were thrust, and kept confined for ten hours; and although there was one aperture for the admission of air and light, one hundred and twenty-three had perished at the end of that time. Only twenty-three survived, and several of these were immediately seized with the typhus fever.

To obviate the evils incident to foul air, there is wanted, the secretary observes, "a current of fresh air flowing into the room, while a current of the respired air flows out of it; both to be equal to the quantity required for the occupants. Under such circumstances, if there be but little motion in the room, the poisonous part of the air [carbonic acid gas,] will settle towards the floor as soon as it is cast from the lungs, while the other part of it, being raised almost to a blood heat in the lungs, will rise to the ceiling. In the ceiling, therefore, should be an aperture for its escape. The carbonic acid will tend to flow out under the door, or when it is opened. If the ceiling be concave or dome-shaped, only one aperture will be necessary; if horizontal, and the room be large, several may be required. These apertures may open into the attic, into the side walls, or into the chimney; and the flues to conduct off the impure air may have valves, or dampers, to be opened or closed at pleasure. For the introduction of fresh air, the report recommends, that a cellar be constructed under the school-house, for the deposite of wood, and the construction of a furnace, the brick or soap-stone top of which may be level with the floor, and one or two orifices will admit a constant stream of heated air from the cellar into the school room. If a stove is employed, it should be enclosed by a sheet iron case, rising from the floor on three sides of the stove, and bending over it; not, however, so as to *close* over its top, but leaving an opening in the case greater or less, according to the size of the stove and the room.—The fresh air to be introduced into this case from out-of-doors, by a conductor through the floor. A thermometer should be kept in the school room, and the temperature made to range from 65 to 70°.

Size.—In the improved penitentiary system, at Charlestown and Philadelphia, 171 in the former, and 1,300 in the latter, cubic feet of air are allowed to each prison cell. In a room thirty feet square, and twelve feet high, there would be 10,800 cubic feet, which, divided among twenty inmates, would afford to each 540 cubic feet, double the amount allowed to a Massachusetts convict, but less than a half that is allowed to one in the Pennsylvania penitentiary.—The cases are greatly dissimilar; and the advantage is altogether in favor of the school room, in consequence of its greatly superior facilities for the admission of fresh air. Yet the comparison will serve to show, that even in punishing the wicked, we are not disposed to withhold from the convict, this first blessing of heaven—pure air—towards the enjoyment of life. Our school-houses are undoubtedly too small, and too low, in general, for the number of scholars which they are intended to receive. In our estimate, we calculate rather how many we can *pack*, than how many we can accommodate. By a narrow, short-sighted parsimony, we endanger that which we are most desirous to preserve—the health of our children. A school room should be so large, as to afford room for all the seats and desks for the pupils, and to leave an "open space all round the walls, at least two feet and a half in width, besides room for the common recitations and the teacher's desk," with anti-rooms or halls for the children's hats, bonnets, &c.

Desks, seats, &c.—A level floor is recommended, as increasing the space for air, and as promoting an equilibrium of temperature. "The seats with desks should be arranged in parallel lines, lengthwise of the room, with aisles between, each seat to accommodate one scholar only. Eighteen inches is perhaps a suitable width for the aisles. Each desk should be two feet long, and not less than one foot six inches, or nine inches wide." With regard to seats, an awful neglect has been too generally manifest—1st, in not making them broad enough; 2d, in not so adapting them that the feet of those sitting upon them may rest firmly on the floor; and 3d, in not providing backs to them. As to the tendency of these defects in our school rooms, upon the human system, we quote Dr. Woodward. He says:

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* It is feared that farmers who seek to elevate their sons and themselves, by sending the former to the liberal or mercantile professions, as well as the statesmen, who neglect to foster this great business, have the same contracted notions of a business which puts in requisition our best and noblest faculties.

"*High* and *narrow* seats are not only extremely uncomfortable for the young scholar, tending constantly to make him restless and noisy, disturbing his temper and preventing his attention to books, but they also have a direct tendency to produce deformity of the limbs.

"If the seat is too narrow, half the thigh only rests upon it: if too high, the feet cannot reach the floor; the consequence is that the limbs are suspended on the centre of the thigh. Now as the limbs of children are pliable or flexible, they are easily made to grow out of shape, and become crooked by such an awkward unnatural position.

"Seats without backs, have an equally unfavorable influence upon the spinal column. If no rest is afforded the backs of children while seated, they almost necessarily assume a bent and crooked position; such a position often assumed, or long continued, tends to that deformity which has become extremely common with children in modern times—and leads to disease of the spine in innumerable instances, especially with delicate female children.

"The seats in school rooms should be so constructed, that the whole thigh can rest upon them, and at the same time the foot stand firmly upon the floor; all seats should have backs high enough to reach the shoulder blades; low backs, although better than none, are far less easy and useful than high ones, and will not prevent pain and uneasiness, after sitting a considerable time. Young children should be permitted to change their position often, to stand on their feet, to march, and to visit the play ground. One hour is as long as a child, under ten years of age, should be confined at once, and four hours as long as he should be confined to his seat in one day."

"At this period of life," says the report, "when portions of the bone are but little more than cartilage, and the muscles will stretch like sheep's leather, the question is, whether the seats shall be conformed to the children, or the children shall be deformed to the seats."

"Young persons," remarks Dr. Warren, "however well disposed, cannot support a restriction to one place and one posture. Nature resists such restrictions; and if enforced, they are apt to create disgust with the means and the object. Thus children learn to hate studies, that might be rendered agreeable, and they take an aversion to instructors, who would otherwise be interesting to them."

"In the course of my observations," continues Dr. Warren, "I have been able to satisfy myself, that about half the young females brought up as they are at present, undergo some visible and obvious change of structure; that a considerable number are the subjects of great and permanent deviations; and that not a few entirely lose their health from the manner in which they are reared. I feel warranted in the assertion, that, of the well-educated females, within my sphere of experience, about *one-half are affected with some degree of distortion of spine*. The *lateral* distortion of the spine is almost wholly confined to females, and is scarcely ever found existing in the other sex. The posture females assume, while seated at their studies, are not indifferent. They should be frequently warned against the practice of maintaining the head and neck long in a stooping position, and the disposition to it should be lessened, by giving a proper elevation and slope to the desk, and the seat should have a support or back."

Location of school-houses.—After pointing out the injurious influences which result from placing the school-house in a bleak or marshy situation—upon a sandy plain, without shade—or upon the road-side, amidst the dust of travel, and where the children's attention is constantly called off by the passers by—or upon a little delta of land, surrounded by roads, without any place of seclusion from the public gaze, and where the modesty of nature will be overlaid by habits of indecorum;—after pointing out the objections to such locations, the report directs—"Build it where some sheltering hill or wood mitigates the inclemency of winter; where a neighboring grove tempers the summer heat, furnishing cool and shady walks; remove it a little from the public highway, and from buildings where noisy and clattering trades are carried on; and, above all, reserve it from sound or sight of all resorts for a license for dissipation; and a sensibility to beauty, a purity of mind, a sentiment of decency and propriety, will be developed and fostered, and the chance of elevated feelings and correct conduct in after life will be increased manifold."

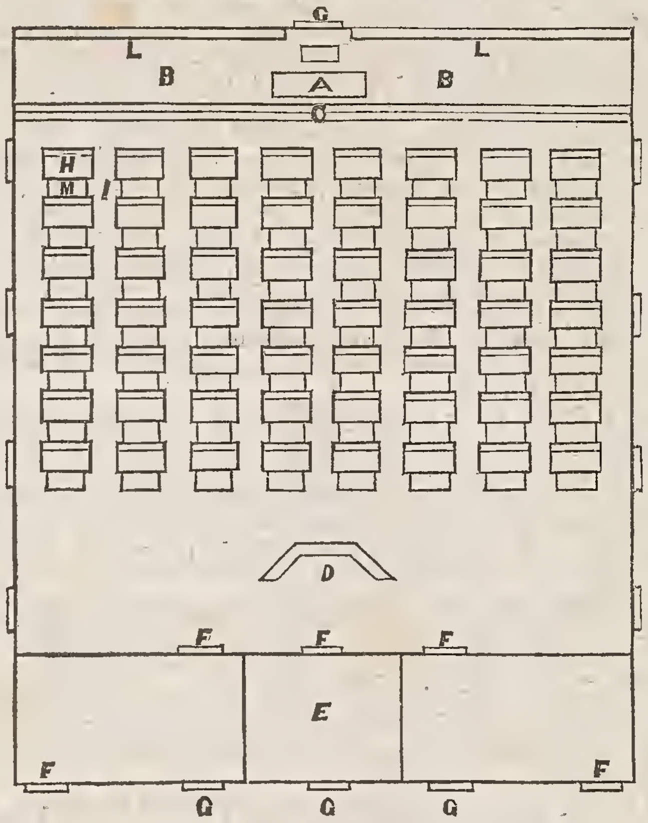
Light and windows.—"The windows should be such as to furnish sufficient light at all times," and should be furnished with blinds and curtains for excluding any excess, which often proves prejudicial to the sight of children. The windows should be made so that the upper sash can be lowered, or the lower sash raised.

Yards or play grounds.—Much emphasis is laid upon these being sufficient for the play and exercise of the children, and of their being kept neat and cleanly. "With the number who ordinarily attend these institutions, not less than a quarter of an acre, [in the country,] should ever be thought of as a space for their accommodation, and this should be enclosed from the public highway, so as to secure it from cattle, that the children may have a safe and clean place for exercise at recess and other times." It should contain some "ornamental and fruit trees and flower borders, which children may be taught to cultivate and enjoy, and by an attention to which their ideas of property, and common rights and obligations, would become more distinct. By attention to what belonged to themselves, they would be kept from many of those wanton injuries too often done to the possessions of those near them."

The duty of instructors, among other things, is declared to be, to see that the school-room in all its parts, be kept in a clean and comfortable condition, as being highly conducive to the observance of this virtue in the children, and to their correct deportment.

The report concludes with recommending, that every school-house have a bell, to inspire punctuality and order; a time-piece, where it can be seen by the scholars, as an encouragement and relief, like that felt by the traveller in seeing mile-stones;—a well or a spring, from which a ready supply of water may be obtained;—scrapers and mats at the doors and in the halls;—and, where there is no cellar, a shed for wood—the latter being deemed indispensable.

EXPLANATION OF THE PLATES.



[Fig. No. 4,]

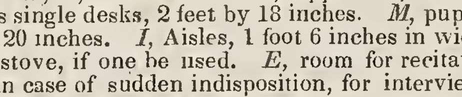
Represents the general plan of a school-house, as recommended in the report. *A*, teacher's desk. *B, B*, teacher's platform, from 1 to 2 feet in height. *C*, step for ascending the platform. *L, L*, Cases for books, apparatus, cabinet, &c. *H*, pupils single desks, 2 feet by 18 inches. *M*, pupils seats, 1 foot by 20 inches. *I*, Aisles, 1 foot 6 inches in width. *D*, place for stove, if one be used. *E*, room for recitation, for retiring in case of sudden indisposition, for interviews with parents, when necessary, &c. It may, also, be used for the library, &c. *F, F, F, F, F*, Doors into the boys' and girls' entries—from the entries into the school-room, and from the school-room into the recitation room. *G, G, G, G*, windows. The windows on the sides are not lettered.

The seats for small scholars, without desks, if needed, to be moveable, and placed as the general arrangements of the school shall render convenient.

Where there is but one teacher, the space between the desks and the entries to be used for recitation. Here, also, is the place for black boards, whether moveable or attached to the wall. This space should be 8, 10 or 12 feet wide, according to the size of the school.

The height of the room should never be less than 10 or 12 feet.

[Fig. No. 5,]



Represents an end view of the pupils' desks and seats. *J*, pupils' seats. *K*, shape of the board or plank which forms the side and support of the desks.

A light green is perhaps the best colour for the scholars' desks and seats, as it is more grateful than any other to the eye. For the outside of the house, white is the colour most universally pleasing.

PLAN OF A VILLAGE SCHOOL-HOUSE.

[This is the plan submitted to the American Institute of Instruction, by their board of Censors, in 1831.]

[Fig. No. 6,]

"Is the ground plan of a village school-house, for both sexes, containing eighty separate seats and desks. Additional seats for small children, who may not require *desks*, can be introduced at pleasure, and the teacher can arrange them in such situations as may be most convenient. For this purpose, a sufficient number of light, moveable forms should be furnished.

"The whole edifice, exclusive of the portico in front,—which may be omitted, if a cheap, rather than a tasteful building is required,—is 58 feet long, and 35 feet wide. The dimensions of the *school-room* allow 21 feet of floor to each of eighty scholars, the passages, teacher's platform, &c. being included. It is believed that this allowance is not too liberal,—is not more than is required for the comfort, health and improvement of the scholars.*

"The plan here proposed may be enlarged or diminished, for a greater or less number of scholars, according to the following scale:—For ten scholars, add 4 feet to the length; for sixteen scholars, add 4 feet to the width; for twenty-eight scholars, add 4 feet to both length and width. For a less number of scholars, the length, or breadth, or both, may be diminished at the same rate.

"The *school-room*, represented in the plan annexed, is 48 feet long, and 35 feet wide, within the walls.

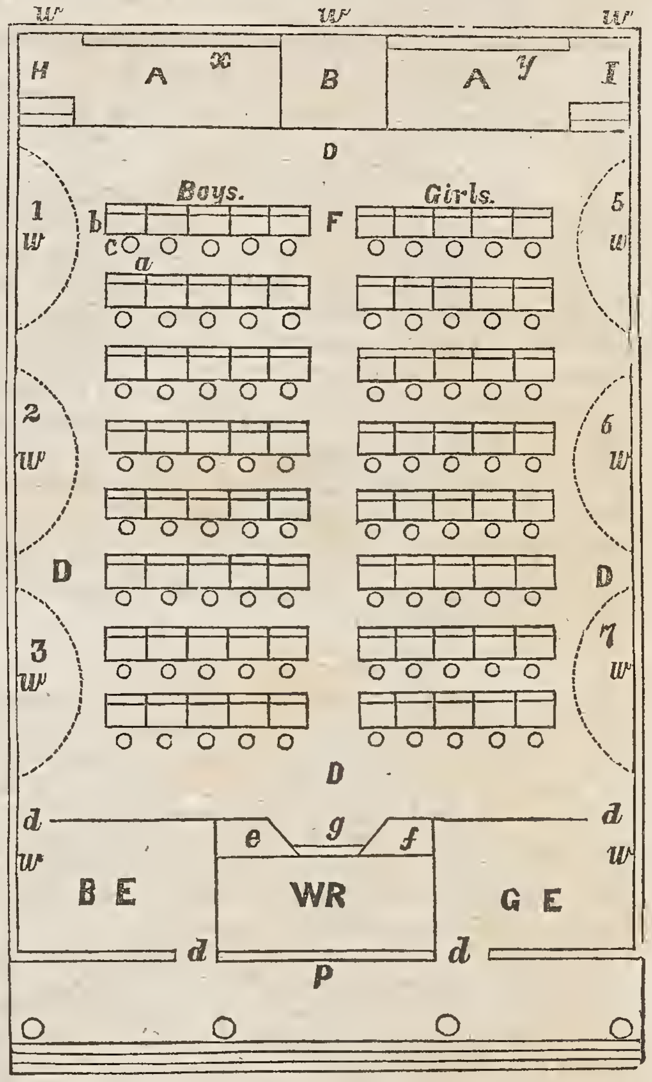
"*The floor of the room should be level, and not an inclined plane.* Nothing is gained by the common mode of finishing school rooms with inclined floors; and much is lost in symmetry, convenience and comfort. A faithful and active teacher will be about among his scholars, and not confine himself to a fixed seat, however favorably situated for overlooking them.

"Whether there be a stove in the school-room or not, there ought to be an open fire-place, where children may warm and dry their feet. The fire-place should be furnished with a hot-air chamber, to facilitate the ventilation of the room.

"The lids or tops of the scholars desks are usually made to slope too much. They should be nearly, if not quite horizontal,—an inch to a foot being a sufficient slope.

"Each scholar should have a separate seat, which should be confined to the floor. The seat should be about 13 inches square.

"The *front* rows of seats and desks, or those nearest the master's platform, being designed for the smaller children, should be lower than those near the entries."



Explanation.—*P*, doric portico in front of the school-house. *d, d, d, d, d*, doors. *B, E*, boys' entry, 12 by 10 feet. *G, E*, girls' entry, 12 by 10 feet. *W, R*, wood-room, 11 by 8 feet. *g*, fire-place. *e*, closet. *f*, sink, to be concealed by a falling door balanced with weights. *D, D, D, D*, passage around the room, 6 feet wide. 1, 2, 3, 4, 5, 6, stations marked on the floor, to be used by classes, when reciting to monitors. *A, B, A*, the teacher's platform, extending across the room, 6 feet wide and 9 inches high. *B*, a part of the platform to be removed in the winter, if necessary, to make room for a stove. *x*, cabinet for apparatus, specimens, &c. *y*, book-case. *H*, master's desk. *I*, assistant or monitor's desk. *F*, centre passage; in the plan drawn 3 feet wide, but 4 feet would be better. *b*, scholars' desks, 18 inches wide and 2 feet long.—*c*, scholars' seats. *a*, passages between the seats and next row of desks, 13 inches wide. A desk, seat and passage occupy 4 feet, viz: desk 18 inches, space between the desk and seat 2 inches, seat 13 inches, and passage 15 inches. *w, w, w*, &c. windows, which should be placed high from the floor.

Root Culture.

II.—BEETS,

Of whatever variety, whether for sugar or for cattle, require the same soil and the same culture. The mangold wurzel, or scarcity beet, has hitherto been the principal kind cultivated for farm stock, though the blood beet has been occasionally, and the sugar beet recently—both grown for this purpose.

Beets, like all tap-rooted plants, require a deep soil, as it seldom happens that the roots enlarge much in the subsoil, or below where the earth is moved by the plough or spade. Moist loams, either of sand or clay, suit them best; though they grow on all soils not wet or very stiff, provided they are made rich and mellow. The mangold wurzel will do better on poor lands than the other sorts.

The deeper the ground is ploughed, the more thoroughly it is pulverized, and the more intimately the manure is incorporated with the earthy matters, the better prospect of a crop. Pulverization is particularly necessary to the germination of the seed. The harrow should therefore be efficiently used before the seed is deposited in the soil.

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* "It may not be amiss to state, that two of the Censors teach large private schools in Boston; and in their respective schools, they allow, for each of their scholars, about 22 square feet of floor, exclusive of entries, dressing rooms, recitation rooms, &c. One of the school-rooms is 16 and the other 18 feet high—the former giving about 350, and the latter about 400, cubic feet of space, to each scholar."

The manner of planting the beet, of whatever kind, is in drills, which may be done either by the drill-barrow, or from the hand. Mangold wurzel should be in rows twenty-seven to thirty inches apart, and the plants, when out of the reach of insects, thinned to twelve or fifteen inches in the row, as the object is to obtain large size. The table and sugar beet may be grown in rows from twelve to twenty-four inches apart, and may be left to grow at six to ten inches in the rows—the object being not great size, but good quality—and it being found that the quality of medium or small sized roots, is better both in regard to flavor and saccharine matter, than that of very large roots. Some prefer soaking the seed, and some even sprouting it, before it is sown; as it is husky, and in case of dry weather, frequently does not germinate. But if the seed is put into fresh ploughed ground, planted early in the season, and a roller passed over the surface after it is covered, or the ground pressed with the hoe or foot, the seed seldom fails to grow. The seed should be covered three-fourths to an inch deep; and as the young plants are liable to be destroyed by the grub, and even turnip fly, it is advisable to sow thick, say from three to four pounds of seed to the acre.

In the after culture the objects are to keep the crop clean, and the soil mellow. The first dressing may be light, with a cultivator, where the breadth between the rows will admit; but when the plants are well established, the cultivator, or small plough, should be run deeper, and this operation may afterwards be repeated to advantage. The crop should be harvested as soon as it has ceased growing, which is known by the under leaves turning yellow; as if left in the ground longer, the roots deteriorate in value.

Mangold wurzel is the German name; mangold a *beet*;—wurzel, a *root*. Their culture was introduced into England, from Germany, about 1820, and more recently they have attracted considerable attention in this country. In 1830, the Doncaster Agricultural Association, an institution which has rendered vast service to the farming interest, sent abroad a circular, among the best English farmers, with a view of collecting all the information upon the culture and use of this vegetable, which was likely to be useful. Nineteen answers were received, from large growers of the root, and the society published, in a condensed form, their purport. The report states, that

> "The answers are from every description of soil, the greatest number (nine) from sand, not, it appears because that kind of soil is most favorable to it, but because on sands, fallow crops, of all sorts, are more generally grown than any other; six are from peat, four from clay, four from chalk or lime-stone.
>
> "The method of sowing appears to be drilling or dibbling on ridges, from twenty-seven to thirty inches apart, and afterwards singling out the plants in the rows, at about sixteen or eighteen inches from each other: the period of sowing, any time between the middle of April and end of May; on cold soils earlier than on warm.
>
> "The tops and leaves should be ploughed into the land immediately.* In comparing the quantity of manure used for Swedish turnips and mangold wurzel, it appears from the answers of those farmers who have tried mangold wurzel longest, that both require nearly an equal quantity, ten or twelve two horse cart loads per acre. With respect to the comparative product of the two crops, it appears to be in favor of mangold wurzel in the proportion of about one-fifth. The greatest weight obtained is by Mr. Simpson, of Babworth,—54 tons. Of our correspondents, ten decidedly prefer mangold wurzel, two give a partial preference to Swedes, and the rest have not expressed an opinion.
>
> "The feeding properties of mangold wurzel and Swedes are an important part of our investigation. Lord Althorp alone has tried their comparative merits; and he gives them a decided preference over the Swede. In this opinion his lordship is supported by Mr. Kelk; but seven of our correspondents are of the opinion that the Swedish turnips will feed quicker. Five of our correspondents say it is beneficial to milch cows, and two of the Norfolk farmers say it is apt to injure the butter.
>
> "To sum up—the advantages of mangold wurzel are these—
>
> It is more sure to plant, being very little liable to the fly or grub.
> It will produce more weight.
> It is off the land earlier.
> It is useful as a change of fallow crop when the land is tired of turnips.
> It will grow on land where turnips cannot be raised.
> It is better spring food.
>
> "On the other hand, in favor of the Swedish turnips it may be said—
>
> That the weeding and singling out are less expensive.
> There is more time for fallowing in the spring.
> The succeeding crop is better than after mangold wurzel.
> Perhaps cattle feed best on Swedish turnips when they are fed alone."

Mangold wurzel is relished by every description of stock; though in feeding it to neat cattle, it is recommended to commence with small feeds, and when it produces bad effects, to change the animal's food for a few days. Charles Poppy, an enthusiast in this culture, and whose pamphlet is before us, particularizes twenty-six uses to which this root may be profitably applied.

The British farmers speak highly of this root as a food for young calves. It is cut small, and fed to them after they are a fortnight old, with wonderful benefit.

The value of this crop is certainly great in the economy of the farm. Estimating the product at twenty tons an acre, it will give 746 bushels of sixty pounds each; which, at the rate of two bushels a day, would keep a cow, with the addition of a little straw or chaff, 373 days, or somewhat more than a year. Two tons of hay, the average product of an acre, would keep the same animal, allowing a quarter of a hundred per diem, but 160 days, or about one-third of the time that the wurzel from an acre would keep her—and the animal would be better, in flesh and milk, on the roots than she would be kept on the hay.

In storing and keeping the mangold wurzel in winter, the same precautions must be taken, and the same means must be adopted, as are required for securing potatoes and ruta baga. If deposited in pits, these should be narrow, and ventilating holes made in the crown of the pits. They are more liable to be injured by frosts than the ruta baga.

III—THE CARROT.

Col. Meacham has anticipated us in giving the culture and profits of this root, in his communication published in our last. Nevertheless we will throw all the new light upon the subject which our experience and our reading afford.

The soil best adapted to the growth of the carrot is a deep sand loam. The preparation of the ground consists in ploughing to the depth of a foot, the application of rotten manure, to be well incorporated with the soil—except long manure has been applied to the previous crop—and complete pulverization. Ploughing the fall previous for the crop is recommended.

The kind of carrot best adapted to field culture is the long red. The seed should be of the preceding year's growth. The mode of culture is best in drills, though in Suffolk, England, sowing broadcast is preferred. We have modern drill-barrows adapted to the sowing of this seed, though the sowing it by hand is not a tedious process—as a man may go ahead in sowing in this way as fast as another drives a barrow. The difference consists in making the drill with the hoe and covering the seed. As the seed is of peculiar lightness, it is apt not to vegetate well if the surface is light; and the practice has obtained, with large growers, of preparing it before hand, by mixing five pounds of seed with a bushel of sand or fine mould, a week or two before hand, and of moistening and turning the mass frequently; by this means not only do all the seeds grow, but the plants come up quickly, and get the start of weeds. Two pounds of seed is enough for an acre when sown in drills, though five pounds are often sown on an acre broadcast. Von Thaer uses poudrette, instead of mould, in the preparation of his seed. The drills should be eighteen inches apart, and the plants thinned to six or eight inches. The seed should be sown early in or by the middle of May.

The after culture of carrots consists in keeping them free from weeds, and the surface of the soil open; and as the rows are too near to admit of the plough or cultivator, the hand hoe must be depended on.

The best mode of harvesting the crop is that adopted by Col. Meacham—turning the earth from the row with the plough, and then drawing them with the hand.

The ordinary yield of the carrots is less than that of ruta baga or mangold wurzel—the average may be stated at 400 to 500 bushels the acre, though the product has exceeded 1000. They are so hardy, that in the south of England they are permitted to stand out in the winter; but with us they should be gathered and secured like other roots, in October.

The carrot is eaten by all sorts of farm stock, but is particularly useful for horses and milch cows, serving as a substitute for grain with the former, and increasing and improving milk when fed to the latter: Mr. Burrows, one of the greatest growers of this root, has fed ten cart horses with them, during the winter months, and up to June, with hay, and without the addition of grain. Such does he consider their economy in horse feeding, that he states, as demonstrated by his experience, that with the assistance of lucerne for soiling in summer, a workhorse may be kept the entire year round upon the produce of only one acre of land. Mr. Burrows feeds seventy pounds a day to a horse, cut or whole, and mixed with chopped hay—reducing the quantity somewhat in the short days of winter, and increasing it a little in the spring months. Other growers feed only forty or fifty pounds a day. An acre of carrots, yielding 600 bushels, fed fifty-six pounds a day, would therefore be equivalent to 300 bushels of oats, fed half a bushel a day, to a working horse.

To save seed, save select roots, and keep them in sand in the cellar till spring, plant them out early, and the seed will be ripe in August. Preserve it on the seed stalks till wanted.

IV.—THE PARSNIP,

Is generally believed to be more nutritive than any of the roots we have treated of; the product to be greater than that of the carrot or potato, with the advantage over them both, that the parsnip is not injured by frosts. Yet its culture as a field crop has hitherto been very limited.

The parsnip may be grown on stiffer land than the other roots we have named, provided it has a rich deep tilth. It requires the same treatment as the carrot, though we would prefer intervals of eighteen inches between the rows, as in good soil the tops grow large. The Jersey variety is preferred, on account of small growth of top. Sow early, at the rate of four or five pounds of seed to the acre, and keep the crop free from weeds.

The Silk Business,

Notwithstanding all the reaction it is likely to encounter from the extravagance of the Morus Multicaulis speculation, will, nevertheless, yet become a great business in our country, and one of certain profit to the farmer who embarks in it—not as a dependence, or a speculation, but as a collateral branch of his farming operations. Let no one give up for the mulberry, the culture of grain, grass, or roots—or omit the rearing of cattle, or the ordinary means of increasing the fertility and profits of his farm. Let the course of general improvement of the farm go on. But at the same time, with a small outlay, he may begin to plant the mulberry—not upon his best fields—but upon his waste grounds—upon such as are dry and stony—along his division fences, and about his buildings, where they will least interfere with his ordinary farm products. He may plant them in hedges. A few thousand eggs, will cost but a trifle, when his trees are sufficiently advanced to yield foliage to feed his worms. The business of gathering the leaves, and taking care of the worms, is but one of 30 or 40 days. It can be done altogether by the inmates of the family, without taking any thing from the ordinary labors of the farm. It can be done, and should be done, by the women and children. No expensive cocoonery is necessary for farm purposes. A room in the dwelling, or a shed, to protect the worms from the weather, may be spared on almost any farm, for the small time it is wanted for this purpose. The silk which is produced in this way, may be considered a clear gain to the family which produces it, be it fifty dollars, or be it five hundred dollars.

In regard to the kind of mulberry to be cultivated, we really feel incompetent to advise. We do not believe there is any great difference in the value of the silk which is made from the different varieties of the mulberry. One may be of finer or softer appearance, another of more substantial fabric, but all of intrinsic value, and adapted to particular purposes. The preference given to large leaves, we think less of, than most others do: for we are induced to believe, that the Asiatic mode of taking the young twigs, instead of the leaves only, for the worms, is preferable, as the first will remain succulent and fresh the longest. And if planted in hedge, a dozen bushels may be taken in so many minutes, with a bill-hook, and without prejudice to the hedge. So that in our opinion, the principal question to be decided by those who intend to grow them for their own use, is, what kind is best adapted to one's soil and climate.

Those who will submit to the trouble of taking up the multicaulis in the fall, and re-planting it in the spring—or of cutting it to the ground, and covering the stump during winter, will perhaps best subserve their interest by selecting this variety; though if they expect to have it withstand our severe winters, unscathed, in the open ground, except in solitary instances, and in peculiar dry and poor soils, they will certainly be disappointed. The same remarks, will in some measure apply to the white mulberry, in the country north of Albany. We have tried both the multicaulis and the white mulberry for years; the first has died wholly, and the last partially.

We last spring planted out some trees of the Brussa and Canton, and sowed seeds of the former, and left the trees, and a part of the seedlings, to the open exposure of the weather. The trees threw out many branches, which grew from three to four feet—the seedlings, growing very thick in garden soil, reached 15 inches. On examining them to-day, we find two to six inches of the extremities of the branches of the Brussa dead, but the main stems and branches otherwise perfectly sound and uninjured. The Canton have suffered somewhat more, about half the last year's growth being killed—though their position for ripening the wood, was not so good as that of the Brussa. The Brussa seedlings are killed down a third to a half of their growth. These were in luxuriant growth, and consequently tender, when the frosts of autumn came upon them. From this experiment, we are led to infer, that both these species of the mulberry may be planted in this latitude with tolerable prospects of success. We think them both more hardy than the white mulberry, and much more hardy than the multicaulis.

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* After the roots are harvested.

Of several new kinds of the mulberry, of recent introduction, as those denominated the Alpine, Moretta, Expansa, &c., we know nothing from personal observation. The leaves of the native red mulberry, which grows in our woods, certainly produce good silk, and the tree is perfectly hardy; and it may yet become the favorite in our borean climate.

Our remarks are intended to apply to the north.—The multicaulis will unquestionably be the favorite species for the middle and southern states, on account of the facility of its rapid propagation, if for no other reason. And we were not a little surprised, on being told, a day or two ago, that numerous small green-houses had been erected in East Vermont, expressly to carry on the winter propagation of this valuable exotic. Large quantities have been sent on from Florida, to supply our market. Some trees have brought four dollars each. Judge Comstock has advertised, that he has had a large quantity in a course of growth, during the winter, in the island of Cuba, which he soon expects to have on hand for sale.

Butter Making.

A nice process of butter making, as practised by John M. Weeks, of Salisbury, Vt. is given in the *Yankee Farmer*. Mr W. makes three qualities of butter; one, he says, worth 38 cents, being the pure butterycious matter, of exquisite flavor; the second, worth 19 cents; and the last 9 or 10 cents, a gluey substance, and insipid in taste. Mr. W. heats his milk, after the animal heat has passed from it, but to what temperature he does not say, and then sets his pans in cool running water; and when cold, they are raised, and the milk skimmed in 6 to 18 hours. We *guess*, for the gentleman has not told us, that the first skimming is made before the milk is put into the running water, or perhaps before it is heated, and the last, at the end of the 18 hours. The butter is salted and worked when it comes from the churn, worked again the next day, without cold-water in any of the processes, and then packed tight in tubs, lined with bags, previously saturated with bees-wax, and covered on the top with a clean pickle. The great requisites in making and preserving good butter, are:

1. That every thing should be cleanly in the whole process.
2. That the milk should be kept at a proper temperature, say from 45 to 55°, while the cream is separating.
3. That the cream should be taken off and churned, before its quality is impaired.
4. That its temperature should be from 55 to 65° when put into the churn, and the churning should be moderate and uniform.
5. That salt, of the best quality, in sufficient quantity to suit the palate, should be blended with it at the first working, and the buttermilk completely got out by the butter ladle.
6. That the working of the butter should be repeated at the end of 24 hours, when the salt has become completely dissolved, and all the liquid extracted—and,
7. That it should be packed, without more salt, to make it weigh, in stone jars, in wooden firkins or tubs, such as will not impart to it any taint or bad flavor—and in such manner as will totally exclude the atmosphere.

Butter made in this way, will be of fine flavor; and if put down and kept in this way, the flavor will be preserved for an almost indefinite period, if kept in a temperature below 70°. Water, mixed either with the milk, the cream, or the butter, and especially soft water, adds nothing to, but materially abstracts from richness of flavor. We have no doubt of the position assumed by Mr. Weeks being correct, that milk skimmed at three several times, will give three qualities of butter—that being taken off first being the richest and most valuable.

The common remark of our good butter-women, is, that "my butter is good enough"—and many think so, whose butter is very inferior. But as the principal object of the dairy-woman is gain, and as butter will sell according to its intrinsic value, every one should seek to improve, if not to please themselves, to please their customers, and not for the sake of "filthy lucre."

Sub-soil Ploughing,

Seems to be coming into great vogue in England, and is noticed and commended at most of the agricultural shows. It produces a great increase of crop; though it is not likely to supersede furrow-draining, but after the latter, especially upon stiff clays, its effects are capital. A communication was made to one of the local societies by Mr. Harrison, stating the expense of draining and sub-soil ploughing nine acres, very heavy clay, the furrow drains cut at 15, 20, 30, and 40 yards, in parallel lines across the field, before the sub-soil plough was introduced. The expense was £7 6s.—($32 40,) the acre. The sub-soil plough was propelled by 8 horses, and attended by three men and two boys. The draining was £5 10s. and the sub-soil ploughing £1 16s. The sub-soil plough for light lands weighs 200 or 250 lbs—for stiff clays 400 lbs. Price from £5 10s. to £8.

American Mulberry.

A gentleman in Kentucky has been for some years engaged in feeding silk worms on the leaves of our indigenous mulberry. He sells sewing silk annually to the amount $900, besides clothing his family. He has been offered the multicaulis, Brussa and other kinds, but he has declined them all, and sticks to the native. We have this information from a gentleman from Kentucky, who is his neighbor, and who adds, that he, the silk culturist, lately married a daughter, who was clothed in silk from his domestic establishment. Our informant calls the mulberry black, but we rather think it is the red (*M. rubra*) of botanists, as the former is not known to be indigenous; and as the berries of the red are black when ripe.

Drill Husbandry,

We have no doubt will ultimately come into vogue among us—we mean in the culture of wheat and other grains—though for a long time its progress will be slow. At the late Preston agricultural meeting in England, the question proposed for discussion was—"the comparative advantages of the drill and broadcast systems of husbandry." Mr. Binns ably advocated the drill system, and set forth its advantages under the following heads.

1. The seed is delivered with regularity.
2. It is deposited at proper depth.
3. The weeds, during the growth of plants, are destroyed with great facility.
4. The plants cultivated receive the undivided benefit of the soil and manure, and have not to maintain a constant struggle with weeds.
5. The land by the process of hoeing, is undergoing preparations for another crop.
6. The necessity of summer fallowing is avoided.
7. By admission of the sun and air between the rows, a stronger and healthier plant is produced, and of course a heavier crop.
8. By stirring the soil it is more susceptible of benefit from the atmosphere, imbibing more oxygen, and being both warmed and enriched by the sun.
9. The roots shoot freely in pulverized soil.
10. By drilling, the farmer is enabled to have heavier crops of beans and wheat on light land.
11. Clover and grass seeds answer incomparably better in the pulverization produced by hoeing, independendent of the clearness from weeds.
12. The drills give facility for depositing smaller portions of manure with greater effect.

These advantages are all self-evident to a good farmer; and it might have been added, as a thirteenth advantage, that drilling economizes seed, though Mr. Binns rejects it, on the ground, that if the plants are thin, they throw out side shoots, which produce imperfect grain, and ripen unequally. In drill husbandry, Mr. B. affirms, fifty-six bushels of wheat have been raised on the light soils of Norfolk.

The drills employed in sowing wheat, &c. are drawn by a horse, and sow six or eight rows at a time at a required distance, dropping and covering the seed. The machine for clearing between the rows, is also drawn by one horse, and consists of a frame with six hoes fixed to it, which occupies the same space as the drill. The rate of drilling is an acre per hour. Wheat is drilled at nine inches between the rows, and barley at seven. The horse hoe is used once, and the hand hoe twice. The expense of weeding, in England, is stated at two shillings (forty-four cents) per acre.

There was, some years ago, an excellent drill presented for examination, to the Albany County Agricultural Society, by a gentleman living in the west part of Oneida county; but as then drill husbandry was little understood, and its advantages less appreciated, the machine attracted but little attention, and has gone, we believe, to the tomb of the Capulets, to spring up again, we hope, phœnix like, in a better and more popular form.

Agricultural Education.

The public attention in Europe is awakened on this subject, as well as in America; and not only are schools specially devoted to this study continually rising up, but ample provisions are being made to introduce elementary books upon agriculture into the common or primary schools

It appears from the French *Annals of Agriculture*, that there were three prizes of one thousand francs each, awarded last year in France, to three authors of elementary works upon agriculture, prepared for the use of schools; and also two gold medals, and one silver one, to the authors of three other like essays. And in the list of prizes offered for the current year, we find one of 1000 francs, for the composition of elementary books upon agriculture, for children in schools.

We make the extracts below, from the proceedings of British agricultural Societies, at the autumnal meetings, to show, that the importance of education to those who till the soil—to those who furnish the bread and meat to feed the nation, is attracting much public attention there.

"Mr. Brewsher, [in the Stafford Waldron meeting,] observed, that the system of their fore-fathers, however good, was to be much improved by the assistance of education, and the combination of science, and the exploration of the mineral and vegetable kingdoms. He also impressed upon the meeting the advantage of combining theoretical with practical knowledge."

"You never can forget, that England's greatness is based on her agriculture."—*J. Gibson.*

"Agriculture should be regarded in a more scientific point of view, [John Greg, in the Northumberland meeting,] and the principles of science applied to it. These principles ought to be followed out by men of science, for the public benefit. * * * There is a great field to be discovered here, but not by the mere practical farmer, but by the researches of scientific men. Gentlemen, in prosecution of subjects of this kind, agriculture may be considered as yet in its infancy; and I am of opinion, that in the next sixty years, a still greater advance will be made, than in any similar period which has passed."

"His Lordship, [Lord Braybrook, in the Stafford Walden meeting,] also exhorted agriculturists, to give to their children that sort of education, which was unknown when the elder agriculturists were young. Next to a conscience devoid of reproach, no blessing could be greater than that of possessing a well cultivated mind. The greater degree of instruction agriculturists gave to their children, the more happy they would make them—for the seeds of knowledge, properly sown, would come up and produce an hundred fold."

"This difficulty [said Mr. Binns, at the Preston meeting,] arises in a great measure, from the want of the same education amongst farmers that other classes enjoy. The scientific men, who make and recommend experiments, want practice; and the practical men, want science and education. For want of a knowledge in science, in cause and effect, farmers are not able to communicate their ideas and facts with the same facilities as others, nor properly to reason upon them. The merchants and manufacturers are congregated in towns, and have the advantage of libraries, lectures, newspapers, and a more ready communication with each other.—Even mechanics have great advantages over farmers. Let us then shake off the lethargy with which we are so *justly charged*, and be determined, as well as we can, to keep pace with the manufacturers.

"Other advantages would attend [agricultural] education. It would infuse an admiration of nature. This would not only refine the mind, and lead it to enjoy intellectual pleasures, before unthought of, but it would add to the blessings which surround us, unheeded and unenjoyed. It would increase the pleasures of social intercourse—it would teach humanity and kindness to all around us, and to the brute creation, and it would also increase our comforts in every shape. Is there any reason why the farmer should not take his rank in intellectual society? The youthful mind ought to be instructed in the principles of vegetation, the production of fruits and flowers, chemical agency, and the study of electricity, that mighty and mysterious power, which operates through earth and air in a manner very imperfectly understood. The advantages of science, are beautifully expressed by the Rev. Mr. Whewell, at the late meeting at New-Castle.—'The vast scheme of law, and order, and beauty, to which science introduces us, only lifts our thoughts to that great Being, in whom are the fountains of law and order, and who makes the earth his footstool, and the heavens his temple'"

"Agriculture was one of the most important, useful, and elegant sciences, [Mr. Gray, in the Lancashire meeting,] and took cognizance both of our subsistence and our comforts. The cause of the slow adoption of improvements by farmers, was the want of education among them. The manufacturer had opportunities of educating his children, which the farmer did not enjoy; and some system whereby farmers sons may receive a better education, would tend more than any thing else to relieve them from this reproach. They would then be better able to appreciate works of agricultural information, and would attend meetings of this sort.

"Let practical agriculturists, or their children, be educated [in the science which benefits their business,] then we should see agriculture make rapid strides. Let the children of farmers be also taught the elements of mechanics, chemistry, the nature of manures, plants and vegetation."

"It is as important to the country, that agriculture should be scientifically understood and studied, as that manufacturing science should progress. The mere culture of the land is nothing, except it is conducted on the best possible principles. To plough and manure—to sow and reap—to break up and lay down land—to breed and to rear stock, and to farm, and labor on a farm, merely as they who have passed away did, is no great merit. This is merely to exercise an imitative talent. The resources of the mind ought to be brought to the labor; and profiting not only by experience, but in learning by experiment, we may hope to see improvement progress in an equal ratio in agriculture as in mechanics; and the knowledge, that the stores of experimental philosophy affords, be applied to this, the most useful of all the arts, because it produces the raw material, on which the human race is fed and clothed. When the mere operative farmer knows the value of science, he will then see that it is the best auxiliary to the production of agricultural wealth; and learn the secret, why his better informed neighbor, who has devoted some attention to such pursuits, has beat him in the cause of enterprize."—*Chester Chronicle.*

The Importance of Pure Air,

To health, is in a manner unknown to the mass of mankind, and we believe it has been but partially known, even to the learned, until recently. And even where its importance has been known, due regard has not been had to secure its blessings. The purity of the air is destroyed by animal respiration, by putrifying animal and vegetable matters, by stagnant waters, and even, we believe, by becoming stagnant itself, under a warm temperature. Impure air exercises its deleterious influence upon the human system, in all damp or illy ventilated rooms—in the neighborhood of all putrifying animal and vegetable matters—of low marshy situations, and of stagnant waters—and in crowded close rooms, whether these rooms be jails, school-houses, work-shops, temples of religious worship, or temples of fashionable folly.

Gen. Mann, the secretary to the Massachusetts Board of Education, whose recent lectures in our city were listened to with the highest admiration, by thousands of hearers, has recently published a pamphlet, pointing out the defects in our school-houses, and suggesting correctives. Two of the prominent evils which are too common, are *bad location*, and the *want of ventilation*, or a due provision for securing to the pupils the constant advantages of pure air. As we shall make this report the subject of another article, we shall content ourself, for the present, with noticing such facts as go to illustrate the importance of *pure air* to health.

"It seems generally to have been forgotten," says our author, "that a room designed to accommodate fifty, one hundred, and, in some cases, two hundred persons, should be differently constructed from one intended for a common family of eight or ten only. In no one particular is this difference so essential as in regard to ventilation. There is no such immediate, indispensable necessary of life, as fresh air. A man may live for days, endure great hardships, and even perform great labors, without food, without drink, or without sleep; but deprive him of air for only one minute, and all power of thought is extinct; he becomes as incapable of any intellectual operation as a dead man, and in a few minutes more, he is gone beyond resuscitation. Nor is this all; but just in proportion as the stimulus of air is withheld, the whole system loses vigor. As the machinery in a water mill slackens when the head of water is drawn down; as a locomotive loses speed if the fire be not seasonably replenished; just so do muscle, nerve and faculty, faint and expire, if a sufficiency of vital air be not supplied to the lungs. * * * *

"The common or atmospheric air, consists mainly of two ingredients, one only of which is endued by the Creator with the power of sustaining animal life. The same part of the air supports life and sustains combustion; so that in wells or cellars, where a candle will go out, a man will die. The vital ingredient, which is called *oxygen*, constitutes only about twenty-one parts in a hundred of the air. The other principal ingredient, called *azote*, will not sustain life. This proportion is adapted, by omniscient wisdom, with perfect exactness, to the necessities of the world. Were there any material diminution of oxygen, other things remaining the same, every breathing thing would languish, and waste, and perish. Were there much more of it, it would stimulate the system, accelerating every bodily and mental operation, so that the most vigorous man would wear out in a few weeks or days. * * * About four parts of the twenty-one of vital air are destroyed at every breath; so that, if one were to breathe the same air four or five times over, he would substantially exhaust the life-giving principle in it, and his bodily functions would convulse for a moment and then stop. As the blood and the air meet each other in the lungs, not only is a part of the vital air destroyed, but a poisonous ingredient is generated. This poison constitutes about three parts in a hundred of the breath thrown out from the lungs. Nor is it a weak, slow poison; but one of fatal virulence and sudden action. If the poisonous parts be not regularly removed, (and they can be removed only by inhaling fresh air,) the blood absorbs them, and carries them back into the system. Just according to the quantity of poison forced back into the blood, follow the consequence of lassitude, faintness or death. The poisonous parts are called carbonic acid. They are heavier than the common air, and as the lungs throw them out at the lips, their tendency is to fall towards the ground or floor of a room, and if there were no currents of the air, they would do so.—But the other parts of the air, being warmed and rarified by the lungs, are lighter than common air, and the moment they pass from the lips, their tendency is to rise upwards towards the sky."

More strongly to demonstrate the deleterious influence of breathing foul air, Gen. Mann addressed to Dr. Woodward, of the Lunatic Hospital at Worcester, the following with other queries. A portion of Dr. W.'s reply follows.

"*Second query.*—What general effects will be produced upon the health of children, by stinting their supply of fresh air, through defects in ventilation?"

"The blood," says the doctor, in reply, "as it circulates through the vessels in our bodies, accumulates a deleterious principle called CARBON, which is a poison itself, and must be discharged frequently, or it becomes dangerous to life. In the process of respiration or breathing, this poisonous principle unites in the lungs with a proportion of the oxygen of the air, and forms *carbonic acid*, which is expelled from the lungs at each expiration. The proportion of oxygen in the air received into the lungs, is about twenty-one in the hundred: in the air expelled, about eighteen in the hundred; —the proportion of carbonic acid in the inhaled air is one part in the hundred, in the exhaled air about four parts in the hundred. By respiration, an adult person spoils, or renders unfit for this vital process, about one gallon of air in a minute. By this great consumption of pure air in a school-room, made tight and filled with scholars, it will be easily seen that the whole air will soon be rendered impure, and unfit for the purpose for which it is designed. If we continue to inhale this contaminated air, rendered constantly worse the longer we are confined in it, this process in the lungs will not be performed in a perfect manner; the carbon will not all escape from the blood, but will be circulated to the brain, and produce its deleterious effects upon that organ, to which it is a poison. If no opportunity be afforded for its regular escape, death will take place in a few minutes, as in strangulation by a cord, drowning and immersion in irrespirable air. The cause of death is the retention and circulation of this poisonous principle, in all these cases.

"If a smaller portion is allowed to circulate through the vessels than will prove fatal, it produces stupor, syncope, and other dangerous effects upon the brain and nerves. In still less quantity, it produces dullness, sleepiness, and incapacitates us for all mental efforts and physical activity. The dullness of a school, after having been long in session in a close room, and of a congregation, during a protracted religious service, are often attributable to this cause *mainly*, if not *solely*.—Both teacher and scholar, preacher and hearer, are often greatly affected in this way, without being at all sensible of the cause. Fifty scholars will very soon contaminate the air of a school-room at the rate of a gallon a minute.

"Suppose a school-room to be thirty feet square and nine feet high, it will contain 13,996,000 cubic inches of atmospheric air. According to Davy and Thompson, two accurate and scientific chemists, one individual respires and contaminates 6,500 cubic inches of air in a minute. Fifty scholars will respire 325,000 cubic inches in the same time. In about forty minutes, all the air of such a room will have become contaminated, if fresh supplies are not provided. The quantity of carbonic acid produced by the respiration of fifty scholars, will be about 750 cubic inches in an hour."

So far on air becoming vitiated and unfit for breathing, by reason of its having been taken upon the lungs. The extract which we make below, from the report of the English poor-law commissioners, shows other causes of the air becoming deleterious and poisonous to a fatal extent. Every individual has a deep interest in knowing the

"SOURCES OF FEVER.

"It is a matter of experience that, during the decomposition of dead or organic substances," says the report, "whether vegetable or animal, aided by heat and moisture, and other peculiarities of climate, a poison is generated, which, when in a state of high concentration, is capable of producing instantaneous death, by a single inspiration of the air in which it is diffused.

"Experience also shows that this poison, even when it is largely diluted by admixture with atmospheric air, and when, consequently, it is unable thus to prove suddenly fatal, is still the fruitful source of sickness and mortality, partly in proportion to its intensity, and partly in proportion to the length of time and the constancy with which the body remains exposed to it. Facts without number, long observed, such as the great amount of sickness and mortality in marshy districts, the fevers and dysenteries incident to armies on their encampment on certain localities, several hundred men being sometimes seized with disease in the course of a single night, and great numbers dying within twenty-four or thirty hours; the dreadful destruction which frequently took place in ship's crews, in ships in which cleanliness had been neglected, and especially in which the bilge water had been allowed to collect and putrify, sufficiently attested the presence, in certain situations, of deadly poison. But this poison was too subtle to be reduced to a tangible form. Even its existence was ascertainable only by its mortal influence upon the human body; and although the induction commonly made as to its origin, namely, that it is the product of putrifying vegetable and animal matter, appeared inevitable, seeing that its virulence is always in proportion to the quantity of vegetable and animal matters present, and to the perfect combination of circumstances favorable to their decomposition, still the opinion could only be regarded as an inference.

"But modern science has recently succeeded in making a most important step in the elucidation of this subject.

"It has now been demonstrated by direct experiment, that in certain situations in which the air is loaded with poisonous exhalations, the poisonous matter consists of vegetable and animal substance in a high state of putrescency. If a quantity of air in which such exhalations are present be collected, the vapor may be condensed by cold and other agents: a residuum is obtained, which on examination is found to be composed of vegetable or animal matter, in a state of high putrefaction. This matter constitutes a deadly poison. A minute quantity of this poison, applied to an animal previously in sound health, destroys life, with the most intense symptoms of malignant fever. If, for example, ten or twelve drops of a fluid containing this highly putrid matter, be injected into the jugular vein of a dog, the animal is seized with acute fever; the action of the heart is inordinately excited, the respiration becomes accelerated, the heat increased, the prostration of strength extreme, the muscular power so exhausted that the animal lies on the ground, wholly unable to stir, or to make the slightest effort; and after a short time it is actually seized with the black vomit, identical in the matter evacuated with that which is thrown up by a person laboring under the yellow fever. By varying the intensity and the dose of the poison thus obtained, it is possible to produce fever of almost any type, endowed with almost any degree of mortal power.

"It is proved further, that when this poison is diffused in the atmosphere, and is transported to the lungs in the inspired air, it enters directly into the blood, and produces various diseases, the nature of which is materially modified, according as the vegetable or the animal matter predominates in the poison. In the exhalations which arise from marshes, bogs, and other uncultivated and undrained places, vegetable matter predominates; such exhalations contain a poison which produces, principally, intermittent fever or ague, or remittent fever

"The exhalations which accumulate in close, ill-ventilated, crowded apartments, in the confined situations of densely populated cities, where no attention is paid to putrifying and excrementitious substances, consist chiefly of animal matter; such exhalations contain a poison which produces continued fever of the typhoid character. There are situations, as has been stated, in which inspiration of it is capable of producing instantaneous death; there are others, in which a few inspirations of it are capable of destroying life in from two to twelve hours; and there are others again, as in dirty and neglected ships, in damp, crowded and filthy jails, in the crowded wards of ill-ventilated hospitals, filled with persons laboring under malignant surgical diseases, and some forms of typhus fever in the crowded, filthy, close, unventilated, damp, undrained habitations of the poor, in which the poison generated, although not so immediately fatal, is still too potent to be breathed long, even by the most healthy and robust, without producing fever of a highly dangerous and mortal character.

"But it would be a most inadequate view of the pernicious agency of this poison, if it were restricted to the diseases commonly produced by its direct operation.—It is a matter of constant observation, that even when not present in sufficient intensity, to produce fever, by disturbing the function of some organ, or set of organs, and thereby weakening the general system, this poison acts as a powerful predisposing cause of some of the most common and fatal maladies to which the human body is subject.

"The deaths occasioned in this country by diseases of the digestive organs, for example, by inflammations of the air passages and lungs, and by consumption, form a large proportion of the annual mortality. No one who lives long in or near a malarian district, is ever for a single hour, free from some disease of the digestive organs. By the disorder of the digestive organs, the body is often so much enfeebled, that it is wholly incapable of resisting the frequent and sudden changes of temperature to which the climate is subject; the consequence is, that the person thus enfeebled, perishes by inflammation set up in some vital organ, and more especially in the air-passages and lungs, or by consumption, the consequence of that inflammation. If, then, as is commonly computed, of the total number of deaths that take place annually over the whole surface of the globe, nearly one-half is caused by fever in its different forms, to this number must be added the number who perish by the diseases caused by the indirect operation of this poison."

The preceding extracts will serve to explain in what way air becomes poisonous to health,—will account for the faintings that often take place in crowded close rooms, and the indisposition that not unfrequently follows the visiting such assemblies. They are full of instruction for the every day business of life; and although we have recently pointed to some of the precautions which these facts urge upon us, yet the importance of the subject to health, will justify our repeating them. They admonish us,

1. To make our school-houses more roomy,—to adapt them to perfect and frequent ventilation—to

preserve cleanliness in and about them—to give them healthy locations, remote from marsh air, with ample play grounds and shade trees, to repel or mitigate the heats of summer and the cold of winter.

2. To build our dwellings on dry healthy locations —not to obstruct a free circulation of air about them by high fences or out buildings, or let any species of dead animal matters accumulate about them to poison the atmosphere.

3. To ventilate well our sleeping rooms, which should not have stoves, except to expel dampness, nor should the doors be closed at night in private dwellings, of apartments where there are several inmates.

4. To take special care to permit no vegetable putrefaction to take place in the cellars under our dwellings—to have these so that a current of fresh air may be made to pass through them whenever the temperature of the atmosphere will permit—to have them dry, and cleaned and whitewashed as early in the spring as the season and circumstances will permit.

5. To have our cattle-yards, stables and pig-sties so far from our dwellings, as that we shall not be obliged to breathe the poisonous exhalations arising from them; and carefully to remove from these in the spring, and as often at other times as good health and good husbandry require, all the dung and putrefying matters of which they may become recipients.

6. As domestic animals are affected equally with ourselves, the same care, as to cleanliness and ventilation, should be extended to them—clean ventilated stables, dry sheds to protect from the weather, and well littered yards—and the dung should not be permitted to ferment in the yard faster than it can be removed and covered in the soil, for the hoed crops of the season. The exhalations from summer yarded dung, especially where the cattle-yard or hog pen is contiguous to the house, circumstances which ought never to occur, have a most deleterious influence upon health.

7. A regard to health, as well as a desire to increase the productiveness, and to improve the beauty, of our grounds, should induce us to clear up and drain marshes, swamps, and all lands which abound in stagnant waters, the certain source of deadly malaria. The large tract of country lying in the neighborhood of Rome, termed the Campania, was, in the times of Roman greatness, well drained, and was healthy and extremely populous. In modern times the draining has been neglected, the population have virtually disappeared, and the deadly malaria, generated by its marshes, is annually the terror and the destroyer of man and beast.

8. And lastly, we should avoid many of the evils of vitiated air, by a particular attention to personal cleanliness. A large portion of the food which we daily consume is thrown to the surface by insensible perspiration, where, unless aided in its escape by exercise in the open air, change of clothing, or frequent ablutions, it accumulates, obstructs the healthful offices of the skin, vitiates the air which we breathe, and induces disease. The odor given off by diseased persons, or those of dirty habits, and particularly by blacks, indicates the presence of those poisonous matters, which are ever obnoxious to health. Grown persons, according to Lavoissier, throw off an average of five pounds per day, of impure matter, through the skin, highly charged with poisonous properties; and if not habitually removed by habits of cleanliness, they must taint and poison the air we breathe.

The Mind and the Soil.

In cultivating the soil, we have our seed-time and our harvest-time; and we all very well know, that if the good seed is not deposited in good time, the harvest will be scanty, or will fail. We can reap only what we sow, unless it be the weeds and noxious plants which spring up spontaneously from our neglect. So it is with the mind. It has its seed-time and its harvest-time—its vernal season of youth, and its summer season of manhood. And the good seed we sow in the young mind, will as assuredly grow, and give its increase, as that which we deposite in the soil. Our crops tend to increase our wealth, and add to our animal enjoyments. The improvement of the mind not only tends to these desirable ends, by aiding the labor of the hands, but it tends to knowledge, to virtue, to happiness.

Do we estimate these things rightly, and give to each its relative value? Do we not graduate the wages of the laborer, who cultivates our soil, by the measure of good he can render us? And do we not graduate the wages of the teacher, who cultivates the minds of our children by a very different principle —by the small amount which his wants or his limited capacity compels him to take? Are we not apt to make merit the criterion of our choice in the cultivator of the soil, and the want of it the criterion of our choice in the cultivator of the mind? And yet, all must acknowledge, that qualification and excellence are as much more indispensable in the latter, than it is in the former, as mind is superior to matter—as a good man is superior to a good crop. Who would not feel a higher pride in rearng a family of intelligent, virtuous and useful children, than in rearing a fine beast, or in raising a great crop of corn? Let us try to mend in this matter—to get good laborers in the mental and moral, as well as in the vegetable field of culture. Then shall our children "rise up and bless us."

Agricultural Books for Common School Libraries.

Mr. Beebe, of Lima, inquires of us, what agricultural books are suitable for a common school library? We are glad the question has been asked us, but regret that we cannot answer it more satisfactorily to ourselves and to our correspondent. The demand for books upon agriculture has been so limited, that there has been but little inducement to write or publish them. The dependence of those who have wished to improve their practice in husbandry, has been principally upon British publications, not well adapted to our practice, however correct in the principles upon which good practice must be based—and upon the agricultural periodicals of our country. Yet, there are some valuable books upon agriculture, both American and foreign, which we *can* recommend; among which we will name Davy's Agricultural Chemistry, Chaptal's Chemistry applied to Agriculture, Sir John Sinclair's Code of Agriculture, Armstrong's Treatise on Agriculture, Ruffin on Calcareous Manures, Lorrain's Husbandry—and, if we may be excused for what to some may seem egotism, we would particularly recommend, as agricultural works for every common school library, the Cultivator and Genesee Farmer, of our own state, and some of the agricultural periodicals of other states, in a suitable bound form. We do not hesitate to say, that these periodicals furnish more useful matter for improvement in agriculture, and in rural and household economy, than almost any books that can be procured in the American market; with this further advantage, that they do not cost so much, by one-half or two-thirds, as the matter they contain would cost in any other form. They are records of the improvements of the day in every branch of husbandry, and of rural economy, adapted to the every day wants of an agricultural population. To speak of the Cultivator alone—in the last twelve months, it has received and published the communications, mostly upon practical husbandry, and by practical men, of more than two hundred correspondents. Every farmer will acquire some useful hints, and improve his practice, from the better example of a neighbor. This example adds to his stock of useful knowledge. How greatly does it add to these advantages, when, instead of the improvements of one, he can profit from the improvements of two hundred good farmers.

There are several minor works upon agriculture, as Fessenden's Practical Farmer, Budd's complete Practical Farmer, Taylor's Farmers' School-book, &c., which are principally made up of extracts from agricultural books and periodicals. But most of the books we have named are scarce in market. The editions were limited, in consequence of the little demand for works of this kind. The agricultural books adapted to an American Common School Library, *are yet to be written.*

A common school library should contain something upon gardening—a branch of rural economy, that has hitherto received far less attention than its importance demands. Good gardens, among a rural population, are the highest marks of social refinement. They exert a benign influence upon our rougher passions, and the grosser appetites, and enhance the charms and enjoyments of home. We may name Bridgman's, Fessenden's and Wilson's.

We want in these libraries, also, plain treatises upon silk culture, a business of unquestionable profit, as a household employment—and a proficiency in which may be attained by a little practice, with the aid of printed directions. We name Whitmarsh, Comstock, and Roberts. The principles of mechanics are all important to a rural population. To apprehend them, and their mutual relations, says Babbage, is within the power of almost every person possessing a tolerable education. A knowledge of these principles is valuable to the farmer, and mechanic, and manufacturer, in the construction and management of the implements and machines which add to human power, and economize time. Of works of this kind, we understand two are preparing by competent gentlemen of this state, and will be published the current year.

We should also have in these libraries, some works calculated to make our sons early acquainted with the constitution and laws of the land—with their duties as citizens and freemen—and to make our daughters good housewives, and good economists. "The Citizen's Manual," by Judge Concklin, is an invaluable work for the first of these purposes. Neither young nor old can peruse it without benefit—without feeling a new interest in the preservation of social order, and new obligations to qualify themselves for the high political and social duties of freemen. Upon household and domestic duties and accomplishments, we have several valuable works, from American ladies, among whom are Mrs. Hale, Mrs. Sigourney, &c.

Utile dulci—"the useful, with that which is agreeable," has long been a favorite quotation, and the sentiment is one which we respect. The *useful* should have precedence of the *agreeable.* We should teach our youth how to *earn* wealth, before we instruct them in the fashion of *spending* it—we should build the house, before we expend our means for its furniture and embellishments. Nine-tenths of those, who are to get benefit from common school libraries, are destined to obtain a livelihood by manual labor,—and our first object should be to render their labors inviting and respectable, by affording them the opportunity of rendering them intelligent and profitable. We speak with confidence, when we say, that agricultural labor would be rendered far more profitable, at least one-third, in the coming, if not in the present generation, by the facilities to improvement which might be afforded through common school libraries; and we have no doubt, that other branches of productive labor might be equally benefitted. We estimate the value of our present agricultural products at ninety millions of dollars per annum. On our assumption, endorsed by our chief magistrate, that the value of this product might be increased one-third, or thirty millions of dollars, by proper instruction and encouragement—how paltry in comparison, is the small sum asked for from the legislature, to furnish this encouragement and instruction? It is better to give our sons a *useful* education, without fortune, than to give them *fortune* without a useful education. Men wed habits, before they wed wives, and generally cling to them longer in life.

We spread our nets too broad.

The great misfortune in our country is, that when a good thing is started, there are too many who want to share in its honors and its profits; and hence what would be very useful and profitable to a limited extent, is, by being divided, and subdivided, as respects the patronage of the public, rendered useless to the projector, and of very little benefit to the public.

We will apply our remark, first, to our colleges, our highest schools of learning. A certain number of these, by concentrating the public patronage, and the bounty of government, would be able to confer the highest qualifications for usefulness, and the highest honors, upon the pupils under their charge. But when we divide among two or three, or a half a dozen, the public bounty and the patronage which is necessary to render one useful, we overdo the business, and in a measure thwart our object of high intellectual improvement. We adopt the foolish policy of the farmer, who expends his labor upon three hundred acres, when by jucicious management, he might get the same produce from one hundred acres, and save the expense of two-thirds of the land and two-thirds of his labor.

Next, our academies. Every cluster of houses that is denominated a village is ambitious of having an academy, forgetting that it requires an outlay of some thousand dollars in the outset, to start one respectably, and an income, annually, in tuition fees, or from other sources, of two thousand dollars more, to maintain it usefully. The consequence is, that very few offer, for any length of time, so good advantages as a private school. Were two-thirds discontinued, or converted into industrial schools, to teach hand-work as well as head-work, the remaining third would be far better sustained, and be far more useful. The worst place to educate a boy, so far as depends on the advantages of the school, is his native village, where he is wont to lean on parental support and to remain a mere succor. Send him among strangers, and he will learn to *go alone,* and to depend, for knowledge and character, upon his personal application and good conduct. Under shelter of the parent tree, the succor will always be a succor—soft, porous and dependent; but early removed, it strikes its roots vigorously into the soil, towers aloft, and soon ranks with its parent, in hardiness, beauty and usefulness.

Then our canals, rail-roads, and turnpikes, come in for a like competition for public favor, and involve a like useless expenditure. By their unreasonable multiplication, individuals, and districts, may be gratified, but the public are seldom benefitted to the extent of the outlay; but this matters little to the projectors, provided the state can be induced to lend its credit for their completion, and ultimately to assume their ownership.

We are not sure that our agricultural periodicals, useful as they are to the community, are not multiplying too fast, both for the benefit of their conductors and of the public at large. It is not their number, but their quality, that confers value; and their price must be graduated in a measure by the extent of their circulation. Three of these periodicals are now issued from Boston; three are published in Ohio, and three in Tennessee. *We* are not disposed to complain; but we verily think, that was the talent which conducts, and the patronage which supports them, somewhat more concentrated, in the cases we have noted, it would be better both for the proprietors and the patrons.

In horticulture, we have now but one periodical, the Magazine of Horticulture, published at Boston by C. M. Hovey. We hope to see this liberally patronized, and well established in usefulness, ere the patronage which it deserves, and which can alone render it truly useful, is divided among half a dozen rival works.

Yet there is one business in which no evil is likely to arise from competition and rivalship. The more that embark in this, and the more successful they become in outdoing their neighbors, the better for them and the better for the country. We mean the business of practical agriculture—a business calculated, above all other employments, to make men "healthy, wealthy and wise," as poor Richard says. Here is ample scope for competition, for rivalship and for enterprise, without interfering with the prosperity of our neighbors, or compromitting our character, or, what freemen should hold most dear, our independence. A man who can, under the favor of heaven, supply his own wants by his own industry, should never consent to become the venal tool of others.

Forcing Rhubarb.

In our December number, we stated Mr. Knight's mode of forcing rhubarb; and at the same time we directed our gardener to fill a half barrel with roots and earth, and place it in the cellar. About the first of February the tub was taken from the cellar and placed in the back part of a basement kitchen, and covered over by another tub to exclude the light. On the first of March the tub was filled with fine blanched stocks of rhubarb, from twelve to eighteen inches in length, upon the top of which the leaf was just developing. The rhubarb not only makes a superior pie, but is said, by medical men, to make a very healthful one.

North Anna Agricultural Association.

We invite the attention of the reader to the preamble and regulations of this association, under correspondence. It is a mutual benefit association, calculated to add to the knowledge, and wealth, and good feelings of all its members, without impairing the good qualities or the wealth of any one. The monthly meetings will resemble the literary *converzasiones* of Paris, the meetings of scientific men in Britain, and the weekly agricultural *converzasiones* of Prof. Colman, which are now being held in the capital of New-England—where men come together not merely to benefit themselves, but to benefit their country, with the fruits of their knowledge and experience.

The Short-Horned fever in Kentucky

We are admonished by our worthy cotemporary of the Franklin (Ky.) Farmer, that we are no doctor, and that this fever has not yet reached its crisis in Kentucky. We admit that we have been better advised since we hazarded our opinion; though we are not yet exactly prepared to retract it wholly. Kentucky is undoubtedly well adapted for grazing, both on account of the richness of its pastures and its interior location. The Short-Horns find there a home—the climate is much more congenial to them than that of latitude 43—and they grow larger and do better there than they do here—and yet gold may be bought too dear. At all events, we hope, if our life is spared, to accept the kind invitation of friend Stephenson, and to be able to judge more understandingly in the matter. In the meantime we commend, without stint, the spirit of improvement which animates the editor of the Farmer and his respectable correspondents.

What is Education?

"It is," say the schoolmen, "the training of the whole man, the development and proper exercise of all his powers—the cultivation of his physical, intellectual, moral and religious nature"—and we would add—that although every thing necessary may be here implied, all is not clearly expressed. Education is not complete till the pupil is trained to some useful employment, by which he can earn an honest livelihood—and this training, too, if to an agricultural or mechanical employment, will give the best development to his physical and moral powers, and afford the strongest guarantee for their active exercise. Nothing tends more to promote moral culture, than a consciousness that we *can*, and a determination that we *will*, provide for ourselves, by our own honest industry. Without some fixed employment, while the body and mind are ductile, and capable of receiving lasting impressions of usefulness, both the physical and moral powers are apt to relapse, however well trained, the first for want of due exercise, and the latter for want of bread. Education should not only develop the bodily and mental powers, but should teach their proper and useful employment.

New Species of Silk Worms.

In the province of Assam, in Asia, which has recently fallen under the jurisdiction of British power, among a variety of hitherto unknown productions, there has been found a dozen species of silk-worms, which produce materials for valuable fabrics. One of these is the muga worm, which feeds on the foliage of a variety of trees, and is never reared in the house. The female deposites its eggs on wisps of grass, which are collected, and when wanted to be hatched, the wisps are exposed to the sun about ten days, when the worms begin to show themselves.—They are then hung up in a tree which has been selected for the purpose, and the worms find their way to the foliage. If a tree is stripped of its leaves, the worms are removed to another, by means of bamboo dishes, fastened to long poles. They are prevented coming to the ground by plantain leaves being tied round the body of the tree, over which they cannot crawl. They feed about thirty days, and when ready to wind, descend to the plantain leaves, where they are gathered, placed among dry leaves, where they form cocoons. The cocoons are about two inches long, and of proportionable thickness. They are not reeled in one continuous thread, like common silk, but spun, like cotton or worsted, and of course the product is a thicker and harsher thread. The silk is wove into cloth, for scarfs, turbans, sashes, &c. In that warm climate, the insect produces five crops in a year.

The arinda worm is reared entirely under cover. It has been known to have perfected twelve broods in a year. The silk, though coarse, is warm and durable, and is worn by the common classes. More than 80,000 lbs. of arinda, and 50,000 lbs. of the muga silk, are annually produced in Assam. The cloth is said to be of incredible durability; the life of one person being seldom sufficient to wear out a garment made of it. One other sort of these silk worms produces a beautiful thread of great lustre; and a fourth sort is of very large size, the moths measuring ten inches from wing to wing.

The Grain-Worm.

It will be seen, by the letter from Mr. Gaylord, under correspondence, that we were right in our conjectures, that the grain-worm of the east, and the grain-worm of the west, are not identical, that they belong to different genus of insects, and are altogether different in their appearance and habits. We will however indulge in another conjecture, viz. that the grain-worm of the east (*Cecydomia tritici*) is partially in the west, as far at least as Ontario, and that it has there committed ravages upon the wheat crop, *without having attracted notice.* The complaint there has been general, that the product has fallen short of the grower's expectation, to a greater extent than could be accounted for by the apparent depredations of the *Phalæra* of Mr. Gaylord. The true grain-worm, of which we have so often spoken, is seldom if ever found in the wheat head at harvesting, or in the barn. It falls to the ground before harvest. If when the grain is yet in milk, an upright head be selected, and the thumb and finger passed along it, it will be perceived that there is a partial, and sometimes a total deficiency of kernels. On opening the sheath of these abortions, or empty grain cells, the worm will be found in the envelope, sometimes to the number of a dozen. They either destroy the entire germ, or, if the kernel has partially formed when they begin their work, it has a very shrivelled and worthless appearance, having been evidently deprived of the nourishment destined to bring it to perfection.

Whitmarsh's Silk Manual.

"*Eight years experience and observation in the culture of the mulberry tree, and in the care of the silk-worm.*" *&c.* is the title of a duodecimo of 156 pages, just published by S. Whitmarsh, of Northampton. There is probably no individual in the United States, who has had a better opportunity of noticing all the varieties of the mulberry, and the various processes in the silk business, in France and Italy as well as in America, than the writer of this little work. This, taken in connexion with his eight years experience in the business, must have qualified Mr. W. for the task he professes to have undertaken, that of furnishing to the farming interest plain and simple instructions, adapted to our country, for the culture of the mulberry and the management of the silk worm. Mr. Whitmarsh concurs with us in the opinion, that this business belongs particularly to the farmer and planter; and that in their hands it will ultimately become one of great magnitude and wealth to the Union. And we concur with him in recommending farmers to plant the mulberry, in the full assurance that they will be wanted—if not by the owner, by some neighbor who will find an interest in buying the foliage.

It is not our intention to review this work. We propose merely to state some prominent facts, which it asserts, and to refer to the book for the reasons, and for general directions.

No particular species of the mulberry is preferred. Too much consequence has been attached to the size of the leaf; and he seems inclined to prefer the white fruited varieties. Mr. W. is in error in classing the black mulberry among our indigenous varieties. The black (Nigra of botanists) is a native of Europe, and more sensitive to the cold of our winters than the multicaulis. He recommends poor dry soils, where the leaves will be richer, and the wood mature better, than on rich or wet grounds. The leaves should be stripped from trees but once a year. Several crops of worms may be fed in a season, but not from the same trees. This is undoubtedly correct. The leaves are improved by the age of the tree. No kind of mulberry under cultivation can be produced from seed; that is, no seed can be depended on to produce trees like its parent. Of this fact we should require more proof before we should be disposed to give it our unqualified approbation; but if true, it will soon explode the venders of seed of the *genuine* Canton, multicaulis, &c. at four and five dollars the paper. We are not inclined to think it correct in regard to the white or Brussa, the seedlings of which we think bear a uniform resemblance, in their wood and foliage, to the parents. Where both parents are of the same species, the progeny, in the vegetable as well as the animal, are not likely to take a new form. We commend the work to the silk culturist.

"None so Blind as those who won't See."

That man who won't profit in his farming operations, by the palpably better practice of his neighbor, is branded, by common consent, an idler or a dunce; and his case may be considered one of hopeless obstinacy. He virtually scouts at the means which Providence has placed within his reach for the great purpose of his being—the improving his condition and benefitting others. He is like the noxious plant, which encumbers the earth, to benefit no one—except to exhibit, in strong colours, the contrast which exists between the useless and the useful—between industry and indolence—between the good and the bad, in human affairs. He who aids, in any honest way, to multiply the comforts of life, to enlarge the sphere of useful knowledge, and to elevate the character of society—has at least the consolation—and it can only be acquired from practice—that he has used those faculties, which Providence has given him above the brute, for the purposes for which they were intended—the good of mankind. While he who will not improve and employ the high faculties of his nature to advance human happiness, may be likened to the turtle, which delights in mud and water, and cares only for itself, or to the carnivorous beast, which feeds and fattens upon the life-blood of the brute inhabitants of the forest.

We have been led into this train of rather serious reflections by the perusal of a letter before us, from Mr. W. Bache, which, although stating nothing but what is common in every district, gives the objections of his neighbors against endeavoring to improve in their business through the example of those who excel them in practice.

"If you will publish a work on law, physic or divinity," says our correspondent, "I will undertake to get farmers to subscribe to it, because those are subjects well calculated to be treated on in books, and farmers would think they might learn from them something which they did not know before; but to instruct *them* in the art of farming, who never learnt any thing else from their infancy, nor their fathers before them, how ridiculous! There are others, however, that offer reasons rather more plausible. These improvements, say they, are very fine, to be sure; and if I lived in an old settled country, I should be very fond of taking such papers; but what good will they do us? They are not calculated for a new settled country. We have to farm as we can. We already know a great deal more than we can practice. Their improved ploughs and cultivators would make but poor work among our stumps. It would'nt be very easy draining land through roots. Why tantalize us with the wonderful effects of bone dust and lime? Our ground is strewed over with the one, without any possibility of getting them ground, and of the other there is none within fifty miles, and who can afford to put lime on land, every bushel of which will cost him fifty cents. It is true, I see some things in that Cultivator you lent me, that if I had the money I would have, or do; but we han't the capital necessary to do these things, and must wait till we have. There are others, however who like to know what is going on in the world, in their own profession, and feel encouraged to hope, by what others are actively doing, that some time or other they may be able to do the same, or better, themselves. Of such characters, we have a few even in Wellsborough, and I have the pleasure of sending you the names of the following nine, as subscribers," &c

☞ James Wickham, of South Westerlo, Albany county, is desirous to hear from his brothers and sister, Ebenezer Wickham, Benjamin Wickham and Abigail Wickham.

No one tastes so good Fruits as he who raises them.

This is particularly true as regards the small fruits of summer. The black mulberry, it is stated in the Encyclopœdia Americana, is "in perfection only a few moments, and that at the time when it can be detached from the tree by a slight shaking of the branches." "All the fruits," says Dr. Alcott, "but more particularly the berries, are more or less subject to the same law." The perfection of the strawberry and raspberry lasts but an hour or two; and even the pea, bean and Indian corn, lose much of their freshness and flavor by being plucked the day before they are used. Those who raise fruits, therefore, may pluck and eat them when they are at perfect maturity, when they are most grateful to the palate, and most conducive to health. Those who buy them, on the contrary, must buy those that are prematurely gathered, or which have passed their best state, and are in the incipient process of decay. In general both of these objections lie against summer fruits which are sold in the market—they are gathered before they are ripe, and they are in the progress of decay. How important is it, therefore, that the lovers of good fruit should take care to have it in perfection, by selecting and cultivating the choice varieties, when it can be done at trifling expense.

"The juices of all green fruits," says Dr. Alcott, "are very different from those of ripe ones. Their *acids* are less wholesome than after they are changed by the action of the sun in ripening; nor does the addition of saccharine substances in preparing them, at all change their real nature. They are still there; they are only concealed. The oxalic acid is still oxalic acid, cook green fruits as you will. No culinary process, I repeat it, can be substituted for, or produce the effect of solar action. The Creator, in many instances, by means of the sun, performs the most perfect culinary processes; and nature is often the best kitchen and cook."

The use of ripe fruits is admirably adapted to allay the feverish irritations of the stomach and bowels at the seasons when they severally come to maturity; but unripe fruits, or those in the incipient stages of decay, are calculated to increase these excitements, and to generate disease. Fruits should always become ripe in their own natural way, and eaten when they are in their highest perfection.

Bone Manure.

Since bone manure has become accessible to a considerable portion of the farming community, by the erection of bone mills at Albany, Waterford, New-York, Boston, and other places—and is likely to come into more extensive use, as its value is better appreciated—we propose to give some account of its fertilizing properties, of the soils and crops which it is calculated most to benefit, of its mode of application, the quantity applied to the acre, &c. In doing this, we shall draw our facts principally from the report of the committee of the Doncaster Agricultural Association, a society which has rendered eminent service to the agricultural community, in different departments of husbandry, by its investigations and reports.

With a view of collecting facts to form the basis of their report, the committee addressed seventeen queries to the most intelligent farmers of the country, embracing men of science, and asking answers to the interrogatories in regard to this manure. Forty-nine answers were returned. From these the committtee made out their report; and it is the substance of this report we are about to give.

Bone manure had been used, by those to whom the queries were addressed, for an average period of twenty years. "Our correpondents," says the report, "with only two exceptions, all concur in stating it to be a highly valuable manure, and on light dry soils superior to farm-yard dung and all other manures." In copying the language of one of them in relation to dry sandy soils, we express the opinions repeated in the far greater number. "I consider bone tillage one of the most useful manures which have ever been discovered for the farmer's benefit. The lightness of carriage, its suitableness for the drill, and its general fertilizing properties, render it peculiarly valuable in those parts where distance from towns renders it impossible to procure manure of a heavier and more bulky description. The use of the bones diminishes labor at a season of the year too when time is of the first importance; for one wagon load of a hundred and twenty bushels of small drill bones, is equal to forty or fifty cart loads of field manure."

"Upon very thin sand land," say the committee, "its value is not to be estimated; it is not only found to benefit the particular crop to which it is applied, but extends through the whole course of crops, and even in the succeeding course, its effects are visible in the improved quality of the land, and the efficiency of a smaller quantity than would have first ensured a crop." Numerous facts are here cited in proof of this declaration of the committee. Where, for instance, in a district of many thousand acres, turnips would produce only tops, and those very small, the use of bones alone has increased the turnip crop in some cases ten, and in few cases less than five fold; and all the succeeding crops of grain and grass were amazingly increased.

On light loams the bones were found preferable to yard dung—provided they are dry—for the bones do not seem to benefit at all upon wet soils.

On heavy loams and clays the experiments were unfavorable; and the committee infer, that clay soils are in general too moist to receive any considerable benefit from bone manure.

Upon peat soils, thoroughly drained, the advantages of bone manure were very striking. Fifteen to twenty bushels per acre were found to surpass, very far, the ordinary dressing of farm yard dung, and even lime and pigeons' dung.

Upon gravels, the opinions of its efficacy are contradictory. Upon wet ones it will not succeed.

As to its durability. Three acres were boned with one hundred and fifty bushels per acre by mistake. Fourteen years after, the land had not forgotten it, but was nearly half as good again as the other part, farmed precisely in the same way, with the exception of the one dressing of bones.

To the question, do you continue to use bones? not one in the forty-nine returned an answer in the negative. Their use was rapidly increasing.

Upon grass, either for meadow or pasture, their effect was favorable, the herbage being improved in quality and quantity. Six hundred bushels were spread upon twenty-four acres of a dairy farm, of dry sandy gravel, which had been laid down ten years. The effect was to produce double the butter from the cows depastured upon it, to those which were fed upon like pasture not boned.

The general application of bone dust in England is to the turnip crop, one of the most important in British husbandry; and the opinions as to the best mode of applying it, whether in drills or broadcast, are various, though the former opinion rather prevails.

As to the size of the bones, the opinion is in favor of half inch bones. Mr. Burk states—"If I were to till for early profit, I would use bones powdered as small as saw-dust: If I wished to keep my land in good heart, I would use principally half inch bones, and in breaking these I should prefer some considerably larger." "By using bones of a large size, with dust in them," says another correspondent, "I think I have sufficient of the small particles to set the crop forward, and sufficient of the large particles left to maintain the land in good condition for the last crop" in the course.

In regard to the quantity to be applied to an acre, although the committee admit that the average of the returns is thirty-nine bushels, they nevertheless recommend, as a sufficient dressing, twenty-five bushels of the small size, and forty bushels of the half inch, giving to the poorer lands a greater, and to the richer ones a smaller quantity.

Some of the correspondents prefer raw or fresh bones, and some those which have been boiled, and the glue and oil extracted.

Without going into further detail, we shall close our notice of the report, by copying a summary of the deductions which the committee draw from the facts they collected. They are as follows:—

> "On dry sands, limestone, chalk, light loams, and peat, bones are very valuable manure
>
> They may be laid on grass with good effect.
>
> On arable lands, they may be laid on fallow for turnips, or used for any of the subsequent crops.
>
> That the best method of using them where broadcast, is previously to mix them up with earth, dung or other manures, and let them lie to ferment.
>
> That if used alone, they may be either drilled with the seed or sown broadcast.
>
> That bones which have undergone the process of fermentation, are decidedly superior to those which have not done so.
>
> That the quantity should be about twenty-five bushels of dust, or forty bushels of large, increasing the quantity if the land be impoverished.
>
> That upon clays and heavy loams, it does not yet appear that bones will answer.

From the foregoing data, the farmer will be able to judge how far bone manure is adapted to his soil; and from estimating its cost and transportation, he can calculate the economy of purchasing and applying it. In the report before us it is computed to be cheaper at 2*s.* (44 cents) per bushel for manuring, than yard dung, at 10*s.* ($2.22) the load, the price the latter is stated at in Britain. The price at the mills in this state is $14 to $16 per ton, which would bring it to more than 40 cents a bushel. So that to manure an acre with twenty-five bushels would cost about $10.75, besides transportation and spreading. This dressing would be equal to that afforded by twenty common loads of manure, which ought to be estimated to be worth 50 cents a load, besides the expense of hauling it out and spreading it. It would therefore seem to be cheaper than stable manure; and at all events it would afford a valuable auxiliary where manure is scarce, or has to be brought from a distance.

Bone dust is for sale at the glue factory of T. Coulson & Son, on the Schenectady turnpike, Albany, and by R. Burt, Waterford.

"The Memorial,

"*Devoted to the reduction of costs attending legal proceedings in the collection of debts,*" is the title of a respectable sheet, which we have received from Seneca Falls, A. Bascom, editor. Its object is to make known the defects of our laws, and the impositions which are practised under them, in regard to the legal collection of debts.

We allow to the legal profession all the innate virtues and good feelings which are common to the other classes of society. But we have made them the peculiar subjects of temptation; and have environed them, by our own acts, with motives and with power, to become a privileged class, like the aristocracy of Europe. We make them our law-makers, our law-expounders, and virtually judges of the compensation which they shall receive. We have made the profession of law the avenue to all the offices of honor and emolument, by the long practice of selecting from the profession most of our executive and judicial officers, and a great portion of our representatives in the national and state legislatures. We have assisted to qualify them for these stations, by appropriating two millions of dollars of the public money to colleges and academies, in aid of their education. But we have not expended any portion of the public money to qualify the farmer and mechanic for like duties.—Hence they *are* a privileged class; and, like all other privileged classes, exercise the powers which are conferred upon them. Is it a wonder, therefore, that the profession should be crowded with candidates, of all sorts, for public favor? Is it unnatural that, encouraged by public bounty and public patronage, and possessing the power to help themselves to what they wish, that *all* of the profession should not possess sufficient virtue and integrity to resist the desire to grow rich upon the labors of the middling class? We only wonder that there are so many honest lawyers as we find.

From a cursory examination of the *Memorial*, we think its tendency is useful, its motives patriotic, and its means mild, liberal and just; and we recommend it to public patronage.

Among other matters, it is shown pretty satisfactorily, in the Memorial, that where the costs on collecting a note are now *fifty dollars*, besides sheriff's fees, they might be reduced, without prejudice to the plaintiff, to *fifty cents*, besides sheriff's fees, and yet afford a fair equivalent for *services rendered.* The expense and delays of chancery proceedings form a far greater cause of complaint than the courts of justice; so much so, that a man who has $500 due him on a mortgage, had better sacrifice the debt, than attempt to realize it by equity proceedings—if a lawyer takes an interest in keeping him out of it.

We have had some experience in these matters. We became a disinterested endorser for a friend, to the amount of seven or eight thousand dollars, for which we received a mortgage upon real property as security. Our friend failed, and left us to take up the paper. We commenced a foreclosure of the mortgage in chancery. Although we believe our counsel has done his duty, the cause has been pending five or six years, and is likely to out-live us—and for no other reason that we can see, than to accumulate costs—and to secure to a lawyer the possession of the property upon a nominal rent.

Durham Cattle.

Several individuals of this esteemed breed have recently been bought up in this neighborhood, by a gentleman from Kentucky. The purchaser remarked to us, that the climate of Kentucky appears to be much more favorable to this breed than the climate of our latitude.

Agricultural Items.

The Penobscot Agricultural Society awarded premiums in October, on the following products of an acre, viz:—42 bushels of wheat, 87½ bushels ears of corn, 84 bushels of oats, weighing 34 lbs. per bushel, carrots 600 bushels, &c.

Fellenbergh, pointing to three hundred pupils belonging to his school, said to Prof. Griscom, when visiting the school at Hoffwyl—"Do you see those young men? They are all teachers. If I do but pursue the right course in education, I shall revolutionize Switzerland." The worthy patriot alluded to the agriculture, the schools, and the intellectual and moral character of Switzerland. And who would not like to see such a revolution here? Such a revolution we want, and such we might have, if we would adopt Fellenbergh's plan.

The difference between a working man and a teaching man.—The laborer asks the farmer, "Do you want to hire a hand, Sir?" "Yes, if he suits me. *What can you do?* Can you mow? Can you cradle? Can you drive a team? Can you thrash?" The teacher asks him, "Does your district want to hire a teacher?" "Yes, *how much a month do you ask?*" In the first case, animal power and tact constitute the criterion of merit; in the second, the low price at which the applicant holds his mental qualifications. If the hireling does his work, no matter whether the children learn any thing useful or not.

Sweet Potatoes, have been kept till May, packed in a box of dry earth in autumn, placed in a position free from frost, and *exposed to the influence of smoke.*

Efficacy of Bone Manure.—Horace Callimore, states, in the *Plymouth Rock*, that he expended twelve bushels of bone manure, when brought into an incipient state of fermentation, upon his mangold wurzel and ruta baga crop, scattering it in every other drill—a handful in three feet; and that on gathering the crop, he found that he had four bushels of mangold wurzel, and two bushels of ruta baga—(both being alternated in the same row) in each row where the bone manure was applied, and but one bushel of each, in the rows where it was not applied, although the whole was manured with a compost—thus shewing an increase of two-thirds where the bone dust was applied.

Elastic Forks.—We accede to the proposition of O. Everett, of Sherburne, Mass.

Davis' genuine Ploughs—are manufactured and sold by Davis & King, Georgetown, D. C. dealers in produce, garden-seeds, &c. and agents for the Cultivator.

Morus Multicaulis trees and cuttings, sold by Joseph Bloodgood, Cultivator agent, Flushing, L. I., who sells also the China tree corn.

Italian Wheat.—Fifty bushels of pure seed have been imported, and are for sale, by J. Hathaway, P. M. Rome, Oneida county.

Notices of Correspondence.

Correction.—We quoted Mr. Whitmarsh, in one of our late numbers, as saying, that the "Alpine mulberry was universally raised in France and Italy." We are advised by Mr. Whitmarsh, that he was misunderstood by the gentleman who reported his remarks—that he said no such thing. His expression was, that "the better varieties of the white mulberry were grafted and budded universally in France and Italy, and that such a system would not answer for this country."

Our back volumes, in relation to which we are enquired of by S. Armstrong, of Bethlehem, Ia. may be had bound of our agents at New-York, Philadelphia, Baltimore, &c. see agents. Mr. A. will find answers to his inquiries in back vols. Timothy is best sown in September with winter grain, and we think, though we do not know, that blue grass is best sown at the same season.

Lice upon Cattle.—A. Higgins, of Smokey Hollow, asks for a prescription for destroying lice upon cattle. Boil the stems or leaves of tobacco in water, and apply the liquid, when cold, along the back, shoulders and neck of the animal, once, twice or thrice. Or, what is said to be equally efficacious, give a little flour of sulphur, once or twice a week, with salt, which the animal will eat kindly.

Berkshire Pigs—We have several inquiries in relation to Berkshire pigs. We refer, for answers, to the advertisements accompanying our Feb. No.

Boynton's Straw Cutter, we have neither tried nor seen. We refer J. A. D. to our advertising sheet for February.

Rohan Potatoes—We are obliged to repeat, that we have had none of these on hand since October, to part with. We dare hardly name the current price, as it is constantly advancing, and is now $6 the bushel.—See advertisements in our February sheet.

Farming in Middle Tennessee—John Brown writes from Columbia, Ten. as follows: "In Middle Tennessee our climate is very fine, our soil exceedingly productive, but our husbandry is in a most lamentable condition. From the intrinsic merit of the Cultivator, and the practical information offered to its readers, our agricultural labors must be greatly improved. Middle Tennessee is well adapted to the production of grain, roots and grass, of almost every variety. Heretofore we have been principally engaged in the culture of cotton, a misapplication of labor and capital, owing to our climate being too cold, and our soil too rich, for the profitable cultivation of that article. But the error is rapidly curing itself. I have the Cultivator from the beginning, and ten times its cost would not take it from me."

TRANSPLANTING EVERGREENS.

Stephen Earle, of Leicester, Mass. asks us the following questions.

1. "Which is the best time, spring or fall, to set out spruce and pine trees?
2. "Is it a good practice to mix barn-yard manure with the dirt that is put about the roots?
3. "Is it a good plan to water the trees occasionally if the season is dry?"

Our answers are, that the *best* time to transplant the spruce and pine, though they may be transplanted at any time, is the last of May or first of June, *after the plants have begun to grow*, or during any of the periods of active growth, if due precautions are taken to counteract evaporation, or to prevent the exhaustion of moisture in the soil. Barn-yard dung should *not* be mixed with dirt about the roots—rich surface mould is best. Water may be given to keep the ground moist, but not too wet. A bucket or more of water may be thrown into the hole in the process of transplanting—and the surface, after the tree is planted, should be covered with coarse litter, to prevent evaporation. Mr. Earle will find our reasons for this practice, and an account of our success in it, in the back volumes of the Cultivator.

Native Mulberry—A Fishkill correspondent inquires if the native black and red mulberry can be propagated by layers and cuttings? We have no native black. Without having had practical knowledge, we may venture to say that the native red can be propagated by layers, and we think by cuttings. Quince cuttings may be made at any time after the fall of the leaf and before the buds swell much in the spring. We think the best mode is to cut in the fall, and bury the shoots till spring.

One of our correspondents writes as follows—"Some of your correspondents seem to think, that there are none benefitted by the Cultivator but those who read it. But I am satisfied there are many who have never seen it have profitted by the information which it contains, through the influence and example of those who do read it. And as this knowledge comes to them in a manner that does not interfere with their prejudices, I have no doubt it is preparing the way for them hereafter, to be still more benefitted, by inducing many of them to turn their attention to books and papers that treat of agriculture."

Botsford's Thrashing Machine, is inquired for by several correspondents. Our readers are in possession of all the information we have in relation to it. We have seen a model, but have not seen the machine; nor can we give directions further than we have published.—Mr. Joseph P. Plummer, of Richmond, Ia. thinks, judging from the price probably, that they would just suit his country. ☞ Mr. P. had better grow beets upon his hog pasture, if it is moist, or inclined to clay.

Preparing Seed Corn—Edmund Wells, of Harmony, prepares his seed corn as follows: for half a bushel of seed, he dissolves nitre, or salt petre, in water, till it will bear an egg; makes the water about blood warm, and steeps his seed in it twelve hours. He then takes it from the tub, and pours upon it a mixture of 3 gills of tar, one gill of oil, half a pound of powder, and boiling water enough to make it of a proper consistence for glazing the corn, rolls the seed in plaster, and plants, taking care to keep the grain moist. "It comes up rank," says Mr. P., "is larger at one week old than dry planted at two, and I am confident I have not lost a single hill the two past seasons. The smell is so disagreeable when prepared as above, that neither crows, birds, squirrels, field mice nor cut worms are disposed to meddle with it." Mr. P. asks if nitre and sulphur will answer the same purpose, and if yes, how much of each? Sulphur would no doubt prove a good antidote, and there would be no danger of using it to excess—yet we think tar and powder equally beneficial.

Lice upon Ruta Baga and Cabbage—In reply to the inquiry of Mr. C. Holbrook, of Woonsacket, we are sorry to state, that we know of no certain remedy against plant lice. Good manuring and good culture is the best remedy; though we think tobacco water or sulphur would expel them from the upper side of the leaves. If sulphur is used in a liquid, it may be first mixed with milk, and then blended with water.

A gentleman in Dorchester, Mass. asks if "there is any difference in the manner of growth, the size and quality of the leaf, between the Canton and multicaulis mulberry, and whether the former will stand our winters better than the latter?" The multicaulis has the larger leaf, and we think the Canton is the most hardy. See our article on the mulberry.

The Silk-Reel, a drawing of which we received from R. Mansfield, is the Piedmont reel recommended by the National Silk Convention. We will procure a cut, and insert and notice it in our next No.

"*Is there a cast iron Plough, of good construction, in use, with a steel point?*" is the question put to us by C. Ingalls, of Lockport. Norton's self-sharpening plough, sold by Wm. Mascraft, No. 23 Washington-street, Albany, is a cast iron plough of this kind. The point and share are separate, and are so formed as to be turned upside down, at pleasure, and made thus to sharpen themselves. This plough is said to have received premiums at New-York, Philadelphia, Baltimore and Washington, and its merits are highly spoken of by the patentee. Never having used it, we speak of it according to report, and not from personal knowledge.

On the subject of advice—A correspondent in Allegany last year described to us the quality of the soil in his neighborhood, and asked us how it should be managed, and now seems to take it unkind that we did not answer his question. A physician lays down general rules for the prevention and cure of diseases; but should he venture to prescribe in particular cases, without seeing his patient, or knowing the exact type of his disease, he would be apt to be branded as a quack. Now we have endeavored to make known the general principles of husbandry, to enable the farmer to improve his practice, leaving him to apply these principles to his particular case. Soils differ like the human constitution, and it would be as futile for us to prescribe, in many cases, as it would be for a physician to prescribe for an unseen and unknown patient. John Randolph once remarked, that a man at forty is either a physician or a fool; meaning thereby to imply, that in forty years experience a man of good sense will acquire a knowledge of his constitution, and of the best means of preserving his health. This will in some sort apply to the farmer. With a knowledge of general principles, the cultivator of a farm should know how best to apply them to his particular case.—This is his particular province and duty. There is no panacea in agriculture any more than there is in medicine. If land is poor, make it rich; if it is wet, make it dry; if it is badly managed, work it better. Ascertain the cause of infertility, or deterioration, and the remedy is palpable, remove or abate the cause. We have another apology for seeming neglect to answer all the special queries that are sent to us. They are very numerous, and the task of answering them, in a satisfactory manner, would be herculean. Under this view of the matter, we hope that none of our correspondents will construe our silence into intentional neglect—and that they will accord to us an honest and constant endeavor, to *do the most good to the greatest number* of our patrons.

Pitts' Thrasher—George Love's request will be submitted to Mr. Pitts as soon as he reaches Albany, which he is expected to do in a few days.

"*A Friend to Improvement*," can be gratified if he will permit us to use his proper name. Communications like his might be sent us from every county in the Union. We could not judge of their correctness; and without the sanction of a responsible name, both ourselves and our readers might be imposed upon with impunity. The precedent, it will be seen, would be a bad one.

Preparation of Clover Seed—We have received two communications from Joseph Warbasse, of Newtown, Sussex county, N. J., on the preparation of clover seed for sowing, by which the writer calculates he makes a saving of one half the seed required. This is a matter of no little consideration at the present price of seed. Mr. Warbasse's process seems to be predicated on the assumed fact, that ordinarily more than one-half of the seed sown does not germinate, either from the want of moisture to swell it, or of gypsum, the presence of which he considers essential to stimulate the germinating principle. Mr. Warbasse is probably right in stating, that one-half the clover seed sown does not come up; and he is strengthened in his supposition that much of it remains dormant in the soil by the fact he states, and which is of common notoriety, that plaster sown upon light lands, will bring in clover, where no seed is sown at the time. Mr. Warbasse's remedy for the evil is, to saturate and swell the seed thoroughly in soft water, to which a small quantity of salt is added, and after it has become well saturated, to coat it with gypsum, &c. the effect of which seems to be, to prevent the escape of moisture which the seed has imbibed, and thus insure its germination and growth. A further advantage may be, that the salts impart fertility to the soil which comes in immediate contact with the seeds, and causes a more vigorous growth. Such seems to be the philosophy upon which Mr. W.'s practice is founded. We give the process of preparing the seed in his own words:

"The seed is to be made thoroughly wet with a strong pickle from your pork cask, so as to wet the floor; then let it remain in a heap one day, it being thus made larger in each grain. In cold weather warm your pickle and give it an additional salting next day. Spread it about one or more inches thick on a dry floor, and in a few days a crust of salt will be formed on each grain, again enlarging it; when you wish to sow it, the weather being calm, moisten it with more salt pickle; spread it over a floor, and put on it about three quarts or more of plaster to a half bushel seed; mix it well; the plaster will adhere to the crust of salt on each grain, still further enlarging it; and thus you have in bulk nearly one bushel out of half a bushel of seed. Keep it moist in a cellar until you sow it, and take no more seed in your fingers but rather less than in the old way, making longer steps while sowing, and go over the eight-pace land three times. I have thus sowed twelve acres or more with one bushel of seed, and all in good condition.

For want of plaster, strong dry ashes may be used, not over moist; but as I have not fully tested the advantages of this method, I shall leave it as it is.

N. B. Those who do not fully understand the preparing of clover seed agreeably to the above directions, or are fearful of using the salt pickle, after having paid a high price for the seed, can prepare a water for steeping equally stimulating by boiling a few gallons of snow or rain water, and putting into it a fire-shovel full of plaster and a fire-shovel full of strong ashes or hot embers, with two hands full of salt. This water when cool, drain off and steep your seed in it two days, and before you sow it, wet it with milk, of any sort, this too will become an agent to encrust the seed with plaster, and so will any water, made slimy or oily; rye-meal would be better than milk to render it adhesive; starch and flaxseed put in while warm, might also be used to advantage. By following these directions you can sow twice as many acres and have better crops of clover without sowing any plaster on it the same summer."

Loss of the Cud.—D. L. Dodge, of Plainfield, N. J., wishes us to give a more full and connected statement of the nature, symptoms, and remedies for diseases in cattle, particularly for neat cattle and horses. This request shall be duly attended to. He at the same time apprehends, he shall lose a very valuable bull, in consequence of the loss of his cud. On this subject Lawrence directs:

"Let the animal fast some hours, then give a warm bran or pollard mash, with good hay, and warm water with salt. This treatment alone, may succeed with patience, even should the maw be obstructed by acorns or crabs. An aloe tincture, made with brandy and ginger, or capsicum, might be of use in this case. After conquering the obstruction, bitter infusions, made of chamomile, cardirus, horehound, oak-bark, &c. in beer, may be required as restoratives, although perhaps good dry nourishing food, will have an equal good effect."

Acknowledgments.—The Rock apple and a sample of a handsome seedling apple, from Mr. Verplanck, of Ballston. The Rock apple is the Carthouse, or Gilpin, of Coxe, excellent as a table apple late in the spring. Mr. V. says he has kept them till September. The tree is hardy, of handsome growth, and a great bearer. Grafts of a Siberian apple, a cross of the old Siberian, which keeps till midwinter, beautiful, large and fine from J. A. Thompson, of Catskill, an amateur pomologist. A peck of Timothy seed from Wm. Bristol, of Utica, perfectly pure, without the admixture of a single foreign seed.—The seed was raised by Asher Wilmot, of Paris, Oneida county, who raised some thirty bushels of like quality. Mr. Wilmot, in harvesting the crop, carefully takes off the heads of the grass, avoiding all foul seeds, from a strip, then cuts down the stubble, and proceeds to gather the heads from a second strip, and so on. Mr. W. deserves much credit for his care, and we hope to see his example imitated. A package of *Cedo Nulli* peas, a new and valuable variety, from G. C. Thorburn, of New-York.

CORRESPONDENCE.

Diseases of Sheep and Remedies.

Weybridge, Vt. March, 1839.

J. Buel—Sir—In the following communication, I have endeavored to give some directions relating to the management of sheep, and the most common discases, which are within my own experience, which, if published, I hope may be useful to wool-growers, who are unacquainted with their treatment and nature.

A healthy sheep will soon recover from those simple complaints, such as wounds, bruises and fractures, by a very little attention, if applied at the commencement; but by neglect a wound may soon degenerate into an ulcer. A broken bone sometimes may knit, the animal will suffer great pain, and probably have a crooked limb after.

Fresh wounds will suddenly heal, if closed by a stitch or common sticking plaster; small wounds at times need nothing, or a little tar is sufficient.

A fracture should be bound up neatly, with one or two splints, in flannel or other cloth, smeared with tar. Carc should be taken that the splints do not press the tender part.

Sheep are infested with several kinds of vermin, the common tick, maggot, &c; young and lean sheep are most exposed to these complaints.

Those flocks are not troubled with ticks, where the lambs are regularly immersed in a decoction of tobacco, say from four to five pounds to the hundred, about ten days after the sheep are shorn. Several pinches of Scotch snuff deposited in the wool, in and about the neck and sides, is a good remedy in cold weather.

Maggots originate from fly-blows upon the wounds; these are avoided by dressing with tar, and destroyed by an application of honey, when spirits of turpentine would prove ineffectual.

To cure *colds*, and running at the nose, a dose of tar, is sufficient, in the months of June and July; if applied at and above the nose, it will prevent the grub in the head and invigorate the health.

Nothing can be more safe or better to soften the hide, prevent or cure the scab, than a strong decoction of tobacco, applied to the parts infected. If the scab has become in a manner confirmed, it should be removed by a curry comb or otherwise; then after immersing them in a vat of liquor, lay them on an inclined table, which will conduct all the liquor that may be pressed from the wool into the vat again.

Sheep are frequently exposed to cold rains, or burning sun, immediately aftcr shearing, which will materially injure and sometimes destroy a number in a flock. Take train oil, or other cheap oil will answer, and with a brush lay a strip the whole length of the back and neck, which preserves them in a measure, from the pelting storms, a scald back, and destroys ticks and other vermin, adds to the weight, and encourages the growth of wool. By the addition of a little sulphur, it will prevent the scab and keep off flies, which annoy them during the summer.

The *stretches* is a common and very fatal complaint. Wethers of three years old and over, are more apt to be its victims. When attacked they stand bracing on all fours, like the legs of a stool, and refuse to eat. The cause originates from air being pent up just forward of and below the hip. My treatment for this, is to give the animal a gill of hogs fat, and draw it about suddenly for sometime.

The *foot-rot* is an infectious disorder, which locates between the hoof, and unless immediate attention is rendered, it operates under the horns of the hoof; it is more easily cured in the winter or when the infection freezes. If thoroughly seated, it cannot be entirely eradicated from the flock in warm weather, unless they are permitted to run in a fresh pasture, where there is no exposure after the treatment, which is this: first, the foot must be pared, if infected, and all the ulcerous matter removed; then apply with a swab, zig or water strongly saturated with finely pulverized blue vitriol; when thoroughly done the rot will be removed, and the foot will be healed in four or five days. It is very important, that the diseased animals should be separated from the flock. Fine woolled sheep, and those that have long hoofs are more subject to the rot, and more troublesome to cure. It spreads by innoculation only, and rages worse in low, wet grounds. It is important that they should be examined every week until cured, which will require three or four thorough examinations, where the ulceration is confirmed.

By using a trough, the description of which you have in the cut below, the foot can be examined with ease, and it is a great saving in time and labor.

[Fig. No. 7.]

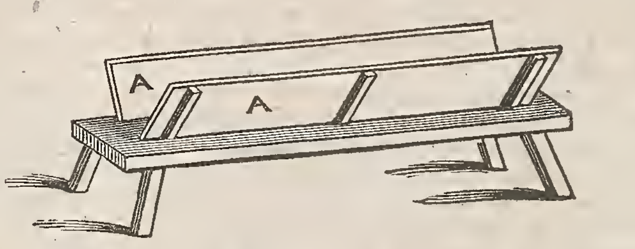


Fig. No. 7 represents a trough, which will conveniently hold two sheep, with their feet uppermost—the frame simply consists of a plank about six feet in length, in which four legs are fastened eighteen inches long; six arms are extended from the upper side of the frame, which supports the side boards A, A, six feet long and thirteen inches wide, and forms a trough about one foot in width at the top, and four inches at the bottom; this trough should stand one end near the door of another dry yard, where the sheep must remain an hour or so, after the application of the vitriol, which should be applied between the toes of every foot. By the assistance of this apparatus, three men can go over from three to four hundred sheep in one day. With respect, yours,

S. W. JEWETT.

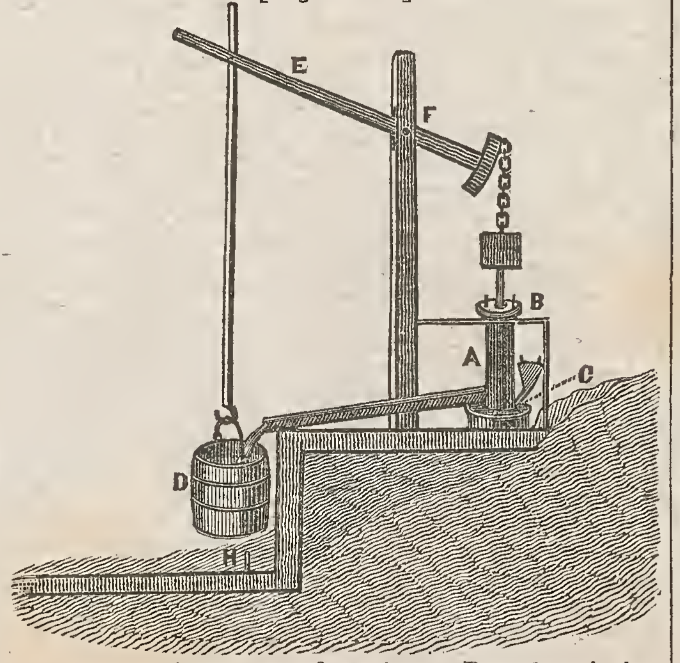
Method of raising Water.

Kingsbury, February 1st, 1839.

Hon. J. Buel—Sir—In the April number of the Cultivator, Mr. Curtis, of Vermont, inquires as to the cheapest method of raising water to the height of 100 feet or upwards. Nothing adds more to the comforts of a farm house, or to the cleanliness and health of it inmates, than the luxurious flowing of a pure stream of water at the door. I have often, while riding past, observed the want af this necessary element around the houses and yards of our farmers, while the perennial fountain was flowing in the richest profusion, within a short distance, but unfortunately on a lower level, and as often have I wished to see some cheap and efficient engine at work, making the babbling idle brook turn itself to some good account, and pour the necessary share, at the door, a libation to *neatness, temperance, industry and economy.*

In Gregory's Dictionary of Arts and Sciences, an engine is described, under the head of Hydraulics, which, by its simplicity, promises better than any thing else I have seen. For the purpose of calling attention to that article, and for the benefit of those who may wish to see it, and have not that work at hand, I have made the following rough drawing, which you may publish or not, as you shall deem expedient. This engine was invented by a Mr. Sargent, who received a silver medal, from the Society for the Encouragement of the Arts. It had been in operation, with *complete success*, for some years, when the article was written for the Dictionary. A gentleman's hall, it seems, was situated on an ascent of sixty-one feet perpendicular height, and the engine supplied the hall with water from a small stream which ran at the foot of the hill, 140 yards distance.

[Fig. No. 8.]



A, is a forcing pump, of cast-iron. Bore three inches in diameter. B. weight attached to the piston rod; this weight is so heavy that when drawn up, and left to descend, it forces the water in the pump up the ascent, through the pipe C, which is one inch in diameter. E, is a lever, the fulcrum of which is at F. A perpendicular fall must be had in the stream, of about four feet, below the level on which the pump stands. To the edge of this descent the water is brought in the trough G, after supplying the pump, and flows into the bucket D. When this bucket has acquired a sufficient weight of water to raise the piston, with its weight B, it immediately descends until it strikes the pin H, which lifts a valve or clapper in the bottom of the bucket and lets the water out. The bucket, relieved of its load, is brought by thc descending power of the weight B, to the position shown in the cut, the lever turning on the pin F. It will be seen that this engine will operate with a very small supply of water; for whenever the bucket is filled and emptied, there must be a stroke of the piston. The end of the lever to which the bucket is fastened should be elevated as much above the level of its fulcrum as the botton of the bucket is above the pin H, so that when the bucket begins to descend, it will acquire additional velocity by the virtual lengthening of the lever, and will strike the pin with force sufficient to lift the valve. The pump has a solid piston; also a valve in its bottom opening inward, and another opening outward, in the pipe C. Yours,

L. B. ARMSTRONG.

Butter making—Ruta Baga—Value of apples for Hogs.

Milton, Ulster Co. 2d mo. 1839.

Respected Friend, J. Buel—Through the columns of the Cultivator is a very convenient and extensive way of asking questions, and giving such information as we may have observed, that we think would be beneficial to mankind.

I would ask of the readers of the Cultivator, something relating to butter making. Although it has been treated pretty largely upon through the Cultivator, there are some things come under my observation, that are unaccountable to me, and to others I have conversed with on the subject. The latter part of sixth month last, in the warmest or hottest part of the month, we were unable to obtain more than about one pound of butter from five cows in a day; the milk would curdle before it was sour; the cream would rise but little and would be ropy, and in pouring out of a pitcher, would string like molasses or soft soap; we used every remedy we then thought of, to remedy the evil; every attention was paid to the cows, in giving them salt and good running water; they run in a fine growth of clover, and gave a bountiful quantity of milk. From three of the same cows, we made one and a half pounds of butter per day, before the hot weather commenced. I have never observed but once before in twenty years, milk appearing in the way it did at the time mentioned. I inquired of some of my neighbors, if theirs was similarly affected; they said not, but complained they made but little butter. My wife, since then, has suggested the idea of milking three times a day, when the weather is very warm. Eevery attention was paid to the milk things.

Since taking the Cultivator, some in this neighborhood have been induced to undertake the raising of the ruta baga, and generally are well satisfied, except one or two, who have tried them, and because they will not answer in the room of all other fodder for stock, consider them not worth their attention. I have used them for milk cows, and find whcn they are fed on good sound roots, and not those that have been frozen or a little defected, that the butter does not have that unpleasant taste, or but very little, so that those that have not been in the practice of eating butter made whilst feeding cows on turnips, to which we would refer, thinking we had become accustomed to eating, and could not perceive it, say they did not perceive any unpleasant taste. We perceived it when we first began to feed them, as we perceive an unpleasant flavor when cows are turned in the clover, in spring of the year; I attributed that to feeding them some of the tops that got a little spoiled, before feeding in the fall.

As there has been much published in the Cultivator as to the worth of apples in fatting hogs, my experiments may hardly be worth filling the columns of the Cultivator with; if not, thee is at liberty to lay them aside. In the fall of 1836, I put up eight shoats in the pen to fat, weighing them at the time, which was 105 pounds the average weight, and calculated what they were then worth, or what I could sell them for alive at that time. I then kept an account of the apples, potatoes and bran; but used principally apples, and boiled them and mixed the bran with them as I took them out of the kettle. I began before the apples were fit to make cider of; I valued the apples at twelve and a half cents per bushel, and the small potatoes at eighteen cents, and the bran what it was worth at the mill, and added the expense of the wood for cooking; when killed, they were worth $1.50 a piece more than what they ate, valuing them at ten cents per pound, what such pork was then selling for, having the rough fat for my trouble, and not reckoned in the weight when killed. By this it would appear that apples are worth one shilling per bushel for fatting hogs, when pork is worth ten cents per pound.

J. SHERMAN.

Experiments with Leached Ashes.

East-Hartford, Conn. Feb. 1839.

Friend Buel—As your motto is for the "improvement of the soil and the mind," permit me through the medium of your widely circulated and valuable journal, to give publicity to a discovery in the preparation of leached ashes, or soap boiler's waste, so as to make them equally valuable, and perhaps more so, to the farmers of our vast interior, as to the cultivators on Long-Island, where thcy are bought up at an expense of 35 to 50 cents a bushel, and considered a profitable investment at that. The vast quantities bought annually in this country, (where they are considered of little value, and of none on clayey land,) and shipped to Long-Island, induced me to think that the saline matter in the soil and atmosphere, was more the cause of their wonderful effect upon vegetation, than any *inherent* quality in it. To give theory the test of experience, I mixed ashes with common salt, but the salt was too coarse and too long in dissolving, to combine chemically;—the next was to sow the salt and the ashes afterwards: this did better;

my next to wet the dry unleached ashes with a strong brine, and after standing a sufficient time to spread readily with a shovel, applied them as a top dressing to turnips and potatoes. In this last experiment the success met my highest expectations; the potato crop was quadrupled, and the difference in the turnip yield still greater; but the soil as in the application of all high stimulants, should have a moderate dressing of *some* kind of manure, and it will be found in excellent order for grass or grain afterwards.

It may be observed of crops manured and dressed in this manner, that the leaves appear of a bright pea green, instead of the darker green, denoting too much top—whilst the tuber of the potato, and the bulb of the turnip, showed the whole strength of the plant to have centered there. To carry the analogy still further, I have given the land a liberal dressing of plaster after the ashes so prepared, but not the least benefit to the crop could be perceived, any more than if it had been used within a mile of the ocean—of course it was labor lost.

The object of this communication, Mr. Editor, is not for the purpose of telling what I have done, or what I can do, to enrich and beautify this footstool of the Almighty, for I am but *one* amongst millions, *and the least among ten thousand*; but to draw the attention of my brother farmers of our vast and limitless interior to the preparation and use of an article hitherto considered a drug and a nuisance.

It is very desirable that some enterprising farmers of each county in the western part of yours, and of other states, where leached ashes are in abundance and useless, to try the experiment of wetting them when dry, with strong brine, no matter how old or stale, (if the price of salt is too high,) and communicate the result in the Cultivator. The lands found best adapted to this kind of manure on Long Island, are the poorer description of sandy and gravelly soil, and this agrees perfectly with my short experience here; so far, then, nature is true to her own laws, and no doubt every farmer in our wonderfully active climate and productive soil, will find the same striking analogy verified by experience. The season is approaching for the proper time of trial—let it be upon corn, potatoes, grass, upon spongy wet land, or newly stocked down, turnips and wheat in autumn, and should it come up to the writer's expectations, I shall think my past life not wholly spent in vain. Yours respectfully, DANIEL EASTON.

REMARKS.

The experiments detailed in the above communication are worthy the attention of the farmer and the chemist. Two facts have long been known, the causes of which we have never seen satisfactorily explained. One of these facts is, that leached ashes are found to operate as beneficially upon Long-Island lands, as unleached ashes, or more so—leaving it to be inferred, that it was not the potash which the ashes contained that induced fertility. The other fact is, that leached ashes operate more surely and beneficially within the influence of the marine atmosphere, than they do in the interior—thus inducing the belief, to adopt the language of our correspondent, "that the saline matter in the soil and atmosphere, was more the cause of their wonderful effect upon vegetation, than any *inherent* quality," which they possess. The experiments of Mr. Easton go to warrant this conclusion. But *how* they exert this agency, is a question worth investigating; and we commend the matter to the notice of some of our chemical correspondents.—*Cond.*

Treatment of Wounds on Horses.

Georgetown, D. C. February, 1839.

Wash the wound morning and night with warm soap suds, and anoint immediately after washing, with whale oil.

Having used this remedy for a number of years, *at all seasons of the year*, I can confidently recommend it to others. It purifies and heals the wound as soon as is desirable for soundness; protects it from *cold and flies* and the hair is *always* replaced, of the natural colour of the animal. J. A. D.

Inquiry in regard to Lime—Ruta Baga, &c.

New-York, February, 1839.

JUDGE BUEL—Sir—Being a subscriber and constant reader of the Cultivator, I have one request to make of you, or some of your able correspondents, for which I shall feel much obliged for an answer in your March number or as soon as convenient, viz —In what way can lime be applied in the spring, to a wheat field, or is it proper to apply it at all, after the wheat has made its appearance above ground?

I have a farm in the northern part of Cayuga county, principally sandy, gravelly soil. Ruta baga have done well, on the dry parts of it, having been cultivated for four years past, and found to answer an excellent purpose for all kinds of stock. In looking over your correspondents' experiment as applying different exhilerating properties to the soil, I have frequently regretted, they were not more particular in stating the nature of the soil, whether clay, loam, sand or gravel. Several years since I had occasion to make free use of leached ashes, on a clay soil, which I found to answer an excellent purpose; subsequently I have applied it on sandy soil, without an apparent great advantage.

I was lately in conversation with an honest, intelligent man from the cabbage raising district in New-Jersey, to whom I was complaining that I could seldom get more than one in twenty cabbages to head. He at once gave me the reason; he says there is not much soil that will answer to raise cabbage over one year; that it requires new land, ploughed in the spring, reploughed and made as tender as possible until the fourth of July, when the plants should be set out and a handful of unleached ashes thrown in and about each plant.

AGRICOLA.

REMARKS—It is not common to sow lime upon a growing crop, though a small dressing, early in the spring, say three or four bushels an acre, would not, we think, do injury, and might do good.

Accident to Horses.

Rappahannock, co. Va. Feb. 26th, 1839.

J. BUEL, Esq.—Sir—Having been a subscriber to your valuable paper, (the Cultivator,) for some months; I find that it is designed for general utility and the public good; therefore I desire to make known, thro' that medium, an accident to which horses are liable, perhaps little known to the public. In the year 1818, I had a sick horse, and after using the usual remedies without relief, as the last alternative, I fixed a gag for the purpose of running a mop down the throat, for I believed the horse was partially choaked. In this preparation, I accidently discovered part of a corn cob tight across the roof of the mouth, which had prevented the passage of any food to the stomach, save the juice occasioned by mastication from repeated attempts to eat. The cob was removed by a smooth stick as large as a man's thumb, sufficiently long to extend into the roof of the mouth. I was then cautious not to let the animal eat much at a time, until it recovered. I have since relieved several horses from the same accident, and I have no doubt thousands of our most valuable animals have been lost from the same cause, without ever knowing of what they died. I will here remark, that it is sometimes very difficult to find the piece of cob, and remove it after found, for it will become very tight and nearly concealed by the swelling and inflammation. I trust this will find a place in your paper, which may be of benefit to some of your numerous readers. Yours, &c.

JNO. D. BROWNING.

Beneficial effects of Draining.

Springfield, Feb. 17th, 1839.

Mr. J. BUEL—Sir—In perusing the pages of the Cultivator, I have noticed frequent allusion to draining of wet meadows, and reclaiming of waste lands, a branch of agriculture which, as far as my observation extends, receives quite too little attention, from our agricultural community.

I am induced to send you my experience, in this branch of practical farming, in the hope that the attention of some may be called to this subject, who have hitherto overlooked the advantages to be derived from it. I am the more led to do this, under the apprehension which, I believe well founded, that many, who are in possession of waste lands, have either not had their attention sufficiently directed to this subject, or having made a partial attempt to reclaim such lands, and having failed to realize their expectations, through want either of knowledge or perseverance, as in the case I am now about to mention, have given it up in despair, as impracticable. The first piece of meadow to which I would direct your attention, contains from four to five acres; it is eighty rods in length, and from eight to ten rods in width; it was abundantly supplied with cold springs, running in on either side, and when an attempt was made, some thirty or forty years ago, to bring it under cultivation, large drains were dug on either side to carry off the springs, and when that was done *all* was done, (as was then supposed,) that was necessary for the purpose of draining it sufficiently. The plough was then applied, and by great labor and perseverance, the whole meadow thoroughly subdued and mellowed, and sown with oats and grass seed; but the experiment failed entirely. There was no crop, either of grain or grass, the superabundant water having killed the whole, and nothing grew but weeds and various kinds of water grass, of no value at all, except it be to be mown and used as litter either for the hog-pen or barn-yard.

Thus the meadow was given up entirely as irreclaimable, and remained so for more than thirty years, entirely unproductive. My attention having been called to this subject by reading and observation, I determined on making a further experiment. Accordingly, in August, 1835, I caused a ditch to be dug through the centre of the meadow, throughout its whole length, at an expense of twenty-five cents per rod, four feet wide and two feet deep, being fully convinced that superabundant water was the cause of its sterility. I then prepared one-half of the meadow for the plough, by scraping the banks of the ditches on either side into the low places where water would be likely to settle, &c. In November following, I ploughed the land well, and in the following spring, I planted it with potatoes, without ploughing again, after having harrowed in a very scanty portion of fine manure upon a portion of land. My crop of potatoes was four hundred bushels by measure.

The next season, I planted the same land again with potatoes, together with the other half of the meadow, and my crop was seven hundred bushels. Owing to the distance of the meadow from my barn, and the difficulty of access, I have been able to supply it with but a scanty portion of manure, and some of it none at all.

The following season, I laid down the first half of the meadow to oats and grass, and pressed the surface well with a roller, (an article which every farmer should have,) and thus prepared the land for the successful operation of that important auxiliary in gathering heavy crops of hay, the horse rake. I confidently expect that this meadow will prove to be as valuable and productive as any land I have.

Another piece of meadow, I have, which was supplied with springs on one side only, and I well remember some forty years ago, that my father, at considerable expense, caused a large ditch to be dug to carry off those springs, but without effect. The meadow was still wet, full of bogs, and cranberries, &c. &c. and in some places a cart wheel would sink into the hub. It was thought sufficient if the ditch was dug deep enough to come to the hardpan.

By reflecting upon the subject, I was convinced that the water, (there not being descent enough to allow the water to pass off quickly,) soaked down into the meadow, on the surface of the hardpan, and thus kept the soil saturated with water, and prevented its productiveness. I caused the ditch to be sunk six or eight inches into the hardpan, and thus confined the water in the ditch, and by this means succeeded in laying the meadow dry.

The obvious inference from the above facts is, that thorough draining is the first thing to be attended to, in cultivating wet meadows; without it, *labor* and *manure* are wholly lost.

I offer you these hints, sir, for your consideration, and if you think the publication of them would subserve the interests of the agricultural community, you are at liberty to make what use of them you please.

CHAUNCEY CHAPIN.

The Grain Worm—Feeding Turnips—Legislative Engcouragement to Agriculture.

Otisco, February 19th, 1838.

JESSE BUEL, Esq.—Respected Sir—I last evening received the last number of your excellent paper, and on looking it over this morning, observed a request that the wheat-worm of our part of the state should be described to you, by me, or some one else, and I have sat down to describe its appearance now, lest I should forget to do it hereafter.

The worm which is called the *wheat-worm* in western New-York, belongs to the genus *Phalærna* of Latrielle, (*Geometridæ* of Stephens,) and according to Wilson, embraces above eighty species. By people in general, this class of worms is usually called surveyor, carpenter, or measuring worm, from the manner in which their movements are effected. The number of legs varies in the several kinds from ten to twelve; but in the wheat-worm, there are six pair, three at each extremity. Like most other worms of this genus, it has the power of spinning a web, as may be seen from the facility with which they, when disturbed, attach themselves to straws, sides of the threshing floors, fanning mills, &c. The worm varies in length, from three-eighths to five-eighths of an inch in length; and some may possibly a little exceed the latter estimate. Between three-eighths and half an inch, may, however, be considered their average length. The colour is very uniform: a *yellowish brown*, or what among farmers would perhaps be termed a *butternut colour*. Under the microscope, it appears studded with these yellowish brown spots, divided by lighter coloured spaces: but to the naked eye the colour seems continued. That it is the larvæ of a fly or moth, cannot be doubted; though of what particular kind, does not as yet seem satisfactorily ascertained. This worm has been known for years among wheat, in this part of the state. Three or four years since a farmer assured me that in cleaning up a quantity of wheat threshed immediately after harvest, he gathered in the boxes of the fanning mill, nearly a bushel of these same worms. His wheat had of course suffered, and he was very apprehensive about his next crop: but that was entirely free, nor had he been injured by them since. It is not so much the new appearance of this worm, as its increase, which has created the present alarm respecting it. From experiments which I made the last year, by enclosing the worms with a quantity of carefully selected grains of wheat, in a muslin covered vial, it is clear that the worm feeds not only on the kernel in its soft or milky state, (though that is the time when the most serious injury to the grain is accomplished) but also after it has become hardened by ripening. It is probable, that, like other caterpillars, it continues to eat till it undergoes transformation, or dies. In none of my experiments, did I find a kernel perforated after it had become hardened; but they were gnawed off by the worm, and usually from the germinating end of the kernel.

I have seen in wheat in this part of the state, but it was many years since, a worm or rather maggot, which perforated the kernel in the manner of the pea grub, and which apparently lived on the interior of the ripened grain. In this case it seemed to me, the egg must have been deposited in the kernel while in a soft or milky state. However that may be, the worm was clearly a different one from that I have above attempted to describe; and which at this time appears to threaten the grain growers of this district. Unless I have forgotten, there is in the November number of the Cultivator, an account of the perforating worm, which struck me at the time, must be identical with the one I have alluded to; but it has not since 1824 shown itself to any extent in our wheat.

It is certainly very desirable that it should be determined whether the worm of the western part of this state, is identical with that which has proved so destructive in the valley of the Hudson, and over New-England. I have been inclined to suppose, from some notices I have seen in the Maine papers, that the worm I have described was the one which was so injurious there. At any event, the size, colour, and habit, will, I think, be sufficient to enable us to come to a satisfactory solution of this point. As you have unquestionably had ample opportunities for observation, I should be pleased to learn from you your opinion as to the difference or identity of the wheat worm of the east and the west.*

I have seen in some of the newspapers, an account of several horses being killed at Malone, on the farm of a Mr. Sabin, by his allowing them to feed freely on turnips partially heated and rotted in the pits, from want of ventilation; and the inference is drawn, that though excellent for cattle and sheep, they are unfit or poisonous for horses. This I think is an error. For several years past I have been in the habit of having them fed to horses, as daily food in the winter and spring; and some of my neighbors have also used them extensively for this purpose, and without the slightest injurious effect in any case that I have been able to learn. Spoiled turnips, like spoiled potatoes or rotted grain, may acquire deleterious properties, and should not be fed to animals; but I think no farmer need be apprehensive of injury in feeding sound roots to any animal whatever.

I have read with much interest, the brief account of the meeting of the State Agricultural Society that has appeared in the papers, and shall look with interest for the report in a more detailed form. What we wish is, to excite a proper sense of the importance of agriculture, among those in high places, and then we may expect that something will be done for its advancement, in the establishment and endowment of agricultural schools, and county societies. Agriculture is clearly the grand interest of this state, and in all the legislation concerning it, should be so viewed. I cannot think the present session will pass, without some proper and useful action on the points most interesting to the cultivator of the soil. I have been led to hope much from the *domestic* production of silk; and hope to see such encouragement offered as shall cause its advance, if possible, in this way. As a people, we are given to humbugs, and the short horn and mulberry speculations will, a few years hence, be looked upon, not the least magnificent of the class. Both are very valuable, both are deserving of extensive introduction, but the order of nature must be reversed before the present state of things, so far as the Durham and multicaulis are concerned, can long continue. Yours, &c. WILLIS GAYLORD.

Farming in East Maryland.

Smyrna, (Md.) February 19th, 1839

Hon. J. Buel—While writing on business, I will say a word of our country between the Delaware and Chesapeake Bays. The system of agriculture heretofore has been ruinous to the land. It was get all you can, and make little or no return to it; but for the last eight or ten years, our farmers appear to be convinced of their former errors, and are giving their attention to the improvement of their lands; and the effect is, our country is fast changing for the better—lands are going up in price, although now, farms with good improvements, can be bought at from $10 to $20 per acre. I have travelled through the western states, and Iowa, and Wisconsin territories, and as far south as Missouri, and I am satisfied from two tours through that country, and from all the information I could get, that better investments can be made in land on the peninsula, between the two bays, than can be made in any of the western states. Our immediate vicinity to the Baltimore, Philadelphia and New-York markets, the freights being from five to six cents per bushel, and nineteen out of twenty farms being within five or six miles of tide water, must always give us an advantage over those remote sections. And again, the high price of labor is a great drawback in that country; and if we cannot make as many bushels per acre as they can there, we can make as many dollars clear per acre; for I am convinced that every dollar we lay out on our land, nine times out of ten we get paid back in the first crop, and our land is increased in value. A few years past, I purchased some poor worn out land near this place, that would not bring ten bushels of corn to the acre; and I have improved it, principally, from the resources and products of the land. I had a lot of 2¾ acres and 8 rods enclosed, which was in clover in 1836. I cut the clover twice in 1836; in October of that year, I covered it with about 130 one horse loads of cow and horse yard manure, and flushed it under in the fall of 1836; and in the spring of 1837 flushed again, and planted it in corn; the rows seven feet apart—dropped, as near as we could, two feet apart; left two stocks in a hill; and a row of potatoes between each row of corn. In the fall of 1837, we got 149½ bushels good sound corn, and 315 bushels potatoes. The corn at 85 cents, the market price, is $127.07; 315 bushels potatoes, at 35 cents, the market price, is $110.25; gross amount, $237.32½, being $84.76 per acre. My friend and townsman, George W. Cummins, Esq. last year, cut from 39 acres 2 roods and 15 perches, 992¾ bushels red wheat, average weight 60 lbs., making a fraction over 25 bushels to the acre.

I make these statements to show what our land will do with attention. None of this land is in a high state of cultivation. Some part of Mr. Cummins' wheat, it was thought, would cut 40 bushels to the acre. I think I can say we have not one waste acre to the 1,000, clear of the influence of the tide; that our country is remarkably healthy, and that we have all the good things the bays and rivers furnish: and yet, with all these advantages, for the last 20 years, you will discover our population has been nearly stationary, owing to the mania for emigration to the south and west.—Many persons wishing to emigrate, a few years past, would sell off their farms for much less than their buildings cost, and give away perhaps 300 or 400 acres of land, nearly worth $20 the acre with proper management; but I am pleased to say the thirst and mania for emigration has almost ceased. Many have gone and spent the labor of years, and returned; and now they can appreciate our country. I saw in my western tours, persons from New-York state in the west, land speculators, who, if they would come and view our country, could not but be pleased with it. Persons of information who have travelled much through the United States, say this is the garden spot of the United States. BENJ. BENSON.

We suspect Mr. Benson is right in saying, that Maryland and Virginia offer better bargains to the enterprising farmer, than are generally found at the west. The lands in the former *can* be rendered productive—and they enjoy advantages of markets, &c. which must be a great drawback to the interior west.—*Cond.*

Criticism on the Mulberry.

Mulberry Farm, N. J., March 5th, 1839.

J. Buel, Esq.—Dear Sir—In the last number of the Cultivator, I find an answer from a gentleman aggrieved by your valuable remarks and criticisms in the January number on mulberry venders and growers. I am sanguine in the belief, that the mulberry culture and silk growing will be both mystified and retarded by the disposition many venders of the tree have to impose new names on plants that differ so slightly by climate, soil and cultivation from their natural history characters; thereby confusing the plain and honest grower with new names—creating a fear that he is cultivating the wrong variety of the mulberry. That this prevalent speculative spirit, (unsanctioned by any principles of botanical nomenclature whatever) is productive of evil consequences only, there is not the slightest doubt; and the result is, many are prevented from embarking largely in this important branch of national agriculture. I cannot see, for the life of me, the advantage gained, either by individuals or the community at large, by this multiplicity of names imposed on one or two varieties of the mulberry. In a late number of the Farmer and Gardener, the editor, when speaking of Multicaulis, Alpine and Moretti, says, "the Alpine mulberry, so called, is not known in Europe by that name, having received its own cognomen from Mr. Whitmarsh, etc." In a measure, this remark is applicable to some other kinds, at least so distinguished. The mulberry in question is cultivated in Italy, within the region of the Alps; hence its name, Alpine. Botanical men, I fancy, know it by the name of Morus Alba, var. Italica, in allusion to the country where it was first grown. It is stated that the Dandolo, Moretti, Multi, &c. came from France and Italy; but no such plants are recognized there, except by gardeners, who are continually coining new names. By calling this plant an Alpine, that a Manilla, it does not prove that that country is the habitat of either, because neither are a species, but can be produced at any place, "*et ceteris paribus*," by climate, soil and cultivation. Then Mr. Whitmarsh has, with equal justice, the same privilege to call his plant Alpine, that others have to call their's Expansa, Rigida, Dandolo, or any other absurd name, (each identical, or differing in no essential character,) provided it is not to the detriment of truth, and prejudice of individual advancement. It would be a little more definite, setting aside the principles of naming plants, to call them all Multicaulis: thus, Alpine Multi, Moretti Multi, Dandolo Multi, Mannilla Multi, &c. This may be done with as much propriety as the Morus Alba, var. Macrophylla, is called Morus Multicaulis.—The following supposed species are mentioned by some of the gardeners, who are continually making mere varieties into species, and will elucidate the absurdity of new coinage: for instance, the *Morus rubra*, commonly called red mulberry, may be called Morus Virginica, Pennsylvanica, &c. in contra-distinction to Morus rubra, because its habitat is North America, and it flourishes in all the states. *Morus Tartarica*, habitat, on the grounds overflown by the Volga and Tanais: pronounced a mere variety of *Morus Alba* by Sprengel, the author of the latest complete work of descriptive botany. *Morus Italica*, habitat Italy, pronounced a mere variety of *Morus Alba* by Sprengel.—*Morus Sinensis*, habitat China; the Alpine, Dandolo, and Moretti, I fancy, are improved from the native *Morus Italica*. The Canton is taken from *Morus Sinensis*, while the Manilla and Multicaulis, I apprehend, are types either of the *Morus Latifolia*, *Morus Australis*, *Morus Mauritania*, (Jacq,) *Morus Anipolis*, (of Poir,) *Morus Insularis*, (Foster?) whose habitats are Persia, the Mascarenhas and Madagascar Islands.

In recommending the several varieties of the mulberry to the attention of silk growing enthusiasts, the largeness of the leaf is particularly descanted upon, as if that feature is the great and paramount object. As far as my experience and observation extend, it is a mistake to suppose that the largeness of the leaf is the great disideratum. For one kind of plant may produce leaves twice as large as some others, yet contain less fibrous substance, of which silk is assimilated. As this is the case, then, in aiming to procure plants producing such large leaves of vigorous growth and forced cultivation, we lose sight of the fact that those leaves contain less fibrous matter, but more succulent substance, than leaves of smaller dimensions of slower growth, and more compact in texture. Again, all the forced varieties deteriorate when left as standards, and the ordinary culture in such cases bestowed on them, while the amount of foliage is not so great by one-half. If a leaf of the Multicaulis, measuring 6 by 10 inches, contains no more nutriment proper for the worm than a leaf of the Brousa measuring 4 by 6 inches, wherein consists the advantage of the Multicaulis over the Brousa or other varieties? If such is the case, then two-thirds of the leaf is superfluous, and must be thrown off as excrement by the worm; for all of the component parts of the leaf, in a measure, not fibrous, is almost of absolute waste. It is said that worms prefer the leaves of the Multicaulis to all other varieties.—This is purely speculative. If two different varieties of leaf of the mulberry are given to two or more worms, they will invariably eat of the leaf nearest to them, without manifesting any sign whatever that they are displeased with their food, or prefer one kind to another. They are no epicures. Well fed worms move about but little; it is the half starved ones that roam; and they are so uneasy with the pains of partial hunger, as to eat but little and taste often. We have a vast deal yet to learn on this subject, and many will, no doubt, meet with disappointments when they have counted largely the gain, without knowing the cause of failure. A year or two will suffice to bring us to our senses on this subject; and then, I opine, we will grow silk advantageously, realizing only a fair profit from capital invested, instead of the erroneous returns given by theoretical and visionary men.

But I find I have nearly spun my sheet out and must close. I have hastily strung a few words together to fill this sheet, as a passing tribute to another year's subscription to your valuable paper. I enclose the amount. Very respectfully, &c.

J. N. KEELER.

Drawbacks upon the Farmers Profits—Ruta Baga.

J. Buel—Sir—Many readers of the Cultivator, who are not practical men, have been led to form extravagant expectations in regard to the pleasures and profits of farming, from the report of some of your correspondents. They read of the extraordinary nett revenue of some highly cultivated acre or field, but don't hear of the many losses and failures which might be told; and some, from this partial view of the subject, have embarked in the business, with anticipations only to be disappointed.

I belong to the "new school" of agriculture, if the term may be used, and am passionately fond of my profession, yet entirely practical, and moderate in my hopes of profit. I could tell of the almost total failure of the corn crop, for three successive years, after expensive preparation, and on land which has yielded ninety-nine measured bushels of corn per acre. Of wheat, too, we all know the loss suffered in attempting to cultivate it for three or four years. For successive years, the average nett profits are good, if the business is well conducted; but many will be disappointed if they would become rich in a minute, and that without care and labor.

Those who write for farmers, should remember that they are plain, common sense men generally, and are apt to be offended with any utopean schemes.

To renovate an old meadow, which cannot be ploughed, I pasture with sheep for one or two seasons. The sheep should be in number sufficient to bite it very close; they should then be turned out, and the grass be permitted to grow a few weeks. This should be repeated several times in the season. I have seen a most surprizing effect from this plan.

I must state a fact in regard to ruta baga. I fatted a beef principally with this root, which was fed to him until the day before he was butchered. It imparted a very unpleasant taste to the meat. The milk and butter of some cows that were fed upon the roots, were also slightly affected; and what is worse, sir, my friends ascribe all the mischief to Judge Buel. Now, notwithstanding this, I believe the ruta baga will become an important crop. N. REED.

Amenia, Dutchess co.

☞ Judge Buel has always directed, that cattle fattened upon ruta baga should be taken from that food ten days before they are slaughtered; and that milch cows fed upon them should have daily access to salt. In Great Britain, many thousand beef cattle are annually fattened upon ruta baga.

Management of Horses—Reading.

Schenectady, 20th February, 1839.

Hon. Judge Buel—If we could, we would most cheerfully aid you in the herculian task you have undertaken, to combat the popular errors and prejudices in farming; in the improvement and employment of useful labor-saving machines, the best mode of making and using manures and treatment of the different breeds of animals.

We see that you often meet with mortifying trials; but my friend you have learnt the use and exercise of patience with your subscibers and readers as with children, for we are children of a larger growth. It is much more easy to lead than drive. We approve, much, your calm mode of answering useless questions. But, you must allow free inquiry from us who are ignorant; for we must ask questions, or remain in ignorance like children, who ought always to be answered in all their inquiries, however trifling. The answer should be to inform and interest.

My son labors with farmers to persuade them to subscribe for the Cultivator, by showing the variety of matter therein exhibited, and the extensive scope and collection of all the experiments and improvements in the wide extent of all the United States, and beyond. But it is rare that any are willing to pay the dollar, although they would cheerfully accept the Cultivator as a gift. We ask them, wherein is a man better than a horse, if he does not know more than a horse? That knowledge is power, and the horse is better than the man who has no more knowledge, for the horse is stronger; and power without knowledge to direct it, is dangerous.

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* In our report to the agricultural convention inserted in our last, we expressed our belief, that the wheat-worm of the east and of the west were *not* identical. Mr. Gaylord has confirmed that opinion—*Cond.*

We will give you an anecdote of a man living in the neighboring town of Niskayuna, but half a dozen miles from the great city of Albany, the capital of the Empire State, where light is supposed to radiate in meridian splendor. This man, with great self confidence and pride, told how he could cure a horse of the bots. His horse was ill of the bots, and he took a tea-kettle full of boiling water to pour down his throat. His father interrupted him, so that he succeeded in pouring down the horse's throat only half the tea-kettle of boiling water. In truth, the horse was immediately dead—he opened him, and found *just half* the bots were scalded to death, when he exulted, by saying, that if his father had not interrupted him, he should have succeeded in destroying all the bots, and proved the usefulness of his discovery. We remarked to him, that it was an unprofitable mode to kill his horse in order to destroy the bots. Oh, he said, he could easily have saved the horse, by pouring down his throat an equal quantity of oil, to heal the injury of the scald, if he had not been interrupted. He told this in great flourish, exulting in his valuable discovery in medicine.

Now, sir, how will you correct such folly, except it be by cultivating and improving the intellect of such stupid men? The best English writers on farriery, say, that no horse is ever injured by bots; and we believe it. Horses are subjects of the inflammation of the bowels, cholic, apoplexy, &c. as men are; and giving them cold water, or exposing to cold winds, to take colds when wet with sweat, &c. produce those diseases as they do in men.

Water as warm as the horse's blood is, may be given to him at any time, with impunity. It is the cold that injures him. The horse should never be watered at the well. Brook water and rain water are the safest; if the brook is distant from its source—a cold spring. So the smith will always cut off some of the frog and bars under the horse's foot, when he shoes him, because he does not know that the maker of the horse, placed the bars there to support the hoof, and preserve it from closing up. This repeated, ruins the hoof, and injures the foot. The smith who shoes my horse, is told, that when he cuts the frog or bars, he will not be allowed to shoe him again. Farmers must read, or they cannot improve.

My object in giving the anecdote is, to show you the great ignorance existing in the neighborhood of the renowned city of Albany, and the necessity of compelling farmers and mechanics to read, that they may improve.

They will acquire a fondness for books, if they would begin and practice reading useful books. They should be compelled to pay a tax, to be added to such public bounty as the legislature may offer on that condition; and then they will read to share the tax.

"*Gather up the crumbs, that nothing be lost*" is a most valuable injunction.

Every farmer and mechanic, and their sons, spend the evening hours of almost every day idly. If those crumbs of time spent idly were employed in reading proper books, all would be instructed, and many would become learned, and even eminent. Whereas, by idleness and neglect of those crumbs of time, in which they can earn nothing, if rightly employed, we should not meet any such grossly ignorant men as the one who killed his horse, by pouring boiling water down his throat to save him from bots.

The value of time is not understood. It is the great capital for obtaining the greatest and best riches both of this life and the future. When the poor man says *he has no time*, he speaks not the truth. Our great Creator, in the distribution of time, is perfectly just and impartial, for he gives to every one the same and equal measure of time. Instead of justifying such complaints as waste of time, he will answer, I gave to every one alike, and some have abused the precious gift, by folding their hands in idleness. Farmers must read, and then they will improve. Most respectfully,

DAVID TOMLINSON.

Agricultural Association for Mutual Improvement.

Spottsylvania county, Va. 25th Feb. 1839.

Sir—I enclose a preamble and regulations for the establishment of an Agricultural Association, formed upon a plan suggested in the fourth volume of the Cultivator No. 12, page 194. By the unanimous vote of the members of this association at their first meeting, I was requested to forward them to you for publication.

Very respectfully, I am your ob't serv't
WALTER HOLLADAY.

J. Buel, Esq. *Conductor of the Cultivator, Albany.*

NORTH ANNA AGRICULTURAL ASSOCIATION.

That our agricultural systems are radically defective, the increasing sterility of our lands sufficiently proves. That it is our interest to improve them, if in our power to do so, none will deny. Good crops cannot be obtained, for any great length of time, upon farms made every year more barren by injudicious cultivation.

It is owing to the worn-out condition of our lands, that hundreds of our citizens annually abandon the homes of their fathers, to seek a residence in the rich countries of the West. We have reason to believe, from the success attending new modes of cultivation, now in operation in various parts of the United States, that these impoverished lands may be restored to their original fertility: perhaps even *made better* than they ever were.

However *this* may be, it is believed to be a fact established by experience, that almost every farmer may improve his land, slowly indeed, but *surely*, with the limited means which may be derived from his own farm. And certainly it requires no argument to prove, that an approximation towards fertility, though slow and gradual, if it be continued for a sufficient length of time, must ultimately reach it.

Nothing, then, is needed, but the adoption of better systems of husbandry, persevering industry, and a skilful application of the means within our reach, with the blessing, *at all times*, of Him who giveth "rain in due season," to make our lands productive of all that can be necessary to the comfortable subsistence of man. *He* that abuses the *ordinary* gifts of Providence, is held to be highly reprehensible, under every system of moral duty. What, then, shall be said of those who abuse the greatest of all sublunary blessings bestowed by God upon man, a soil capable, under proper management, of supporting human beings in comfort, *for all time to come.* By one of the most distinguished agriculturists of our country, such persons have been denominated "matricides," *murderers* of the bountiful mother of us all.

We have persevered in the agricultural systems of our fathers, because practically we knew of none better. If we heard of others recommended as better, we shrunk from the adoption of them, under a conviction that *we* at least, possessed neither the means nor the skill necessary to carry them into successful operation. We were in possession of lands covered with trees, which had been growing for ages in all the luxuriance of nature. We knew how to cut down, and to remove these; to plant, and to gather; to sow, and to reap; according to the practice of our fathers. The rich products of these lands, fresh from the hand of nature, prevented us, for a time, from feeling in its full force the effect of our system. *Three-fourths* of such of these lands as were fertile, have been divested of their natural growth, and subjected to the action of the plough: crop after crop, for years in succession, taken from them without manure, or repose under artificial grasses; until they are reduced, as we all can witness, to a deplorable state of sterility. Shall we *yet* persevere in this ruinous system?

It is, indeed, no easy matter for us to divest ourselves of habits transmitted from father to son, for a period of more than two hundred years. Nothing, perhaps, short of necessity can be expected to effect a change in them. Does not that necessity exist at the present time? It has been approaching us with rapid strides for years past, and, as we think, may now be seen, in a greater or less degree, in the impoverished condition of the fields of every farm around us.

Convinced of the truth of these positions, on which it cannot be necessary to dilate, we whose names are hereunto subscribed, agree to form ourselves into an association, to be called the North Anna Association, for the attainment of knowledge on agricultural subjects.

This association shall be conducted upon the principle of mutual instruction, by the interchange of opinions relative to the improvement of our husbandry, and the management of our farms. With a view to these objects the following subjects are proposed, as particularly claiming our attention: The best modes of collecting the manure and litter of a farm; the best way of preserving them, when collected, if not wanted for immediate use; and the best modes of applying them to the crops that may be cultivated, having regard to the permanent improvement of the land.

The use of plaster of Paris; on what soils and crops its operation is most beneficial; the quantity necessary to the acre; and the best time for applying it.

The rotation of crops most proper in our soil and climate. The species of Indian corn most productive with us; the best security against the chinck-bug and the cut-worm; and the best modes of cultivating and securing this valuable grain, having regard to the product and the economy of labor.

The species of wheat most profitable to the farmer; the proper quantity of seed to the acre; the most approved modes of preparing the land for the reception of the seed; and the best way of guarding against the ravages of the fly.

The cultivation of rye and oats; which of these crops is most valuable to the farmer; and the best modes of raising them.

Whether root-crops are adapted to our soil and climate, and if so, the most approved methods of cultivating them.

Whether the making of tobacco be consistent with any good agricultural system, and if so, what that system may be.

The best time for sowing clover seed, and the proper quantity to the acre.

The best method of making and securing clover hay.

Live stock generally; the breeds most profitable to the farmer, in our part of the country, and the best way of keeping them in good plight throughout the winter, having a due regard to economy.

The ploughs and other agricultural implements most approved for durability, and their adaptation to the purposes for which they are intended.

PARTICULAR REGULATIONS.

For the purpose of aiding us in our inquiries relative to the above subjects, or any others which may be deemed important, we agree to take, in our associated capacity, the Farmers' Register conducted by E. Ruffin, the Cultivator, conducted by J. Buel, and such other agricultural publications as the association may hereafter choose to take, which shall be read at our meetings, or such parts of them as may be required to be read.

Meetings of this association may be held as often as once a month, at the discretion of the members; never at intervals of more than six months.

When necessary for the transaction of business, this association shall be organized by the appointment of a chairman, to preside for the time at its deliberations, and a secretary, whose appointment shall be permanent, to record its proceedings. Six members at least shall be required to form a quorum.

Each member shall be liable to a fine of twenty-five cents for failing to attend a meeting, unless he shall be excused at the next meeting by a majority of the members then present.

It shall be the duty of the secretary to report to each meeting such members as may not have attended the last meeting; to receive the amount due for fines from the members respectively; and to keep the funds, books, papers, and other property of the association.

As this association is voluntary, any member may withdraw from it at pleasure, by communicating to the secretary his intention to withdraw, and causing his name to be erased from the list of members.

Effect of Steeps.

Mr. J. Buel—Dear Sir—Mr. Hathaway's letter, published in the June number of the Cultivator, giving his opinion that steeping Italian spring wheat in strong brine for a length of time was injurious to its vegetating principle, has induced me to make some experiments in the case for my own satisfaction. The results have not been what I anticipated, and I think it my duty to communicate them. They certainly go to prove that gentleman to have been correct.

The wheat on which I experimented was the Italian; the berry fair and plump. The pickle was impregnated with as much salt as the water would dissolve. Parcels containing twenty-five kernels each were steeped for different periods of time, and placed in moist earth, marked in such a manner as that they might be easily distinguished, and suffered to remain undisturbed until the greater part of the stems made their appearance above ground.

RESULT OF FIRST EXPERIMENT

No. 1,	25 kernels,	steeped	5 minutes,	2	did not vegetate.
2,	do	do	30 do	2	do
3,	do	do	1 hour	4	do
4,	do	do	18 do	12	do

[2 kernels missing.

The result of the parcel steeped 18 hours being unexpected, I made another trial, which was as follows:

No. 1, 25 kernels well washed in brine—every kernel vegetated.

No. 2,	25 do.	steeped 4 hours,	2	kernels did not vegetate.
3,	do.	8 do	6	do
4,	do.	12 do	11	do
5,	do.	18 do	13	do

It seems from the above, that the injury sustained is proportioned to the length of time the grain has been steeped, and that if it has been steeped 18 or even 12 hours, almost one half loses the vegetative principle.

I am fully satisfied that pickling and liming of the seed is an infallible preventive of smut in the wheat crop, but I do not think that steeping for 10, 12 or 18 hours is necessary. This opinion is founded on my own experience and observation, as well as the long practice and experience of others. My method has been, to make the brine as strong as I could, permitting the wheat to be no longer in it than is necessary for washing it, and skimming off whatever floats on the surface; when taken out it is mixed with fresh slaked lime and sown soon after. With this preparation, even when the seed is impregnated with smut (as was the case last year with part of the Italian wheat that I obtained) the crop has been perfectly clean. Liquoring, as it is called, has been practised in the wheat growing districts of Scotland for these forty years past; how much longer I do not know; but even so long ago as at that period, good farmers would almost as soon have thought of throwing their seed into the sea as they would have thought of sowing it without that preparation. Brine made from salt or sea water, or otherwise, and stale chamber ley were used, the latter most generally. When chamber ley was applied, the usual method was to sprinkle it on the heap of grain until it was well wetted; add fresh slaked lime, and sow immediately. In the application of brine, some steeped for a longer or shorter time, and others sprinkled. Without liquoring, in nine cases out of ten the crop was smutty; with it, *never*. I will conclude with a quotation corroborative of what I have just stated. "There is some danger from the first, for if the seed steeped in urine is not immediately sown, it will infallibly lose its vegetative power. The second, viz. sprinkling the urine on the seed, seems to be the safest if performed by an attentive hand; the last brineing may do equally well, if such a quantity of salt be incorporated with the water as to render it of sufficient strength. But it may be remarked, that this last mode is often accompanied with smut, owing no doubt, to a deficiency of strength in the pickle, whereas a single head with smut is rarely discovered where urine has been used."—*Treatise on B. Husbandry.*

JAS. SMEALEE.

Princetown, March 4th, 1839.

The old Colony yet.

Post-Office, Pembroke, Mass. March 2, 1839.

Hon. J. Buel—Dear Sir—I think the farmers of the old Colony have been much benefitted by the diffusion of agricultural information through the columns of the Cultivator. For one, I am free to acknowledge that I am not too old to learn, and that I have derived much information from reading your valuable paper; and you will confer a favor on me, as well as others in this section of the country, by giving your opinion of the adaptation of our soil for the cultivation of roots, (ruta baga, mangold wurzel, sugar beets, carrots, &c.) and their relative value as a crop to Indian corn, taking into consideration the exhaustion of the soil, &c.* We are just beginning to think that roots can be cultivated to advantage on our soil; that they can be profitably fed out, not only to our working oxen and store cattle, but to milch cows; and that an immense amount of the most valuable winter food for stock can be raised on an acre of land.

A considerable portion of our lands in the Old Colony are silicious loams, or light sandy soils; and much of it has been exhausted by bad tillage; by a close adherence to the old division of farms into *mowing*, *tillage* and *pasturage;* by constantly cropping the tillage land with corn and rye, with a scanty allowance of manure; never cultivating green or ameliorating crops, nor suffering it to rest and recruit (under a system of alternation of crops) with clover and other grasses; and the mowing land having remained in the same state since the *departure* of the Pilgrim fathers. We have some good soils, but much of our best lands are yet unreclaimed; our bog meadows and swampy lands are capable of being converted into fertile English meadows, and will richly repay the proprietors for all the labor and expense bestowed upon them in a very few years; but the most of them lack energy; our young men have been told that our soil is exhausted; that the soil of the West is *inexhaustible;* therefore they all make tracks for the far west but him to whom the homestead falls, and our population and our agricultural improvements remain in "*statu quo.*"

But the tide of emigration will have its ebb; it will yet be found out that the Far West, with all her rich alluvions and verdant prairies—with her agues and fevers, is a less formidable competitor for agricultural success, when compared with the soil of New-England, with her healthful and invigorating climate, than has generally been supposed. I am, sir, &c.

HORACE COLLAMORE.

Renovating worn out Land.

West-Suffield, March 1st, 1839.

Hon. Jesse Buel—Sir—I purchased, some years ago, a lot of land made poor, very poor, by the exhausting system of our fathers; the soil sandy. It produced no more than about 5 or 6 bushels of rye on an acre. I fenced it into convenient fields, and commenced the following rotation: first, hauled on all the manure I could spare, at the rate of about 26 ox cart loads on the acre, spread it evenly on the surface, and turned it under with a plough, harrowed lengthwise of the furrow, and planted with corn, potatoes, beans, &c. the manure unfermented; and planted no more than I could manure.—Second year, a broadcast crop, *i. e.* oats, rye, &c. with clover and timothy seeds. Third, fourth, and fifth years, pasture or meadow. The land previous to my occupation having been ploughed continually, this was necessary to obtain a sward, and to have the land consolidate. My corn produced 30 and 33 bushels, rye 10 and 12, and oats about 20 bushels per acre. Sixth year, in rye, sowed on the first furrow, or a naked fallow was substituted. Three times each method was pursued in the same field, in the same season; one, that which was sowed on the first furrow yielded much the best; the other times it was not so productive.

I would recommend that neither practice be pursued, but that the land be broken up, and oats sowed on the first furrow, and that the stubble be turned under for rye, with clover and grass seeds. This year will finish my rotation, when I shall have manured my lands once over. My neighbors admit that my land will now produce double that it would when I commenced my rotation, and without extra labor.

I propose next year, if my life should be spared, to commence my second rotation with increased means, from the fact of saving more manure from increased crops, and more knowledge obtained principally from your valuable journal: first year giving my manure to hoed crops; second year to small grains, with clover seeds; third year to pasture or meadow; fourth year, rye, or wheat, on the first furrow (of a clover lay) with clover and grass seeds for permanent meadow or pasture; that when I begin my third rotation I may have a good rich sward to feed my corn and potato crops. Thus I have doubled the produce of my lands within eight years without extra means or labor, simply by a judicious application of such means as every farmer possesses. Yours, JOHN NOBLE.

Singular change in the quality of Soils.

Suffolk County, Feb. 26th, 1839.

Sir,—You stated in the last Cultivator, that wheat cannot be depended on without the application of animal matter, or lime. I will state you a few facts as regards wheat. With us wheat was raised from the first settling of the county until 1780, or 90; it then failed. About that time we began to get fish, which were used for rye, which did well. It was no uncommon thing to have 40 bushels to the acre. For wheat they did not answer, neither did any other manure.—Farmers, as a general thing, gave up trying to raise it. At the present time, wheat is a far more certain crop than rye, and has been for years past. Rye has been failing for years past, and latterly many pieces have been cut merely for the straw. Here is a complete revolution in the two grains. You will say the soil has been modified by the action of manure. Take a piece of land that has not been manured from the first clearing to the present time, and you will have the same result, that is, you will probably have a fair crop of wheat, and little or none of rye. Corn has not fluctuated; it has been a steady crop, and governed by the seasons. Oats—the same. Flax has run nearly the same round as wheat and barley. The above has particular reference to the south branch of the island, Suffolk county. We have been troubled these two or three years past with a worm that starts a few inches from the head, goes the length of the straw, and comes out near the ground. It does not injure the crop materially, on account of its coming out late; it cuts the straw off about the time, or a little before, the wheat is fit to cut. I do not recollect seeing an account of it, but it may be an old acquaintance of yours. Raising wheat is an expensive business with us. The first cost of manure is from 20 to 30 dollars per acre. In favorable seasons, wheat does well; we sometimes get 40 bushels to the acre, but that is a great yield. I will conclude by wishing you may infuse a little of common sense into our legislature. Yours, &c. S.

Remarks—The facts above stated, with regard to the remarkable change in the properties of soil, are new to us, and are worthy of philosophical investigation. We will not hazard a conjecture as to the cause, with the few facts before us, but we invite an investigation by more competent hands. Let the western farmer note, that manuring in Suffolk costs 20 to 30 dollars an acre, that with even this expense, farming there is profitable, and that the soil there, before it was worn out, was probably deemed as good as it now is at the west. It is easier to preserve than it is to restore fertility.—*Cond.*

American Society for the Diffusion of Useful Knowledge.

To the Editor of the Cultivator:

Sir—Your paper for January, contains a communication, dated "Concord, N. H., Nov. 24, 1838," making charges against "The *American Society for the Diffusion of Useful Knowledge,*" and those by whom it has been managed, which are of such a nature, that we feel it to be due, not merely to ourselves, nor yet solely to the society with which we are connected, but also, and most especially, to the great interests of our national education, that they should not be allowed to go before the public unanswered.

We speak in sober sincerity, when we say, that we consider, that this matter most especially concerns the great interests of our nation's education. We pretend not, that such charges against a society, on which we have bestowed much labor and thought, and which we believe, is becoming an instrument, by which may be effected great good to our country; much less, that statements aspersing our private characters, fall upon our ears, without producing sensations of sorrow and pain: still, our hearts are not so bound up in that society, as to be unwilling that its objects should be effected by other means; and we must be allowed to say, that we have no fear, that our characters rest upon such frail foundations, as to be overthrown or even shaken, in the only sphere in which they are of value to us—the circle of those who know us, and with whom the affairs of life bring us in contact—by assertions imputing to us such gross fraud, as those contained in the communication referred to. But when we look at the effect these statements must produce in the public mind, if they meet with general belief, we cannot but perceive, that almost a death blow is given to every hope of ever enlisting the mighty influence of united effort, in the work of supplying the urgent wants of our people, for sound education and healthful knowledge.

If it be possible, in these days of light, when a vigilant press is watching every enterprise which concerns the public interest, and conveying on the wings of the wind, every rumor to the most distant hamlet, if it be *barely possible*, in these days, that "a few individuals who care for nothing but the profits of the concern," can prosecute a speculation in books, under the pretence of diffusing useful knowledge, and publish to the world, "without their knowledge or consent," the names of many of the most respectable and benevolent of our citizens in every part of the land, as approving the plan and its execution, and not one intimation be given to the public, by one of those, with whose names so gross a liberty has been taken, that they know nothing of the society or its plans, when will the people know whom to trust? Well may our people, although conscious of the pressing need for united effort on this important subject, and willing, each to contribute his share to the great work, pause before they do anything; and resolve to confine themselves to the feeble endeavors of individual effort and unconnected influence, if so unscrupulous an attempt "to do a good profitable business" out of the intellectual and moral wants of our nation, can be suffered to go on, under the sanction of such names, without one warning being given, by those, whose fair reputation has been made the cover of so unprincipled a speculation.

Under these considerations, the subject assumes importance: by these considerations, and these alone, are we induced to notice the attack made upon us.

Your correspondent's statements will be considered in the order in which he makes them. The first is in the following words:

"It was stated that the members of that society, or most of them, were elected without their knowledge or consent."

"I found that many of the individuals named as members, were made members without their knowledge or consent.—And some of my friends were among the number."

As no list of the *members* of the society, has ever been published, your correspondent evidently does not refer to members properly so called. He undoubtedly refers to the names printed, in the first part of each volume of the published library, as those of presidents, vice-presidents, &c. Every gentleman so named, was regularly elected to the office assigned to him in that list; and notice of his election was sent to him.

Some signified acceptance of their appointments, in written or verbal communications; others, by attending meetings in the capacities, which the list referred to, represents them as filling.

By all such, we consider their appointments to have been formally accepted.

To all the other gentlemen, were written or printed notices of their appointment sent, and, they were deemed to have accepted the same, from never having intimated any disinclination to accept it: but not until after the lapse of ample time, for returning an answer declining the appointment, without receiving any such answer, was the name of any one gentleman published.

We give below, all the names in the list, together with a statement of the manner in which their appointments were respectively accepted.

President—Hon. Stephen Van Rensselaer, formally accepted.

Vice-Presidents.—Governor Marcy, Albany; Hon. Albert Gallatin, and Hon. Reuben H. Walworth, New-York; Francis Wayland, D. D. Rhode Island; Hon. Theodore Frelinghuysen, and Hon. Samuel Southard, New-Jersey; Hon. Wm. Robertson, and Hon. Wm. C. Rives, Virginia; Gov Duncan, Illinois; Henry R. Schoolcraft, Esq. Michigan; Governor Everett, and Hon. Daniel Webster, Massachusetts; James Milnor, D. D. New-York; Hon. Ruel Williams, Maine; Hon. Roger M. Sherman, Connecticut; Thomas Sewell, M. D. District of Columbia; Hon. Henry Clay, Kentucky; have formally accepted.

Rt. Rev. Benjamin T. Onderdonk, New-York; Hon. Franklin Pierce, New-Hampshire; Hon. Robert C. Greer, Pennsylvania; Hon. Roger B. Taney, Maryland; Gen. James Hamilton, South-Carolina; Hon. Henry Hitchcock, Alabama; Hon. Alexander Porter, Louisiana; Hon. Felix Grundy, Tennessee; Rev. Charles P. McIlvaine, Ohio; Governor Dunlap, Maine; Hon. Horace Everett, Vermont; Hon. Horace Binney, Pennsylvania; Hon. James Bayard, Delaware; Hon. William Gaston, North Carolina; Hon. John M. Berrien, Georgia; Hon. Robert J. Walker, Mississippi; Hon. Thomas J. Lacy, Arkansas; John C. Young, D. D., Kentucky; Hon. William Hendricks, Indiana; Hon. Lewis F. Linn, Missouri; are the other gentlemen named in the list as vice-presidents, and have each had, a written or printed notice of his appointment, sent to him, and, from not one of them, has there ever been received any communication declining it.

Board of Directors.—Alonzo Potter, D. D., John Knox, D. D., Jacob Janeway, D. D., Rev. John A. Vaughan, Rev. Gorham D. Abbot, and Hon. Benjamin F. Butler, New-York; Hon. Samuel J. Armstrong, Massachusetts; Hon. John Sergeant, Pennsylvania; Peter G. Stuyvesant, Esq., Hugh Maxwell, Esq., Charles Butler, Esq., James Brown, Esq., Eleazer Lord, Esq., Thomas Cock, M. D., John T. Gilchrist, Esq. and Samuel W. Seton, Esq., New-York; Israel Collins, Esq. Pennsylvania; Thomas McAuley, D. D., Thomas De Witt, Rev. George Potts, Rev. John Proudfit, Hon. Samuel Jones, Hon. Heman Lincoln, David Graham, Esq. Hiram Ketcham, Esq., Timothy R. Green, Esq., Cornelius Baker, Esq., John Griscom, L. L. D., Anthony P. Halsey, Esq. and Robert Kelly, Esq. New-York; Thomas J. Wharton, Esq. Pennsylvania; have formally accepted.

Hon. Samuel Hubbard, Massachusetts; Frederick A. Tracy, Esq. and Francis L Hawks, D. D. New-York; Benjamin Silliman, L. L. D. Connecticut; Hon. Myndert Van Schaick, New-York; Bradford Sumner, Esq. Massachusetts; George S. Robbins, Esq. New-York; Isaac S. Lloyd, Esq. Pennsylvania, have had written or printed notices of their appointments sent to them, and have never directly or indirectly declined to accept it.

Executive Committee.—James Brown, Esq. Chairman, and John Torry, M. D. New-York; Alonzo Potter, D. D. Schenectady; Wilbur Fisk, D. D. Connecticut; Rev. Jacob Abbot, and Rev. Bela B. Edwards, Boston; Rev. Leonard Bacon, New-Haven; Charles Butler, Esq. and Thomas Cock, M. D. Lewis C. Beck, M. D. N. Y. University; Wm. Cooper, Esq. John T. Gilchrist, Esq., Timothy R. Green, Esq., Marinus Willett, M. D, Wm. Betts, Esq. and Henry E. Davis, Esq. New-York, have formally accepted.

To the Rev. Calvin A. Stowe, of Ohio, printed notice of his appointment was sent, and no communication declining it, has been received.

Gorham D. Abbot, *Secretary*, and Anthony P. Halsey, *Treasurer*, have formally accepted, and are now fulfilling the duties of their respective offices.

These facts speak for themselves, and completely refute the charge of gentlemen being "elected without their knowledge or consent.' We would add the remark, that the executive committee, are, as their name imports, the acting portion of the society; those, on whom the proper management of its concerns directly falls: that the board of directors, by the constitution, under which they were elected, and which has been printed and extensively published, are designed, to meet but once a year, unless specially convened, and to exercise a general superintendence over the executive committee.

The office of vice-president, as is well known, is an honorary appointment, involving no labor other than, perhaps, presiding at some public meeting.

We believe, that the receipt of a notice of appointment, without returning any intimation of unwillingness to fill the office, is considered an acceptance of it.

It will be seen, that the highly respected gentleman, who was named as our president, had, formally accepted the office. That of the vice-presidents, thirty-seven in number, seventeen have formally accepted. Of the Board of Directors, thirty-nine in number, thirty-one have formally accepted.—Of the Executive Committee, seventeen in number, sixteen have formally accepted.

We will only add, that our libraries have been extensively published, every book in them containing the above list; our prospectuses, notices, advertisements and circulars, most widely spread over the whole country, with the above list of officers; and we have never, from any one gentleman named in that list, received any communication, directly or indirectly declining his appointment.

The next charge is in the following words:

"The whole matter was managed by a few individuals, who cared for nothing but the profits of the concern." "The amount of it is, that the society was planned by Mr. Abbott, the secretary, and more as a speculation, than any thing else." This statement comprizes two charges—first, that Mr.

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* Satisfactory answers to these question will be found in our report upon root culture, made to the State Agricultural Society, in the March number, and in our essay upon root culture in the present number.—*Cond.*

Abbot planned the society, and that a few individuals managed it. Secondly, that it was gotten up and managed as a speculation.

The first charge literally construed, amounts to nothing.—To say of the society, that it was chiefly planned by one man, and was conducted by a few; is only to say, what is notoriously true of every society that ever existed, especially in its earlier stages, and most particularly in our country, where all who have ever been connected with benevolent institutions, have experienced the great difficulty of getting our busy citizens, to attend to matters unconnected with their own affairs. But the charge conveys more than this general fact; it intimates that it was a plan, secretly devised by Mr. Abbot; and that its management was studiously confined to a few. To this construction of the statement, we can only give a flat contradiction. That to Mr. Abbot's persevering activity, in bringing before the minds of some of our most enlightened and influential citizens, the vast importance of enlisting the mighty power of the press, in the service of our national education; and to the light, thrown upon the subject, by the mass of valuable information, which he had collected from similar institutions in England, the existence of the American Society for the Diffusion of Useful Knowledge, is chiefly owing, all know, who know any thing of its origin and formation: and that on a comparatively few has fallen the labor of managing its affairs, is also true.

But it is utterly untrue, that the organization and plan of the society, were the work of Mr. Abbot, either alone, or in concert with a few individuals only: or that its management, has been intentionally confined to a few. The formation of the society, was the result of the mutual consultation of many gentlemen of the highest public and private character. Its plan was discussed and finally adopted in public meetings, held in this city, which were called by notices in the newspapers, declaring the object for which they were convened; and throughout its whole existence, an extensive correspondence has been carried on, with distinguished citizens all over the country; and the executive committee, have eagerly availed themselves of information and advice from every quarter, and earnestly endeavored to procure the active aid of their fellow-citizens. No one can regret, more than they do, that greater numbers do not engage in this most important cause; and none are more willing, that every step which has been taken, by the comparatively few, who have heartily engaged in it, should be spread before the eyes of our whole people.

As to the other part of the statement—that the society is a cloak for speculation, we feel degraded in even contradicting so gross a charge; but, as entrusted with the management of a society, professing to promote public interests, and seeking for support from the public, under the sanction of most honorable names, we feel it to be due to the public, and particularly to those, who are thus indirectly charged with silently lending their influence to a disgraceful trade, to state briefly what the society has actually done, which will at once refute the charge of speculation; and also, what is conveyed in the following portions of the communication under consideration.

"I find that the library of 50 volumes, is made up of the old volumes of the 'Family Library,' and the 'Girls' and Boys' Library,' printed from the old plates, and the only variation was in the binding. (These series were published by Messrs. Harper, of New-York.")

"Besides, the committee of the society consented to make a statement, which is little less than downright deception."

"Under the head of 'EXECUTION OF THE PLAN,' it is stated, 'all the arrangements for carrying the design into execution, are in a state of forwardness, so far as they can be, before the necessary funds are secured.' It is estimated that $15,000 are required to manufacture the stereotype plates for 50 volumes," &c.

"Now, the very volumes offered, are printed from plates that have been used several years, and on examination of some of the volumes, you will find that they have *two title pages*, one 1835 or 1836, and another 1838—proving that they were printed two or three years ago!!!"

"If publishers wish to get off their old stock, let them say so; but, in the name of heaven, let not the friends of education come forward with any plans of deception."

These charges, we say, will be fully refuted by a brief statement of what has been actually done.

After its organization, the society proceeded to ascertain by correspondence with authors, printers, and others, how best to carry its plans into execution, and what funds would be necessary for that purpose; and learned that $15,000 would be requisite; and so stated in their published prospectus, as quoted above—and most happy would the society have been, could they have raised "the necessary funds;" those funds, as the prospectus stated, were the only thing wanting: but, unfortunately, before they could be raised, that season of commercial distress, from which our country is but just now beginning to recover, came on, and it were superfluous to add, that it was impossible to raise any thing like the sum proposed.

The statement annexed, shows what funds have been raised by the society up to this date, and how they have been disposed of. It is enough here to state, that the stereotype plates for the fifty volumes have never been manufactured, *because the* $15,000 *have never been raised.*

After having made ineffectual efforts to raise that sum, and in the midst of the gloomy period alluded to, the society received information, from the public authorities of this state, of an appropriation made by the Legislature, for the purchase of Common School Libraries; an appropriation, which rendered it morally certain, that $110,000 would be expended in this state, during each of the years 1839, 1840, and 1841; and that most probably, at least that amount, would be annually expended for that purpose, for some time afterwards. It was obvious, that libraries of some kind or other would be purchased; and it was also obvious, that, unless some competent and disinterested persons should undertake the selection and publication of such libraries, it would be more than probable, that they would be composed, in part, at least of books, whose introduction into our schools and villages, might prove any thing but a blessing to the state, and might be purchased at prices, which greater harmony of action would have materially reduced.

In this emergency, the society again looked over the field, to ascertain how they might best further the enlightened and benevolent views of the legislature. It found itself without resources to induce authors to compose original works; without the capital, necessary to undertake the publication of a library on its own strength; without the power to do any thing further than to select a library from existing publications; and utterly unable to do that, unless through the agency of some publishing house of established character. The alternative presented to the society, was not whether to publish such a library as they originally intended, or such as they did publish; but whether to publish such as they did, or leave our common schools to be supplied, for a time at least, with libraries at hap-hazard, by those to whom pecuniary profit must be the chief consideration, and who would be under no responsibility whatever, for the character of the books they furnished.

In the words of the prospectus, which is prefixed to every volume of the published library, and which we are sorry, has not chanced to meet the eye of your correspondent—"The increasing interest in the subject of school libraries, *and the repeated calls* upon the committee for their library, have induced them to issue the present *selection* from *existing publications*, to suit the *immediate* wants of common schools, while they *go on as fast as possible to complete the plan announced in the published prospectus.*"

As to the character of the books composing that library, we will speak presently.

The committee, among other publishing houses, had their attention called to that of the Messrs. Harper & Brothers, of this city. In the establishment of those gentlemen, they found many works already stereotyped, from which, although not having every quality, which, we hope, will be found in those prepared by the society; were yet of excellent character, and would form a portion of a good library, which would meet the emergency, which demanded immediate attention, and compelled the society to depart somewhat from its original plan. After much deliberation, the committee accordingly made an arrangement with the Messrs. Harper, of which, the first series of the "American School Library," is the result.

It was agreed with the Messrs. Harpers, that the committee should publish a library of 50 volumes, which should be mainly selected from works published by those gentlemen, and make such alterations as should be practicable; that the whole should be neatly bound in an uniform style, with title pages, denoting them to have been published under the direction of the society; and the 50 volumes should be arranged in neat boxes, which, both served as enclosures for their transportation, and as book-cases when they had arrived at their place of destination. Each box was to be handsomely painted, and furnished with a printed catalogue of its contents.

The price at which similar publications had been sold to the reader, was fifty cents per volume: the library published by the society, bound more neatly than the ordinary style, and arranged in cases, in the manner above described, costs the reader twenty dollars for the fifty volumes, or forty cents per volume. So that one effect of the arrangement was, to reduce the price of the works, published under the direction of the society, one-fifth, or twenty per cent. In other words, 100 volumes with a book-case, are now bought, for what formerly bought but 80, and deducting the cost of the book-case, for what formerly bought 74 volumes. It must also be remembered, that the former price referred to, was that of works published with a view to most extensive circulation, and was put at a rate intended to attract purchasers by its lowness. The only provision made for the society, was an appropriation of a portion of the proceeds, for the purpose of enabling it to employ agents, in effecting the introduction of the library into the various school districts.

Such was the arrangement with the Messrs. Harpers: how far it will prove profitable to those gentlemen, we know not; but whether they should, or should not make money by it, affects not the question at issue: The question which was presented to the executive committee, at the time alluded to above, when they felt bound, though unable at once to do what they had hoped, yet to do what they could to meet the immediate emergency; which was, whether they should make some such arrangement as the one just mentioned, or leave our school and village libraries, for some time to come, to be supplied by those, whose main motive must be the hope of profit—and depend for their selection, in many instances, on those, whom neither education nor experience had fitted for the task

The society adopted the former alternative, under a feeling to do so. It may prove profitable to the publisher, but whatever pecuniary advantage he may reap from it, dwindles into insignificance, compared with the substantial benefit reaped by the country, from having hundreds of well selected libraries distributed throughout the land; and valuable works put at a price, that enables the most needy to purchase them.

The executive committee have believed, that their publications were unexampled in cheapness; they may be under an error, but if so, it arises from want of information.

The charge of speculation, is, in other words, that the projectors of this enterprise, were chiefly moved by the hope of profit. Now, as to the publishers, we must at once admit, that in all human probability, the chief motive impelling them to form arrangements with the society, was the hope of gain. If there be one, who expects that printers will print for nothing; that binders will convert the fluttering leaves into the compact volume, without compensation; that capitalists will lend the use of funds, without expectation of any return; he may perhaps be disappointed, when he finds that it required the hope of profit, to induce the firm who manufactured the School Library, to put into operation the complicated machinery of their establishment. We frankly say, that if there be persons with such views, we despair of ever gaining their approval. We expect to pay a profit to every paper-maker, every printer, every binder, every carpenter, who furnishes paper, ink, thread, or book-case for our publications; and hence arises the necessity of raising funds, before we can proceed in the "*execution of the plan.*"

The question of profit, concerns the bookseller alone: as to the society, we have already stated, that no provision was made for it in the arrangement, except the one mentioned for the purpose of paying agents: and even that, seems most likely to prove inadequate for the purpose. As to individual members, there cannot arise a combination of circumstances, which can by any possibility, make the society a source of profit to one of them. We feel a sense of degradation in making these declarations; but the same feelings, which have led us to expend money, and labor, and care, and time, upon this enterprise, and which alone, induce us to notice the charges which we are now answering, also constrain us to declare, to those for whom we profess to have labored, that, with whatever degree of wisdom our measures have been conducted, or with whatever success they may have been crowned, the hands which have labored in their accomplishment, are not grasping after pecuniary profit.

One more remark on this portion of the subject. Your correspondent intimates, that the library published is a contrivance to pass off the old stock of the publishers as new publications, issued under the "execution of the plan," contained in the society's prospectus. Now, to say nothing of the probability, that men of such standing as those who formed the executive committee, by whom the library was published, should volunteer to blast their own characters, in order to assist the publishers in so admirable an enterprise; and should be guilty of "little less than downright deception," in order to do so, without the most distant possibility of reaping any profit themselves, it seems a little strange, that it did occur to your correspondent, that, if any deception, such as he alluded to, was ever dreamt of, the fraud must have been as clumsy in its management, as it was gross in its conception; that they who were profligate enough to practice gratuitous roguery, in order to help a publisher off with his old stock, were also senseless fools enough, to send forth to the world, in every book they published, the obtrusive evidence of their deceit; that they wished to pass off works as new publications, whose every title page declares, that they were not so; and whose every preface states that they were existing publications. [From the Executive Committee.]

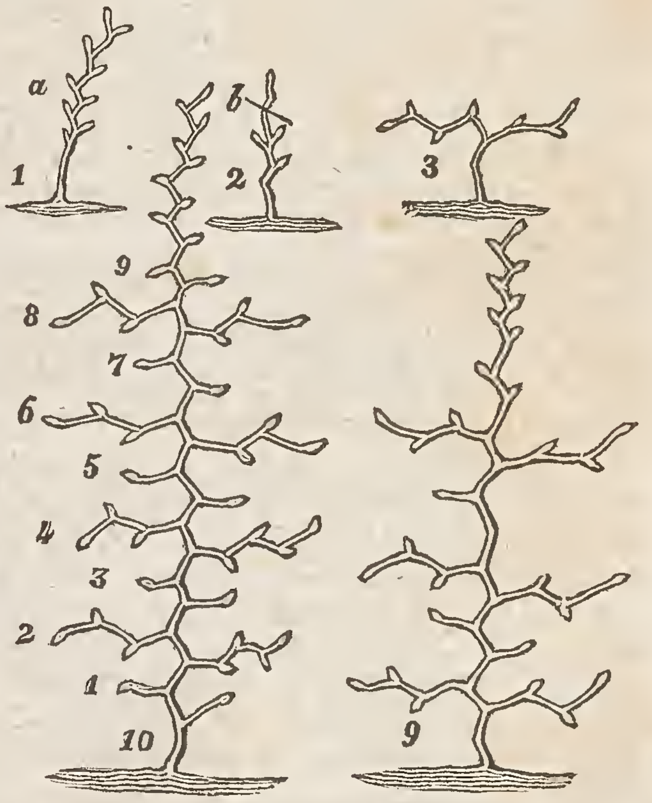
EXTRACTS.

Grape Culture.

[*From Wilson's Economy of the Kitchen Garden.*]

There are only two methods generally practised for raising grapes in this country, on trellises and arbors, and by the support of stakes, as in most vineyards. The former is much practised about towns, and with which we shall commence our directions on the best mode of training. But in the first place it will be necessary to say something about the preparation of the ground to receive the plants; for unless it be put in good order, it cannot be expected that the vines will thrive. Therefore, whenever vines are to be planted, the ground should be trenched to the depth of two full spades at least, and to as great an extent on each side of the place where the plants are to be set, as the situation will admit of If the whole garden can be thus trenched, so much the better. And in performing the trenching, a good supply of short dung should be well incorporated with the soil, which, if poor, should have the thickness of one foot of horse and cow dung laid all over it, and mixed in it in the trenching. This should always be done, if possible, the fall before planting; and by being well turned over with the spade early in the spring, would be in fine order for receiving the plants. Great care should be taken in removing these plants never to suffer their roots or small fibres to be exposed to the air so as to become dry. And the hole to receive them should be made sufficiently large to admit them freely at their full length, and should all be placed as nearly as possible about the same depth below the surface, as they were before they were taken up. No plant is easier to train, or looks better on a trellis or arbor, than the grape vine; and we would recommend either of the following modes. The first is calculated for a scale, where the plant is to cover a space eight feet in width, and of any height, from eight feet to eighteen or more.

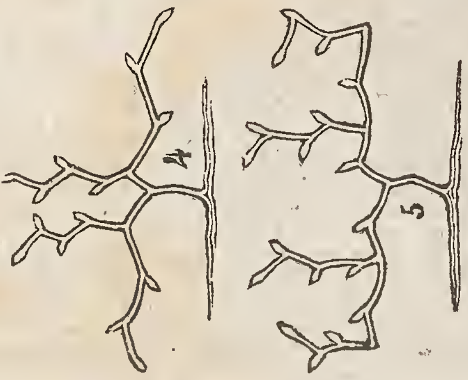
[Fig. No. 9.]



No. 1, on the plate, is a representation of the plant when set out, of one year's growth from the cutting, and is to be cut off to one good bud, as at *a*. The lower bud is seldom counted, and only the upper bud is to be allowed to produce one shoot; the young buds on this shoot will many of them shoot out in the course of the summer, which should be pinched off.

No. 2 represents the plant of one strong shoot, one year after being planted, and it is to be cut down to two good buds, as at *b*, about fifteen or eighteen inches high from the ground. The shoots from these two buds are to be trained to a trellis, horizontally, to a distance of four feet, and then their ends pinched off, as we intend the plant to fill a space in width of eight feet.

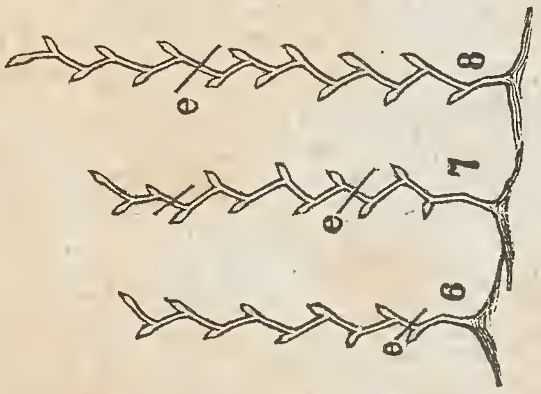
No. 3 represents the plant two years after setting out, with the two last years' horizontal shoots, as they must be cut into three good buds. The two buds next to the stem are to be allowed to shoot and grow upright as high as they please, to be tied up to the trellis, and the end buds to be trained horizontally, to the limits of three or four feet distance, and again pinched off.



[Fig. No. 10.]

No. 4 represents the plant three years from setting out, with its two last years' upright shoots, as they must be cut down to four good buds, which are this year to be allowed to bear fruit, and the horizontal branches cut into three good buds; their shoots are all to be trained upright, which will complete the head of your vine, with eight branches, at about one foot apart.

No. 5 represents the vine four years after setting out, with the two centre branches that bore fruit last year, as they must be cut down near to their origin. The two next cut down to four buds for bearing fruit. The next two to one good bud, for producing one good wood shoot. The next and last two, to three buds, for bearing fruit. Its regular culture afterwards is, to cut four of the branches low down, and to leave four longer to bear fruit alternately, always allowing the branches that bear fruit the one year to be cut down for recovering a good shoot again for bearing the next. The other mode of training, is called horizontal training, but may be extended to any height or distance you please, so long as you retain the leading shoot, or it may be confined to a very low space by cutting it off.



[Fig. No. 11.]

No. 6 represents the plant when set out, the same age as the other; to be cut also to one good bud, as at *c*. This bud to be allowed to produce one good shoot.

No. 7 represents the plant one year after setting out, to be cut down to three good buds, as at *d*. The shoot from the upper one of which is to be trained upright, and the two lower ones are to be trained horizontally.

No. 8 represents the plant two years from setting out. The leading shoot of which is to be cut down to nine buds, as at *e*. The upper bud to be allowed to shoot upright, and all the others horizontally; four feet from each side. The two last years' horizontal ones cut as they must be to one good bud, its shoots to be trained as it was last year.

No. 9 represents the plant three years after setting out, with its branches cut as they must be. The two lower ones to three good buds for bearing fruit. The next two cut to one good bud for wood. The next two, to three for fruit. The next two, to one. The other two to three, and the leading one again to nine. The upper bud to have its shoots continue upright, the other eight horizontally.

No. 10 represents the plant four years from setting out, with its branches cut as they must be. The lower two to one good bud; the second two to three buds; the third two to one; the fourth two to three; the fifth two to one; the sixth two to three; the seventh two to one; the eighth two to three; the ninth two to one; and the leading shoot to nine buds. All to be managed in the same way as those of last year. And in this way you may continue your plant as far as there is room; when that it is terminated, cut off your leading shoot, and regulate all the horizontal branches so that they may bear fruit and wood alternately to the end of the grape vine's existence.

It may be necessary to observe, that in the first mode described for training the vine, the two horizontal branches or arms to support the upright shoots, are intended to extend four feet from each side of the main stem; and on each of them are to be selected four upright branches, which will make them about a foot apart. It will be necessary to rub off any intermediate buds, so as to regulate them, to be placed at proportionate distances. And after they are once cut down to one bud, the next year's cutting down would be a joint higher, and this may be safely allowed for a year or two; but whenever they get too far above the arms, by cutting down to the lowermost new bud, they must be cut down on the old wood near to their origin, and only one good shoot allowed to grow; any other bud to be rubbed off. And the same rule must be observed in cutting in all the branches of those trained altogether on the horizontal plan. And in directing nine buds to be left on the leading shoot, it is only intended in case the plant be very strong and vigorous; should it not be so, it would be better to cut it to five, or even three buds, in which case there would be only one or two branches to be trimmed horizontally on each side, instead of four, as exhibited on the plate; and the choice of these numbers should always be regulated by the cultivator according to the actual strength and condition of his vine. And the same discretion is to be exercised in leaving the number of buds on the bearing branches, from three to four, to double that number, when his vine is strong. But the mode of cutting them in after bearing one year, and the continuation of their regular number and distances are seldom or never to be altered. Every bud of those left bearing, sends out young shoots which produce the fruit, and these must all be neatly tied up to the trellis; but all the lateral shoots from the other, constantly rubbed off. Perhaps no plant bears the knife better than the grape vine, nor can there be any thing more simple, easy, or entertaining, than the training of it, according to those principles which we have endeavored so plainly to describe. Those vines trained over arbors generally have their heads formed higher, but the principle of training all their parts so as to be regularly supplied with fruit and wood-bearing branches, is precisely the same as those described above. The great error that most inexperienced cultivators fall into is, their neglecting to cut cut down, in time, into the old wood, or their regularly selected branches: and suffering laterals to extend from all parts of their vine, they soon let it run into the wildest confusion. In all such cases the only remedy generally is, to cut off the whole concern, to that proper position upon the old wood where the head ought to be formed, and regulate the whole anew.

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*Moneys received up to 23d of March, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

		No. Vols.
Amsterdam, Mont.		6
*Augusta,	Ga.	35
Akron,	O.	6
Alfred, Alle.		25
Alexandria,	D. C.	39
Auburn,	Va.	7
Amenia Union, Dutch.		8
Ashfield,	Mass.	11
Bytown,	U. C.	5
Burlington,	Vt.	17
Binghamton, Broome,		13
Brandon,	Vt.	11
Boston,	Mass.	61
Bethlem,	Ct.	11
Bath,	N. H.	11
Bridgeport,	Ct.	15
Baltimore,	Md.	23
Bennington,	Vt.	12
Blacksburgh,	Va.	7
Bath, Steub.		6
Boydton,	Va.	20
Brookville,	Md.	12
Brownsville,	Pa.	7
Berlin Centre, Rens.		5
Billerica,	Mass.	15
Blawenburgh,	N. J.	6
Birmingham,	O.	7
*Butternuts, Ots.		24
Bernardstown,	Mass.	10
Buskirk's Bridge, Rens.		11
Becket,	Mass.	15
Bern, Alb.		6
Brandenburgh,	Ky.	5
Copenhagen, Lewis,		11
Crown Point, Essex,		11
Chestertown,	Md.	24
Cabin Hill, Del.		8
Church Hill,	Md.	12
Camden,	Del.	5
Canterbury, Or.		8
*Coxsackie, Gr.		15
Columbia,	Ct.	7
Canaan 4 Corners, Col.		7
Centreville,	Md.	5
*Clinton,	Mich.	7
Canton,	Ct.	11
Charlotte,	Vt.	7
Columbia,	S. C.	14
Commons,	R. I.	11
Clifton Forge,	Va.	15
Cuckooville,	Va.	5
Colebrook River,	Ct.	7
Cinnaminson,	N. J.	23
Colchester,	Ct.	8
Coventry,	R. I.	14
Cecilton,	Md.	8
Clarendon,	Vt.	11
Coates Tavern,	S. C.	5
Chester,	Mass.	12
Carrollton,	Illi.	5
Cave Hill,	Tenn.	5
Dandridge,	Tenn.	5
Dayton,	O.	53
Deerfield,	Mass.	19
Dover,	Del.	5
Darnestown,	Md.	5
Daper's Valley,	Va.	10
Damascoville,	O.	11
Durham, Gr.		12
Dover,	N. H.	5
Dublin,	N. H.	21
Easton,	Pa.	15
Ellisville,	Va.	11
E. Groveland, Liv.		5
Easton,	Md.	12
Edgecomb's Cor. Sar.		8
East Hampton, Suff.		11
Enfield,	Ct.	6
Florida, Orange,		5
Fairfax, C. H.	Va.	11
Framingham,	Mass.	11
Fishkill, Dutch.		18
Franklin,	Mass.	5
Farmer, Sen.		12
Fork Inn,	Va.	5
Fort Ann, Wash.		14
Frederick,	Md.	33
Ford Du Lac,	W. T.	5
Fulton, Osw.		6
Falling Bridge,	Va.	11
Front Royal,	Va.	9
Frankfort,	Ky.	12
Franklin,	Tenn.	13
Freehold,	N. J.	17
Flemingsburgh,	Ky.	11
Greenwich,	N. J.	55
Granville,	O.	11
Goshen, Or.		5
Gaylord's Bridge,	Ct.	5
Gaines, Orl.		11
Goshen,	Ct.	18
Greenfield,	O.	5
Greensboro',	Vt.	8
Gustavus,	O.	5
Georgetown,	D. C.	22
Gallipolis,	O.	16
Glade Springs,	Va.	24
Gratitude,	N. J.	6
Greenfield,	Mass.	6
Huntington,	Pa.	5
Hamilton,	O.	25
Hadlyme,	Ct.	11
Howard, Steub.		11
Harrisburgh,	Pa.	11
Harrisonburgh,	Va.	6
Hartford,	Ct.	19
Hillsdale, Col.		11
Hickory Ground,	Va.	27
Huntington, Suff.		24
Harrison, Westchester,		5
Hagerstown,	Md.	22
Hartland,	Ct.	7
Hillsboro,	Illi.	5
Holland Patent, Oneida,		7
Hollis,	N. H.	11
Havana, Chem.		6
Hancock,	Md.	11
Huntersville,	Va.	5
Johnstown, Mont.		10
Independence,	Ia.	5
Jericho,	Vt.	5
Jefferson,	Ia.	5
Jackson,	Tenn.	5
Johnson,	Vt.	7
*Jersey Shore,	Pa.	8
Kinsman,	O.	8
*Kingston, Uls.		8
Kaskaskia,	Illi.	22
King William C. H.	Va.	5
Kanawha, C. H.	Va.	20
Lawrenceburgh,	Ia.	7
Lima, Liv.		14
Lawrenceville,	Pa.	15
Liverpool, Onon.		12
Lockport, Niag.		9
Livingston, Col.		6
*Lansingburgh, Rens.		22
*Louisville,	Ky.	11
Leyden, Lewis,		15
Litchfield	Ct.	30
Logan, Tomp.		11
Lee,	Mass.	14
Locust Grove,	Va.	18
Long Branch,	N. J.	11
Leeds, Gr.		6
Liberty,	Va.	15
Lovingston,	Va.	24
Lyons, Wayne,		13
Lanark,	U. C.	11
*Loretto,	Va.	34
Lowell,	Mass.	5
Luray,	Va	11
Madison,	O.	11
Middlefield,	Mass.	5
*Meadville,	Pa.	9
Medford,	Mass.	14
Mount Juliet,	Va.	13
Mount Crawford,	Va.	6
Monroe,	Ct.	8
Manbasset, Queens,		20
Middlebury,	O.	30
Manchester,	Vt.	5
Mount Hope,	Ct.	6
Minaville, Mont.		10
Mamaroneck, West.		14
Marlboro,	Mass,	5
Mauch Chunk,	Pa.	10
Milton,	Pa.	6
Montpelier,	Va.	16
Marshall,	Mich.	11
Middletown,	Del.	6
Milton,	Del.	11
Middletown,	Ky.	17
Monticello,	Ia.	5
Manhattan,	Ia.	18
New-Berlin, Chen.		5
New-Berlin,	Pa.	7
New-Hartford, Onei.		15
New-Lisbon,	O.	8
New-Milford,	Ct.	6
*New-York City,		70
Newburgh, Or.		5
Newbern,	Va.	12
*Nashville,	Tenn.	24
New-Preston,	Ct.	5
*New-London,	Ct.	26
New-Market,	Va.	5
Norfolk,	Va.	57
Norwalk,	Ct.	22
Norwich Town,	Ct.	11
New-Castle,	Pa.	5
Newark,	O.	5
New-Brunswick,	N. J.	19
Newton,	N. J.	16
Northville,	Ct.	5
*North-Haven,	Ct.	27
Owego, Tioga.		24
*Oswego, Osw.		20
Providence,	Illi.	5
Port Republic,	Va.	11
Petit Nation,	L. C.	11
Phillipsburg, Or.		5
Petersham,	Mass.	14
Palestine,	Illi.	7
Parkesburgh,	Va.	5
Pekin,	Illi.	11
Poquonock,	Ct.	10
Poughkeepsie, Dutch.		15
Peekskill, Dutch.		12
Port Tobacco,	Md.	11
Powhattan,	Va.	5
*Peoria,	Illi.	15
Pawtucket,	R. I.	7
Plainfield,	N. J.	5
Pratt's Hollow, Mad.		5
*Philadelphia,	Pa.	83
Pocahontas,	Ark.	5
Painesville,	O.	6
Richmond,	Ia.	26
Rome, Onei.		10
Rising Sun,	Md.	5
Richfield, Ots.		6
Rahway,	N. J.	6
Richmond,	Va.	87
Rockford,	Illi.	5
Rockville,	Md.	21
Salisbury,	Md.	39
Stockbridge,	Mass.	6
*South Cairo, Gr.		13
*Schenectady, Sch.		13
Saxes' Mills,	Vt.	5
South Westerlo, Alb.		11
Smithtown, Suff.		8
*Schaghticoke, Rens.		8
Stone Wall Mills,	Va.	11
Salem, Wash.		10
South Trenton, Onei.		23
Sommerville,	Tenn.	5
Savage,	Md.	11
St. Louis,	Mo.	6
South East, Put.		5
Sommerville,	N. J.	10
Shelburn,	Vt.	28
Shrewsbury,	N. J.	23
Scull Shoals,	Geo.	12
Six Mile Run,	N. J.	11
Shepherdstown,	Pa.	11
Springfield,	Mass.	28
South Tyringham,	Mass.	5
Sheshequin,	Pa.	5
South Middletown,	Or.	7
St. Albans,	Vt.	22
Sandisfield,	Mass.	11
Shoreham,	Vt.	7
*Sing Sing, West Ch.		24
South Lee,	Mass.	5
Springfield,	Va.	27
Sublett's Tavern,	Va.	11
Suffield,	Ct.	6
Sheffield,	Mass.	8
Skaneateles, Onon.		11
Sherburne,	Mass.	11
Sydney,	O.	5
So. Salem, West.		12
So. Wallingford,	Vt.	5
Stroudsburg,	Pa.	11
Strasburgh,	Va.	11
Trenton,	N. J.	18
*Troy, Rens.		23
Tyre, Sen.		11
Thompsonville,	Va.	5
Troy,	W. T.	5
Tiffin,	O.	10
Torrington,	Ct.	13
Torringford,	Ct.	12
Utica, Onei.		31
Ulsterville, Uls.		5
Upper Middletown,	Ct.	5
Union Mills,	Va.	10
Vienna, Onei.		15
Vergennes,	Vt.	12
*Washington City,	D. C.	42
Watsontown,	Pa.	5
Willington,	Ct.	5
Wallingford,	Vt.	11
Wheatland,	Va.	5
Westfield, Chaut.		6
*Whitehall, Wash.		7
West Bloomfield, Ont.		6
West Winfield, Herk.		11
Waterbury,	Ct.	11
Wilmington,	Del.	5
Waterbury,	Vt.	23
Williamsport,	Md.	22
Winchester,	Tenn.	11
West Springfield,	Mass.	9
Walton, Del.		11
Watertown,	Ct.	5
Wilton,	Ct.	7
Windham Centre, Gr.		8
Wilmington,	Va.	34
Washington,	Geo.	5
Williamstown,	Mass.	5
Washington,	Va.	8
Whalen's Store, Sar.		17
Warren,	Vt.	11
West Hartford,	Ct.	14
Warren, Herk.		11
Warsaw,	Va.	11
Worcester,	Mass.	6
Waynesboro',	Geo.	11
Xenia,	O.	7

PRICE CURRENT.

ARTICLES.	New-York. March 25.	Boston. March 21.	Philadelphia March 18.	Baltimore. March 18.
Beans, white,......... per bush.	1 25.. 1 30	1 87.. 2 25	1 50.. 1 75	2 00.. 2 50
Beef, ...cwt..	8 00.. 8 25	7 50.. 8 25	9 00.. 9 50	9 00..10 00
Bacon, western, ...lb....	12.. 16	13.. 14	11.. 12	13.. 15
Butter, fresh,..............lb....	22.. 26	18.. 23	15.. 16	25.. 50
Cheese,. ....lb....	8.. 10	6.. 10	8.. 9	8.. 9
Cotton, best, ...lb....	14.. 17	14.. 20	9.. 15	13.. 16
Flour, best, ...bbl..	8 00.. 8 50	8 75.. 9 00	7 50.. 7 75	7 75.. 8 00
GRAIN—Wheat, ...bush.	1 70.. 1 75	....	1 60.. 1 75	1 70.. 1 75
Rye, ...bush.	1 10.. 1 12	1 15.. 1 20	1 10.. 1 15	1 00.. 1 05
Oats, ...bush.	42.. 52	48.. 50	43.. 46	40.. 42
Corn, ...bush.	87.. 90	94.. 95	84.. 91	75.. 81
Hams, pork,......... ....lb....	12.. 14	11.. 12	12.. 15	12.. 13
Pork, in hog, ...cwt..	....	10 00..11 00	7 25.. 8 00	9 37.. 9 50
SEEDS—Red Clover, ...bush	21 00..22 00	12 50..13 00	13 00..13 50	14 00..15 00
Timothy, ...bush.	2 43.. 2 50	2 75.. 3 00	3 00.. 4 00	.. 3 00
WOOL—Saxony, fleece,...lb....	55.. 65	57.. 62	55.. 60	50.. 55
Merino, ...lb....	45 . 55	50.. 55	50.. 55	45.. 50
1-4 and com.......lb....	36.. 40	35.. 40	35.. 37	35.. 40
Sheep, ... head,	4 25.. 5 50	4 25.. 5 75	1 00.. 2 87	....
Cows and Calves,........	33 00..55 00	30 00..57 00	18 00..40 00	35 00..46 00

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. VI. NO. 3, WASHINGTON-ST. ALBANY, N. Y. MAY, 1839. No. 3.

Conducted by J. BUEL, of Albany.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

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The Debt of the Nation.

The *National Debt*, we believe, has been wholly paid off: but a new debt has since been created, by some of the states, of a greater amount than the national debt ever was According to the late Comptroller Flagg's tables, eighteen of the states have authorized a public stock, most of which has already been issued, and principally for canals, rail-roads and other internal improvements, of about *one hundred and seventy millions of dollars*, which is as much a mortgage upon our farms, as was the national debt. The interest upon this amount, which is ten or twelve millions annually, must be paid punctually, and the principal must be paid ultimately. And it is well to inquire, who owns this one hundred and seventy millions of stock? To whom are we paying ten millions of dollars annually as *interest?* Not, we are sorry to say, to members of our national family, but to foreigners—who are at least aliens to our country, if not secretly hostile to its institutions and its prosperity. Most of the one hundred and seventy millions of American stocks, have been sold in Europe, to pay mercantile balances, or to provide the means of making improvements, many of which, instead of repaying the outlay, are likely for a long time to continue to be a drain upon the treasuries of the states which have made or are making them. It verily appears to us, that some of the states, and our own state among the rest, have become deeply infected with the spirit of wild speculation, which so lately caused distress and individual ruin to many in our land, impaired public confidence, and deranged the ordinary course of business;—and that the states, like the individuals, will learn, when too late, that prudence is the better part of wisdom.

No individual can truly exercise the volition of a freeman, who is deeply involved in debt. He has not always the power of willing and determining according to the dictates of his conscience, or his sense of right. He is, though perhaps sometimes unconscious of it, more or less subservient to the will of his creditor; because he feels conscious that the creditor can harass and harm him. Hence, a man with limited means, who is under no pecuniary obligations, is more independent, if not more honest in his intercourse with society, than he who nominally possesses great wealth, but who holds a portion of that wealth on the sufferance of others. Prudent fathers admonish their sons, as a cardinal rule of life, *to keep out of debt.* It is true that individuals sometimes bolt into fortunes, by an adventurous speculation—but they do not always find, when successful, what they seek—a contented enjoyment of it. But we all know there are ten blanks to a prize in this lottery.

Wherein does the case of the nation differ from that of an individual? A nation is a community of individuals; and what would be prudent in the management of a family, would seem to be prudent and politic in the management of a state or nation. The head of a family often finds it necessary to repress the wild extravagance of the sons and daughters; and where he does not do it, bankruptcy is sometimes the penalty of indulgence. And the managers of a state should exercise a like prudence. If they give way to all the wild schemes of personal aggrandizement, however plausibly concealed under the guise of public improvement, which are pressed upon their consideration, in the hope of either winning power, or winning fame, we think they will betray a great want of prudence, if not a want of principle. The policy of a state *should* be that of a discreet individual—a liberal outlay upon all objects within its legitimate sphere of business—and which promise at least an ultimate interest upon the capital expended. No one would commend, in an individual, an expenditure which should not only *not* return him interest, but which should constitute a lien, and cause a perpetual tax upon his posterity. Feeling none of the fever of party, we conscientiously declare our belief, that millions have been already expended by the state of New-York, or the responsibility of payment assumed, from considerations unworthy the enlightened patriot, which will not, in the present age, pay an interest; but, on the contrary, will operate as an annual drain upon our treasury; and that if this system is followed up—call it either the wild speculation of enthusiasts, or the mad and reckless ambition of party—or the cool calculation of statesmen—the state will soon be in the condition of the foolish farmer, who, to gratify the weak and selfish views of his children, has incurred a greater debt than he can pay—and who must toil hard to pay the interest on the mortgage which covers his farm.—Economy is as commendable in a state as it is in an individual; and though at the present time it may be fashionable with neither, and may subject to ridicule its advocates, it is nevertheless one of the most sterling republican virtues, essential alike to individual and to national independence. It is the parent of plenty, of contentment, and of happiness. It is always most safe to err on the side of prudence, if we do err at all—for error here may be corrected, but it can seldom be on the side of extravagance. Every legislator, before he incurs a new debt, should bear in mind that the state is already pledged for forty millions of dollars, and that the mortgages for its payment are mostly in the hands of foreign capitalists.

Our statute books, for the last few years, bring forcibly to mind Æsop's fable of the dog in charge of the butcher's tray, who, unable to defend it from the avidity of other curs, said—"Well, then, I may as well have my share of the meat," and fell to accordingly, crying, "Here it goes! there it goes!"

We insert the following, as matters of useful record. The data have been collected and compiled by the late Comptroller. The rapid accumulation of debt within the last five years cannot but strike the reader with astonishment; and if it is considered that the state of N. York is already pledged, to the amount of twenty or thirty millions, beyond her present debt to complete internal improvements already authorized; and that some of these improvements are not likely, for a long time to come, if ever, to pay for repairs, attendance, and the interest on the capital loaned—we say, when these matters are duly considered, it will require no argument of ours to show, that we are hastening to a dangerous crisis. Such reckless extravagance in an individual would be branded, by common consent, as the highth of folly, and as highly demoralizing to society.

Statement showing the amount of stocks issued, and authorized by law to be issued, by the several states named below, in each period of five years, from 1820 to '35, and from 1835 to '38.

STATES.	1820 to 1825.	1825 to 1830.	1830 to 1835.	1835 to 1838.	Total.
New-York,	* $6,872,781	$1,624,000	$2,204,979	$12,229,288	$22,931,048
Pennsylvania,	1,680,000	6,300,000	16,130,003	3,166,787	27,306,790
Massachusetts,	....	....	....	4,290,000	4,290,000
Maine,	....	....	554,976		
Maryland,	57,947	576,689	4,210,311	6,648,033	11,492,980
Virginia,	† 1,030,000	469,000	686,500	4,132,700	6,319,050
South-Carolina,	‡ 1,250,000	310,000	....	4,000,000	5,560,000
Ohio,	....	4,400,000	1,701,000	....	6,101,000
Kentucky,	....	....	....	7,369,000	7,369,000
Illinois,	....	....	600,000	11,000,000	11,600,000
Indiana,	....	....	1,890,000	10,000,000	11,890,000
Tennessee,	....	....	500,000	6,648,000	7,148,000
Alabama,	100,000	....	2,200,000	8,500,000	10,800,000
Missouri,	....	....	....	2,500,000	2,500,000
Mississippi,	....	....	2,000,000	5,000,000	7,000,000
Louisiana,	1,800,000	....	7,335,000	14,600,000	23,735,000
Arkansas,	....	....	....	3,000,000	3,000,000
Michigan,	....	....	....	5,340,000	5,340,000
	$12,790,728	$13,679,689	$40,012,769	$108,423,808	$174,382,868

* Of this amount about 4 1-2 millions of dollars has been redeemed. † Virginia has a war debt of $343,139.17, contracted previous to 1820. ‡ South-Carolina has a revolutionary debt of $193,770.12

The debts of the states have been created for the following objects, viz:

For banking,	$52,640,000
For canals,	60,201,551
For rail-roads,	42,871,084
For turnpikes and M'Adam roads,	6,618,958
For miscellaneous objects,	8,474,684
	$170,806,277

Root Culture.

V.—THE TURNIP.

The turnip culture, it has been remarked, effected as great and beneficial a revolution in British husbandry, as the introduction of the steam engine and spinning jenny effected in British manufactures. This crop has there proved a great source of wealth and fertility. It constitutes by far the greatest material for making beef and mutton, as well as for enriching, or keeping up, the fertility of the soil. From an experience of twenty years, in the culture and use of this root, we are persuaded it is destined to become the means of great improvement in American husbandry, when our farmers become more familiar with its culture and mode of preservation and feeding.

In the fourth number of our third volume, we gave particular directions for the cultivation of this root, with several illustrative cuts, and for preserving and feeding them to farm stock; and in our March number of the present volume, we have given an estimate of the product and value of the Swede, compared with other crops which we cultivate for feeding and fattening cattle. It would be superfluous, to repeat these details here, inasmuch as they may readily be referred to. Yet as we have many patrons who may not possess our third volume, we will give some brief directions.

The Swedish turnip, or ruta baga, has a manifest advantage over all other varieties of turnip, as cattle food, being the most nutritive in their properties, and retaining their soundness and richness much the longest. The common varieties, if drawn, as all turnips must be with us, become pithy, or spongy, before mid winter, and lose much of their value; while the Swede rather improves, by keeping, till February; and may be fed in a perfectly sound state till June. And it possesses one quality, not known, that we recollect, in any other root—that of increasing in nutricious matter with increase of size—the largest roots being specifically heaviest and richest.

The reverse of this happens with other roots, particularly with beets, those of medium, or diminutive size, being found to contain a much larger proportion of saccharine matter than very large ones. For table use, the early rock turnip may be sown in the garden, the common flat or green top for autumn and early winter, while the yellow Aberdeen should be chosen for late winter and spring use, being the best keeping variety, when the ruta baga is either not liked or not to be had.

All kinds of the turnip like a sandy and a dry soil; and the ruta baga, in particular, requires a rich one. We have been accustomed to raise the common varieties as a second crop, i. e. of sowing upon a grain stubble, with a single ploughing and harrowing, after the grain is harvested, from the 25th of July to the first of August, brushing or lightly harrowing in the seed. The plants must be thinned and cleaned with a hoe. They should not be left to stand nearer than six or eight inches. If sown broadcast, they yield more, and are of a more suitable size for the table than if raised in drills.

A grass ley is best for the Swede. If an old sod, it should be ploughed in autumn, or early in the spring; and it should be dunged and completely pulverised on the eve of being planted. If a young clover ley, the dung may be spread, ploughed under, the ground harrowed, and the seed immediately put in. We usually select the latter. We cut the clover by the 25th of June, and manure, plough and sow the crop within the ensuing seven days. The seed is generally sown with the drill-barrow, at the rate of a pound to two pounds an acre. It is preferable to sow thick, on account of the fly, and as the crop may be readily thinned when the plants are out of danger.

The turnip fly often commits great depredations upon the crop. This was particularly the case the last season. We cannot recommend any certain preventive. It has however been stated that mixing the seed with sulphur several days before it is to be sown, and then sowing the sulphur with the seed, has preserved the crop from the fly. If this is so, it is owing to the juices of the young plant becoming impregnated with the subtle properties of the sulphur, which is obnoxious to every species of insect. Another mode, which has been successfully tried, is that of collecting the weeds in piles around the field, when the seed is sown, and when the plants are coming up, to put brimstone and fire upon the piles on the windward border, which will continue burning, ordinarily, for some days, and the smoke of which expels or destroys the fly.

In the after culture of the Swede, there is great economy in taking time by the foretop—in destroying the weeds while they are small. The cultivator or hoe should be passed through as soon as the rows can be well discerned, and as nigh to the plants as possible. One days' work is worth more in destroying small weeds than four days work is in destroying large ones, which overtop and choke the plants. The objects which should be aimed at, are to keep the crop clean, to thin the plants to eight or ten inches, and to keep the surface of the soil mellow. With a timely use of the cultivator, and repeated once or twice, these objects may be effected without great aid from the hand hoe.

The labor of harvesting the ruta baga is less than that of any other root, except perhaps the mangold wurzel; and indeed the remark will apply to the labor of culture without any qualification. Other root crops require attention nearly two months longer than this does, and at a season too when their growth is slow, and the labor consequently tedious and expensive.

The turnip should be the last crop gathered, because it grows the longest, is least liable to suffer from frost, and is most apt to be injured by fermentation, when collected in heaps for winter. If buried in pits, the roots should be raised above the surface of the ground, and laid up to terminate in a ridge—so that when they are covered with straw and earth, the heated or impure air of the pit will concentrate at the ridge on the top, where it should be suffered to pass off freely, through holes made for this purpose.

The cost of raising the ruta baga is less than that of raising corn, or any of the other roots. The average product may be stated at 600 bushels, and it is often double this quantity. The root is an excellent food for every species of farm stock, and is very extensively used for fattening both beef and mutton. Milch cows fed with ruta baga should have daily access to salt; and should the milk retain any flavor of the turnip, it may be got rid of by turning a pint of hot water into a pail full when it is drawn from the cow. Tops that are undergoing fermentation, and roots that have partly decayed or are unsound, should be given only to hogs.

THE TURNIP FLEA,

Is one of the greatest scourges to British husbandry. The Farmers' Magazine contains a learned article upon this insect (*Haltria rumorium*) giving us its natural history, and containing an examination also of the various remedies which have been recommended to prevent its destructive ravages, embracing the applications of lime, sulphur, soot, urine, fumigation, &c. Although these remedies, or some of them, are admitted to have had partial success; yet none of them, in the opinion of the writer, Mathew M. Milburn, can be depended upon with any degree of certainty. He thinks Mr. Poppy's plan of protecting the Swede valuable, which is to drill between the rows the common turnip, which the flea seems to prefer to the Swede, and when the latter has acquired the rough leaf to plough up the common turnip—yet he concludes by saying, that if attention is paid to the following particulars, he thinks the crop may be generally saved.

"1. Hasten the germination of the seed by all natural means as applying some portion of stimulating manure, sowing when a proper degree of moisture exists, and in close connexion with the manure, to secure to it at once the benefit of it to the roots, if possible, making most of the season when favorable.

"2. Sow a liberal quantity of seed, never less than three pounds, and sow it in drills, which will hasten the vegetation after it has come up.

"3. Clear the land perfectly, that no weeds may spring up to impede the growth of the plants, and give the soil a liberal supply of manure suited to its character.

"4. As a preventive, rid the soil by hand weeding, horse hoeing, &c. as much as possible of weeds.

"5. Select good seed, and test it before sowing, to see how many germinate, and in how little time."

Schools of Agriculture.

Propositions for establishing schools of practical and scientific instruction in agriculture, have been before the legislatures of Ohio and Kentucky, and we believe of Maryland, during the last winter, with what success, we are at the time of writing this unadvised; and the subject has been agitated in other states. In New-York, we have an act of incorporation for the establishment of such a school, and we only lack the liberality, we may say the patriotism, to put it into speedy and successful operation.

We ask our citizens of wealth, who are willing and desirous to do something for the future prosperity of the state, and we know there are many of this description, to give this subject a few moments consideration; to reflect upon the bearings which schools of this kind may have upon the industrial, the moral, the political, and the social institutions of their country—upon themselves and their posterity; and to decide whether they can render a greater good towards promoting these great objects of national and individual happiness, than in aiding in the establishment of these schools. They have sons whom they wish to see established in honorable and independent circumstances. What situation more honorable, or more independent, than that of an intelligent cultivator of the soil? At the meeting of the American Institute in 1837, the remark was made to us by two elderly gentlemen, one from New-Jersey and another from Albany, and at different times, that twenty years ago, they were acquainted with almost every importing dry good merchant in the city of New-York, and that now there was not half a dozen of them alive and in good business! A moment's reflection will satisfy the experienced, that the mercantile business of our country is overstocked; that it is deceptive, hazardous and dependent—because its success must depend upon the good will, and often upon the honesty, of others, and sometimes upon contingencies that are prejudicial to the country. Will you send your sons to the learned professions? The avenues to these are already choked with votaries—and it is not the sons of wealth who generally distinguish themselves here—poverty and want—self-dependence—are the great stimulants here to industry and success. And to make your sons merely gentlemen—to consign them to idle habits, or to make them the miserable dependants of official patronage, is the greatest disservice you can render them. It is a truth which few will deny, that most of the men of capital and of influence of the present day, are those who have from necessity been brought up to habits of business, and who have risen by their personal exertions; while many of the sons of affluence, from a lack of good early habits, have degenerated in property, in usefulness, and in character.

Further—every man is interested, deeply interested, in the general character of the society around him. If this is bad—if his neighbors are idle and ignorant, they are consequently poor, and are apt to be vicious. If they are intelligent and industrious, they are wealthy and respectable. Hence the importance to all, of rendering labor intelligent and productive. And the character and welfare of the state depend emphatically upon the character and welfare of the agricultural population. They are decidedly the primary source of our wealth, and the conservators of our republican habits and institutions.

Agricultural schools constitute one of the most important improvements of the age. They are calculated to make men industrious and useful, who would otherwise be idle and useless—to make those moral who might otherwise be immoral. Their tendency will be to improve society in various ways, without any apparent drawback to the benefits they promise to confer. And however slow we may be to adopt them, they *will* be established, they *will* be popular, and *will* yet largely contribute to IMPROVE THE SOIL AND THE MIND—to increase our wealth—to render us more independent, individually and nationally, and to beget a more enlarged, liberal and tolerant spirit in our people and in the administration of government.

Do we desire to make our sons lawyers, doctors or merchants, we feel the importance of placing them under *good masters*, who will teach them the principles and the practice of their business. Yet in husbandry, which involves more science than any other pursuit, which exhibits all the gradations in practice from very good to very bad,—and which is the great business of the state,—we seem not to care *who* teaches our sons, *how* they are taught, or indeed whether they are taught at all.

Having been invited to give our opinion as to what would be a suitable provision for an agricultural school, and as to the manner of conducting such a school, we shall answer the inquiries by giving an abstract of the report made in 1833, to the New-York State Agricultural Society, on this subject, and by stating some of the prominent features of the act to incorporate the New-York State Agricultural School.

The report commences by stating, that the main objects of an agricultural school are, to impart to this great branch of labor the efficient aids of science, and to furnish it with the best models of practice;—to teach, simultaneously, in the period of academic life, the practical operations of husbandry, and such branches of useful knowledge, as may tend to increase its products, and elevate its character,—or, in other words, the *objects* may be defined to be—*to make the man*—THE WHOLE MAN—THE USEFUL MAN.

To effect these objects, the plan should embrace—

1. A farm of sufficient extent to afford room for the diversified operations of tillage, cattle and sheep husbandry, and of orcharding and gardening, on a scale that will admit of a fair comparison being made of crops, of breeds of cattle and sheep, and of the varieties of hardy fruits; and sufficiently diversified in soil and surface to admit of satisfactory experiments:
2. A farm-house and farm buildings, which may serve as models of convenience, taste and economy, and accommodate the head farmer and his assistants:
3. A school building, to accommodate teachers and pupils:
4. A library and philosophical apparatus:
5. Stock and implements for the farm: and,
6. Shops for the construction of farm implements and machinery for the use of the farm, for the illustration of mechanical science, and to afford practical instruction to the pupils in mechanics.

The plan of education might embrace—

1. Practical instructions in all the various operations and labors of the farm, the garden, the orchards and the shops; and,
2. The study of the natural sciences generally, chemistry, the higher branches of mathematics, mechanics and drawing, so far as they may conduce or become subservient to agricultural improvement—together with such other branches of knowledge as will qualify the pupils for the higher duties of life—such as will fit them to become independent electors, discreet jurors, faithful magistrates, and wise and honest legislators.

As prerequisites to admission to the school, the pupils might be required to possess a good common school education, to be at least fourteen years old, and of good moral character. Four years might constitute a course of studies to make good farmers in practice—and gentlemen in intellect and manners. The police of the school might, in a measure, be conformed to that of our military school.

A department of the farm should be set apart for experiments in husbandry, and the details and results of these experiments should be accurately registered. The garden and the orchard should contain all the good hardy fruits, and specimens of all hardy plants, that may be useful on the farm, in the arts, in commerce, or that are ornamental—in order that the relative value of different species and varieties may be determined, and their mode of culture, and process of curing, taught to the pupils—and the approved kinds furnished for public distribution.

To put the school into operation, there will be required a principal, professors, teachers, a steward, &c. for the school; a first rate farmer and assistants for the farm; machinists for the shops; and a practical and scientific gardener for the garden and orchard.

The preliminary expenses, for the purchase of a farm of 400 acres, erecting the buildings, providing the library, apparatus, stock, furniture, &c. was estimated at $57,550; the annual expense, for the first year, including salaries of officers and others, and boarding 200 pupils, at $23,400—making an aggregate of $80,950. The income of the school, including the products of the farm, and the tuition and board of 200 pupils, at $150 per annum, was estimated at $34,000—thus giving an excess over the estimated annual expenditure, of $10,600—and showing, after making a liberal allowance for contingencies, &c. that the income would amply suffice to maintain and improve the school and farm, and to pay an interest upon the capital invested. The committee considered one hundred thousand dollars a sum adequate to the establishment of an agricultural school upon a broad and liberal scale, that will insure great benefit to the country, and a reasonable income to the proprietors.

The law incorporating the New-York State Agricultural School, authorizes a capital of $100,000, with liberty to increase it to $200,000. It contemplates a farm of four to five hundred acres of land, with suitable buildings, &c. It limits the dividends of the shareholders to five per cent per annum; and, in order to secure an efficient education in the practice, as well as in the theory, it requires, that during the eight summer months, the teachers and pupils shall devote at least one-half of the time to the practical business of the farm, the garden, or the shop.

In Ohio, an excellent spirit has been manifested.—Two individuals, we are informed by our correspondent, have offered donations of $5,000 each, and a great many have offered less sums, towards establishing such a school. In Kentucky it is proposed to raise money by loan, to establish such a school.

We believe the public mind is becoming fully satisfied of the utility of agricultural schools, not only as an efficient means of improving our agriculture, but as a means of fitting for usefulness, and for high public duties, a great many young men who have the misfortune to be born rich, and who are therefore in danger of dying poor, for want of some *respectable* employment, and an early instruction in its duties. Men of all classes in society, to whom we have broached the subject, *speak* in high commendation of the project, and profess a desire to educate their sons in such an institution.—Our late worthy fellow-citizen, James Caldwell, got up a subscription, on the event of a disastrous fire, for the relief of his fellow sufferers, he being a large sufferer himself. On presenting it for signatures, all expressed great sympathy, and were sincerely *sorry* for the distress of their neighbors. "*Sorry!*" exclaimed the philanthropist—"*how* MUCH *are you sorry?* Although myself a sufferer, *I am sorry for them* FIVE HUNDRED DOLLARS. Now please to write down *how many dollars* you are sorry." We would apply this anecdote to our school. If all who WISH it success, would DO a little—or would express their good wishes in *dollars*, the work would go bravely and speedily on. One hundred individuals, by a liberal combined effort, would not only merit, but would command success.

"It is said," remarks the Rev. W. E. Channing, in his lecture upon self-culture, "that any considerable education lifts men above their work, makes them look with disgust on their trades as mean and low, makes drudgery intolerable. I reply, that a man becomes interested in labor, just in proportion as the mind works with the hands. An enlightened farmer, who understands agricultural chemistry, the laws of vegetation, the structure of plants, the properties of manures, the influence of climate, who looks intelligently on his work, and brings his knowledge to bear on exigencies, is a much more cheerful, as well as a more dignified laborer, than the peasant, whose mind is akin to the clod on which he treads, and whose whole life is the same unthinking, unimproving toil. But this is not all. Why is it, I ask, that we call manual labor low, that we associate it with the idea of meanness, and think that intelligent people must scorn it? The great reason is, that, in most countries, so few intelligent people have been engaged in it. Once let cultivated men plough, and dig, and follow the commonest labors, and ploughing, digging and trades will cease to be mean. *It is the man who determines the dignity of the occupation, not the occupation which measures the dignity of the man.* * * * A man in the field seems to have more chance of improvement in his work, than a man behind the counter, or a man driving the quill. It is the sign of a narrow mind to imagine, as many seem to do, that there is a repugnance between the plain, coarse exterior of a laborer, and mental culture, especially the more refining culture. The laborer, under his dust and sweat, carries the grand elements of humanity, and he may put forth his highest powers. I doubt not there is as genuine enthusiasm, in the contemplation of nature, and in the perusal of the works of genius, under a homespun garb as under finery."

A matter of deep interest to the West.

It appears from the report of the Commissioners of the Canal Fund, of the current year, that there has been a *falling off*, in the last three years, in the amount of wheat and flour brought to tide water through our canals, independent of that coming from other states and territories, of *thirty-two thousand five hundred and thirty-six tons*, equivalent to *one million two hundred and fifty thousand bushels of wheat!* i. e. the surplus crop of West New-York, was one and a quarter million bushels less in 1838, than it was in 1835.

Whence this great diminution of product? Not from there having been less sown in 1837 than there was in 1834—for it is believed that the quantity sown in 1837 was at least one-tenth, if not one-fifth, greater than in 1834. This was caused by a larger amount of land being brought under culture, as well as from the high demand for this staple product. The deficiency was not owing to bad culture—for the culture, it is believed, has been gradually improving; nor to a bad season—that of 1838 being at least equal to those of ordinary occurrence; and although *a* grain worm, long known there, committed partial depredations, *the* grain worm which has for some years been the scourge of the east, does not seem to have reached our western borders.—The cause of the decrease is the same that has been operating, time out of mind, in the old settled districts of our country, and which has been travelling west—it is BAD HUSBANDRY—that *skinning system,* which takes all from the soil, and returns to it nothing.

We have often adverted to the fact, that wheat was once the great staple of East New-York; and that the district of country which formerly supplied our commercial capital with wheat and flour, extending one hundred miles north and west of Albany, does not now grow enough for its own consumption. The remark will apply with more or less truth to most of the old settled country east of the Allegany range of mountains.—Wheat is very much like our improved Short-Horn cattle;—it pays well under good treatment, but soon fails from lack of proper food. It is the first crop to betray bad husbandry—that indicates a deterioration of soil. A great portion of the Atlantic border was once as prolific in wheat, and as greatly extolled for its fertility, as the now famed west. But our ancestors followed up the exclusive *plough, pasture* and *meadow* system—made annual drafts upon the riches of the soil, without making deposites to meet them—till neither wheat, nor hardly any thing else valuable, would requite them for their labor. The same inconsiderate course, we fear, is fast exhausting the fertility of the west. Wheat being the most valuable product, it is repeated at intervals of one or two years, and often every year, till the soil, like a worn down ox, can do them no further service. Whereas, were the soil kindly dealt by—were wheat returned to it not oftener than once in four or five years—were manures faithfully applied, and suitable crops alternated—it would, like the well kept animal, improve with use, and be a blessing to coming generations. Wheat is one of the most exhausting crops that is cultivated upon the farm; it requires specific food, of which most soils possess but a small portion; and although it has been grown in successive years upon some, there are very few old cultivated lands which will give an undiminished crop, oftener than once in four or five years, under a good system of husbandry. The remark has been made to us by several gentlemen, that in the last few years, the product in wheat, at the west, has not been any thing like what was expected from the strength and appearance of the straw. In all primitive formations, great *straw* may be grown by making the land rich with dung; but the wheat, the good wheat, will be found lacking.

We will here again allude to a fact communicated to us by T. Burrall, Esq. Mr. B. manages an excellent wheat farm in the vicinity of Geneva; he has made and applied much manure, and is, withal, a very observing and intelligent agriculturist. He kept an accurate account of his wheat crops for twenty-one years after he began to clear up his farm. Dividing the twenty-one years into three equal periods, he told us that the average product of the first period was twenty-nine bushels of wheat the acre—of the second period twenty-five bushels, and of the third period but twenty bushels.—Mr. Burrall's error was probably the common one, that of recurring too often to the wheat crop. But this case will serve in a measure to explain the cause of the falling off of the wheat crop in West New-York, a million and a quarter of bushels, in the short period of three years.

The prospect before us, in regard to this great staple of our state, would be disheartening, but for the consideration, that we *can* do better than we have done—and for the determination, which we hear expressed on every side, that we *will* do better. We have seen, in our day, many farms and even districts, which would not grow wheat, and which were reduced to the verge of barrenness, so renovated and enriched, by the improved husbandry, as to yield, at proper intervals, crops of twenty, and thirty, and sometimes forty bushels of wheat to the acre, and other products in proportion. What *has* been done, *can* be done again, and *must* be done, even in the west, unless our western brethren will profit by our errors—and act upon the principle, that it is better to *preserve* than it is to *restore* fertility.

The fault of the western farmer, and it *was* the fault of the eastern farmer, is precisely that of the youth born to fortune. He finds himself surrounded, and he stops not to inquire either *how,* or for *what purpose*—with the means of gratifying his grosser appetites—his eating, drinking, idle and avaricious propensities—with a rich and fertile soil—and he dashes on to the gratification of these appetites, unmindful alike of his ultimate interest, and of his duty to posterity. Wheat! wheat!! wheat!!! is the grand desideratum—we may say his almost entire reliance, for wealth and happiness. Like the foolish shepherd, who endangers the life of his flock, by taking from them two clips in a season; or like the silk culturist, who would kill the tree to feed a second crop of silk worms—the western wheat farmer forgets that nature has her laws, which cannot be violated with impunity—and that a violation of them will lead alike to the death of the animal and the plant, and the impoverishment of the soil. So completely infatuated have most of the wheat farmers been, in all periods of the history of our country, with the prospects of present gain, that they have neglected, till impelled by necessity, those considerations of prudence and foresight, which must ever serve as the grand land-marks of good husbandry. What credit is due to the son of wealth who wastes and spends his paternal inheritance? What credit is due to the farmer, who exhausts the fertility of the soil—nature's patrimony to the human family—to subserve temporary gain? Moral turpitude attaches alike to both. They both pervert the manifest intentions of a beneficent Providence.

We have travelled in some of the wheat districts of the west, and we have noticed, with painful sensations, the general disregard there to the maxims of good husbandry. Man seems to be improvident in proportion as nature has been bountiful—to develop his foresight, his skill and his industry less, where he has the ten talents, than where only one talent has been given to him. With, to be sure, many honorable exceptions, little attention is paid, in the wheat districts, to alternate husbandry, to the rearing of cattle, and to the economy of manures—the true sources not only of agricultural wealth, but the only sure means of perpetuating the fertility of the soil.

We invite our readers of the now fertile west, to take a retrospective survey of the history of the land of their fathers—of the once fertile east—and of the east, too, which is itself now profiting from its past experience and past errors—to mark the progress of its soil in deterioration, and the causes of this deterioration—the errors of their fathers in the management of its soil—and to act upon the trite maxim—that "an ounce of prevention is worth a pound of cure." They *have* a rich soil, which, like the princely estate, may soon be wasted by extravagance and folly. Let them use it—let them preserve it—let them live upon the interest, without impairing the principal. Then may they truly say—*we are wiser than were our fathers.*

It is a good rule, and one that ought to prevail where local circumstances will permit, that manure enough shall be made by the farm stock, from the straw, stalks, hay, and other resources of the farm, to manure one-fourth of it annually. After a few years' culture of new lands, good arable crops cannot be calculated upon without manure. If we should see an occupant of a Dutchess county farm, which has been brought to a high state of fertility by a good system of husbandry, cropping his grounds continually, without applying manures or alternating with grass—until they were exhausted of fertility—we should think him a bad farmer, and many would consider him a bad man. And yet wherein would his case differ from the reckless farmer upon new rich lands. The fertility, in one case, is the gift of Providence; in the other, it has been restored by the prudent industry of man: in both cases it is annihilated by his selfishness or his folly, and in both cases are the community alike sufferers.

The late Gen. Humphreys, of Connecticut, speaking of the improvements in agriculture, which have stood the test of practical and scientific investigation, enumerates the following, which we beg to commend to the notice of all, whether on new or old land, who would "*thrive by the plough.*"

> "1. The system of farm-yard manure, wherein every decomposable matter, animal and vegetable, is stored, to be used on the fields in regular succession.
>
> "2. The modern practice of using all manures as recently as possible. It is now well understood, that plants are nourished by the gases and juices formed during the gradual decomposition of manure, all which are lost in the old plan," of summer yarding.
>
> "3. The practice of farm-yard feeding, and sheep-folding, connected with the turnip husbandry.
>
> "4. In the substitution of fallow crops for fallows. It is true that fields are sometimes so foul with weeds that a fallow is necessary. In England, where a farmer is compelled to fallow a field, he lets the weeds grow into blossom, and then turns them down: in America, a fallow means a field where the produce is a crop of weeds *running to seed,* instead of a crop of grain.
>
> "5. In the more spirited husbandry of turnips and potatoes [and beets,] for feeding cattle, and of carrots in sandy lands.
>
> "6. In never permitting two grain crops to succeed each other. A fallow crop (that is, a horse hoed crop,) or a grass crop, always intervenes.
>
> "7. In selecting for pastures and meadows, those nutritive grasses that do not destroy each other, and that spring up at the same season.
>
> "8. In the great attention paid to agricultural machinery: to thrashing mills, to chaff-cutters, to drills and drill ploughs, to scarifiers, &c.
>
> "9. In cultivating plants of obvious profit, as madder, weld, [woad,] &c."

We will only add, that when Gen. Humphreys wrote, 1812 or 1814, the improved system of draining was not practised, nor had the culture of the Swedish turnip, mangold wurzel, or sugar beet been introduced.

The Privileged Classes.

We have, in the United States, say the journals of the day, eighty-eight colleges, twelve law schools, ninety-six medical seminaries, thirty divinity schools, and somewhere about one thousand academies, more or less sustained by legislative bounty, for the almost exclusive benefit of the learned professions, which do not comprise, probably, one-twentieth part of our population. We have not a single college, seminary or school, for the particular improvement of the other 19-20ths of our population—the farmers and mechanics—who earn our wealth, pay our taxes, and fight our battles—although,—we speak it in the spirit of truth,—the country would be more benefitted, in its wealth, in its morals, and in its politics—far more benefitted—by extending to the laboring classes a higher standard of learning, in what especially concerns their business, than it is from the aid which it now gives to the non producing classes. It is a republican maxim, that all should participate alike in the public bounty. But the maxim has not as yet been adopted by our legislators.

It is not too late to plant Trees,

About the dwelling, or upon the farm. "The shade of trees is highly grateful to man, whether reposing under a single tree, or in a state of recreation under the shadow of a row, or in an avenue, grove or woodland path."—*Loudon.* "Shelter is not more useful in cold seasons, than the shade of trees is gratifying to cattle in hot ones. In an exposed open field, and under a burning sun, the torture which cattle often endure, is truly distressing."—*Lang.* "In a country so eminently favored as this, by the vast number of the beautiful and magnificent varieties of trees which embellish our forests, compared to those which are indigenous to Europe, it is not a little surprising, that a deeper interest has not been developed, for rendering them tributary to the health, comfort and pleasure of the people, by considering them as indispensable to the completeness of a country residence, and the public edifices, squares, grounds, and highways, as are any of the appendages which are deemed useful, ornamental or agreeable in either."—*Gen. Dearborn.* There is no man, who planted a single tree in his youth, which lives and thrives, but looks back to that act of his youth with pride and self-gratulation; and there is hardly one such that does not regret that he had not planted more.

Moisture, Air and Heat,

Are all indispensable to the germination of the seed, and to the preparation, in the soil, of the vegetable food; and, with the further aid of light, are alike indispensable to the growth and maturity of the plant. A great object of tillage, and of keeping the surface mellow in hoed crops, is to admit these agents freely into the soil. Organic or animal matter may remain insoluble for years, when buried in the soil, and deprived of one of these agents; and seeds may lay dormant for centuries, it is believed, when deprived of their agency. Hence the first rule in ploughing is to expose the greatest surface to atmospheric influence; and this is done, not by laying the furrow-slice flat, when only the upper surface is exposed, say ten inches, if the furrow is so broad, but by lapping the furrows on to each other, by which more than twenty inches are exposed to atmospheric influence; with this further advantage, that with the flat furrow, an excess of water stands upon and injures the soil, while every lapped furrow-slice forms a conduit for passing it off.

"Teaching by Example."

C. Harbin, Esq. writes us from Mocksville, N. C. March 14, as follows:

> "I am much pleased with the private letter published in the February number, from your Hartford correspondent, and think that much can and ought to be done in the way he suggests, by those who feel interested in the great work of agricultural improvement. I met with the same difficulty in recommending the reading of agricultural periodicals to a certain class of our farmers, who, although industrious, hard-working men, and possessing some degree of general intelligence, reject every thing in the shape of book-farming, and hang on to the good old way, as they call it. Such prejudices can only be removed by the perseverance and industry of those around such men, by a frequent interchange of opinions with them, and occasionally reading to them such articles as may be most likely to make a favorable impression, and as fast as possible induce them to take an agricultural paper; because whenever a man will begin to read, I think his prejudices will begin to totter, and finally fall to the ground. You may set me down as a gratuitous agent for your paper at this place, and I hope to reap my reward for the interest I have taken in the work, in seeing a gradual improvement among the farmers of my neighborhood. The mind must be very dark that rejects the whole of the light thrown out through the columns of the Cultivator, and the other periodicals now published upon the subject of agriculture; and I think that by continually knocking at the door, some light will finally enter, and ere long the whole become lighted up. *Enclosed is your subscription paper, upon which you will find forty-seven names!* for the sixth volume."

Cedar Quarries.

On asking a friend from Oswego, the other day, who used this term, what it meant, he informed us, that much of the cedar which comes from Lake Ontario, is absolutely *dug out of the soil.* On some of the islands in that lake, which furnish great quantities of this valuable timber, there has not been growing a single tree for many years. Generation has apparently succeeded generation of this timber, and fallen, and been successively covered with earth, and is now *dug* out for rail-roads, fence-posts, &c. in a perfectly sound state.

American Society for the Diffusion of Useful Knowledge.

We conclude, to-day, the answer of the Executive Committee of the American Society for the Diffusion of Useful Knowledge, to the charges brought against it by our New-Hampshire correspondent. We do not wish to be considered either a party or an umpire, in the controversy, and shall therefore leave our readers to draw their own conclusions. We objected to the library which the society had got up for common schools, not so much on account of its demerits, as from its deficiency in works of intrinsic value to an agricultural population. And we furthermore doubted the competency of exclusively literary, professional and mercantile men, however good their intentions, to make a proper selection of books, suited to the wants, the tastes and the improvement of an agricultural population; for however intrinsically good books may be, they will do no good except they are read; and they will seldom be read when they are adapted neither to the tastes nor interests of those into whose hands they are placed. Few professional or mercantile men take an interest in reading works upon agriculture and rural economy. They, of course, are not competent judges of such works, and the society has, perhaps, acted wisely in omitting them altogether in their selection. The laboring community feel a like indifference to works of mere literature and taste. They would remark as an excellent farmer once did to us, when walking through our flower garden—"What are all these things good for? You can neither eat nor drink them, nor sell them for money." Men must acquire a taste for the flowers of literature, as well as for the flowers of nature, before they will admire or cultivate them. We must propitiate the husbandman, by teaching him how to increase the profits of his farm, before we can persuade him to devote his time to the embellishment of his garden. There is a natural gradation in these matters, and unless we begin right, with what is most likely to become useful as well as agreeable, we shall fail in our object. And as to the apology which is made for acknowledged deficiencies, while it may exonorate the managers from blame in the selection, it abates nothing of its faults. There was no obligation on the part of the society to get up a library, any more than there was in any other society, or individual. It was altogether a voluntary matter; and our regret, and we fear the public misfortune is, that it did volunteer, with the slender means, and precipitate hurry, which are urged in its excuse.

After attentively examining the defence, we are disposed to accord to the gentlemen managers of the society, an honest intention of doing a public service; yet we must question whether they have been successful to the extent which the name and character of the society led the public to expect.

One circumstance will not fail to excite surprise, and that is, that although we are furnished with the names of ninety-six officers, who have either positively or tacitly consented to bear the honors conferred upon them, to say nothing of the ordinary members of the society—we say, that notwithstanding the ninety-six officers—the wonder is, that only *twenty-five* individuals seem to have contributed any thing to the funds of the society! and that but *fourteen* of these have apparently contributed any thing more than the initiating fee!! We do not notice this to disparage the services of the few gentlemen who have devoted their means and their time to the professed philanthropic objects of the institution; but to mark the indifference which the American public manifest towards an institution which *might*, under proper encouragement and support, be of invaluable service to our country. It is a problem which remains to be solved, whether under existing circumstances, it will be easier to *mend* the old, or to *make* a new society.

We have been inadvertently drawn into the discussion of this matter, from a desire to fulfil a duty to our agricultural patrons. It has taken a turn which we did not anticipate, foreign to the objects of our paper. We have published the charges and the defence, and must decline any further notice of the controversy.

Mr. Weld's Manual Labor Report.

This report, drawn up by Thos. D. Weld, agent for the Society for promoting Manual Labor in Literary Institutions, contains a number of interesting facts and testimonies on the subject of manual labor, *when applied to literary institutions;* not as affording instruction in the business which the pupil is to follow for a livelihood—for life—but as a means of promoting physical health, moral health—and as having a salutary influence in developing the powers of the mind. In this case, it will be seen, the physical and mental powers do not act reciprocally. The mind is benefitted by the manual labor of the body; but it does not give back, to productive labor, aught that can simplify its operations, increase its profits, elevate its character, or multiply its enjoyments—because the object of the pupil is, not to learn to live *by* labor, in the common sense of the term, but to live *without* labor—to gain health and vigor of intellect, without gaining a knowledge of the arts of labor, with the view of making them the pursuit of life.

We beg the reader to bear these facts in mind, while he reads the extracts which follow; and to consider, with how much greater force they would apply in a school of theoretical and practical agriculture—where the study and labor would not only be directed to a common point—to the intended business of the pupil for life—but where study would instruct and lighten labor, and labor illustrate and enrich study. Theory and practice, in the learned professions—in the manufacturing and mechanic arts, are reciprocal aids, and agreeable companions. They call into action, when thus blended, our highest powers; they awaken the deepest interest; they excite the purest pleasures; they produce the most beneficial results. Who will say, that all these happy influences would not be realized in a school of agriculture, where the field of observation and improvement is illimitable, and where the object of study and of labor, is emphatically, to augment the happiness of the great human family? They *would* be realized. The experiment has been made, and has succeeded; and other countries, which, from political and contracted considerations, we are accustomed to consider below us in the scale of civilization, are reaping the benefits of these institutions; while we, who claim to be the most free and enlightened people upon the globe, are reposing in ignoble apathy—and striving, not who can, or will, do the most to promote the common weal—but who can do the most to promote his own interest, regardless of the common weal.

By the introduction of manual labor into literary schools, Mr. Weld contends:

"1. *The student would be kept busy.* In the present system, there are three or four hours in all our institutions, during which the student is set free from all requisitions. He has *nothing to do.* Then, if universal experience proves any thing, he stands upon slippery places. It was when the unclean spirit had found the house *empty*, that he introduced seven other spirits fouler than himself. Let any man visit our literary institutions, and take an inventory of facts upon this subject, and he will be convinced that hours of idleness are a gift to the student, originating in very questionable benevolence. In fine, modern education, by throwing into the hands of youth a number of vacant hours each day, *holds out a premium to insubordination*, and practically legalizes those innumerable devices of mischief, indecency, and outrage, which abound in our literary institutions. Instead of surrounding the forming character with bulwarks of defence, it opens a thousand avenues of access, and surrenders the individual to indiscriminate assault. Yea, more; it furnishes temptation with a passport to its victim, smooths the way for it, beckons it onward, and by refusing to make those requisitions which would keep it at bay, becomes its endorser, appears as its apologist and its advocate, and pleads for justification of the ruin it produces. Whereas, if this defect in the existing order of things should give place to a regulation which would fill up with suitable exercise those hours of idleness so perilous to the student, he would be kept 'out of harm's way.'

2. Sufficient exercise would be a preventive of moral evils *by supplying that demand for vivid sensation so characteristic of youth*, whose clamors for indulgence drive multitudes to licentious indulgence, or to ardent spirits, tobacco, and other unnatural stimulants. It would preserve the equilibrium of the system, moderate the inordinate demands of animal excitability, and quell the insurrection of appetite.

3. Sufficient exercise would operate as a preventive of moral evils, by removing those *causes* of irritability, jealousy, fickleness, and depression of spirits, which are found in an unhealthful state of the system. In corroboration of these views, permit me to introduce the following testimony.

'The most effectual security against external and internal causes of corruption, is *constant occupation*; and without this, *no system of discipline can be efficient.* * * * And it is especially important, while the character is yet unformed, and the appetites and passions yet unaccustomed to submission and self-denial.'—*Annals of Education.*

'Industry is the great moralizer of man. The *great art of education*, therefore, consists in knowing how to occupy *every moment in well directed and useful activity of the youthful powers.*'—*Fellenberg.*

'The declaration is as trite as it is true, that *exercise promotes virtue, and subdues the storms of passion.*'—*Dr. Harris of Philadelphia, on Physical Culture.*

'Labor of all kinds favors and facilitates the practice of virtue.'—*Dr. Rush.*

'Make men work, and you will make them honest.'—*John Howard.*

I. *The manual labor system furnishes exercise natural to man.*

That agricultural and mechanical employments are natural to man, is an obvious inference from the arrangements of Providence God designs that the human race generally should engage in these employments. He has placed men in circumstances which require it; and are those kinds of exercise for which infinite wisdom designed the human system, *ill adapted* to that system? Can human ingenuity devise an *artificial* system, better adapted to the necessities of man than that which God has prescribed?

'*Manual labor*, has in my opinion, decided advantages over *gymnastic exercises.* In addition to the superior moral influence which it is calculated to exert, the *kind* of exercise is better adapted to promote the healthy and vigorous action of the system.'—*Dr. Brown, late Physician to the N. Y. Hospital.*

'It appears, I think, from principle, as well as experience, that horticulture and agriculture are better fitted for the promotion of health and sound morals, than any other human occupation.'—*Dr. Caldwell, Professor Med. Depart., Transylvania University, Ky.*

II. *It furnishes exercise adapted to interest the mind.*

Agricultural exercise, and various mechanical employments interest the mind of the student,

1. By presenting a variety of objects to allure his attention.

2. By the successive changes effected in these objects *by his own efforts*, and the different forms which they continually assume under his hand, as the work goes on.

3. By the exercise of ingenuity, tact, and skill which they demand.

4. By the associating idea of their *usefulness*, not merely to himself, but to his country, and the whole family of man, in multiplying the comforts and conveniences of life; in promoting practical habits, and giving countenance to industry.

'No mode of exercise can in ordinary cases be compared, either as to profit or pleasure, with some kind of *efficient labor.*'—*Rev. Dr. Woods, Andover Theol. Sem.*

'If two or three hours ought to be spent in healthful exercise, why not employ those hours in the pleasant occupation of horticulture, agriculture, or mechanics.'—*Rev. Dr. Alexander, Princeton Theol. Sem.*

'I am equally convinced, that *manual labor* of some kind, is *peculiarly* adapted to this end,'—[for the purposes of exercise.]—*Professor Goodrich, Yale College.*

III. *Its moral effect would be peculiarly happy.*

IV. *It would furnish the student with important practical acquisitions.*

A practical acquaintance with agriculture and gardening, with some knowledge of mechanical employments, and skill in the use of tools, are accomplishments more than convenient to every man, whatever his station in life; accomplishments befitting the nature of our government, and the character of a republican people.

'Who would not wish for the capacity to help himself, on a thousand little occasions, at home and abroad, when a familiar acquaintance with the use of common mechanical implements, would enable him to avoid those many vexations which are wont to arise from the absence of mechanics, and their want of punctuality; which are so precisely suited to annoy the very persons, who take the least care to provide against them.'—*President Humphreys, St. John's College, Annapolis, Md.*

V. *It would promote habits of industry.*

Habit is formed by the repetition of single acts. To be constantly employed is to be forming a habit of industry.—*Constant occupation is the peculiarity of the manual labor system.*

VI. *It would promote independence of character.*

Exercise is the universal law of improvement for the faculties of the mind, as well as the powers of the body. If the memory is to be improved, it must be exercised. If scope is to be given to the imagination, stability to the judgment, and energy to the reasoning powers, the object can be accomplished only by the exercise of the several powers. Giving, enlarges benevolence; daring, increases courage; enduring, augments fortitude; and *self reliance promotes independence.*

Independence is an intelligent reliance upon one's own resources. If we would develop this principle, we must call it into action; and how shall it be called into action, except by creating a *necessity* for its action by throwing the individual upon his own resources; thus not only developing, but multiplying them? That system, then, by which the student can support himself with the least amount of aid from others, is manifestly better calculated than any other to promote independence of character. This, the manual labor system accomplishes.

When will a child learn to walk if it is never set upon its feet? He who bears all his weight upon others is in a fair way to become a cripple; and he must either lose his legs, or throw away his crutches.[*]

VII. *It would promote originality.*

The student who has been accustomed for years to tax his own resources for the supply of his wants, has formed a habit of inestimable value to his *mind.* Habituated to resort to himself for the means of his own support, he would be far more likely to construct his *intellectual* fabrics from the materials of his own producing. Instead of being a petty retailer of other men's wares, he would have a wholesale manufactory of his own. Let a demand be made upon such a man for thought, and instead of applying to his library for aid, and fumbling over every thing, from a commentary to a catechism, he will dig in the depths of his own mine, coin the metal in his own mint, and stamp it with his own image and superscription.

VIII. *It is adapted to render permanent all the manlier features of character.*

A system of seclusion, inactivity, idleness, and dependence, has a tendency to weaken the strong points of the character, and render it sickly and effeminate.

On the other hand, a system requiring activity, industry, exposure, energetic action, and self reliance, incorporates into the still forming character, the elements of firmness, decision, perseverance, courage, constancy, and generous self-sacrifice. It produces a commodity which the exigencies of our own age call for with deafening clamor, but which is a scarcity in the modern market—*manhood, full grown manhood.*[†]

IX. *It would afford facilities to the student in acquiring a knowledge of human nature.*

Whoever would understand human nature, must lay bare the springs of human action; the pulsations of the naked heart must be seen. The natural successions of thought and feeling must be marked as they come and go, and these lessons must be conned often and long, if he would be more than a mere smatterer in the science of human character. But how is the student to witness these exhibitions? Students generally are introduced into the higher classes of society, as they are called; and they will hardly get a glimpse at them there; where etiquette is law, actions are measured by rule, and the heart studiously covered up. The middling and lower classes of society, which are not wrapped up in the innumerable folds of ceremony, nor entangled in the endless meshes of fashionable forms, furnish the best text book in the science of the heart. But how shall the student narrow down the distance between the learned and the laboring classes, and thus get sufficiently near the latter to see them as they are? He may mingle with them a lifetime, but if he cannot make them *feel at home with him*, he can never see that unobstructed flow of thought and feeling which constitutes nature. He must first remove that instinctive aversion and prejudice which keep them from him; and these cannot be done away effectually, except by removing the causes which produce and perpetuate them; and the *main* cause is total dissimilarity in habits and mode of life. *Similarity of habits* strikes a common level, produces familiarity of intercourse, establishes a bond of union, and excites a feeling of mutual interest.

Let our students put on a working dress, and spend three hours a day in agricultural or mechanical employment, and they would disarm the laboring man of his prejudices, and beckon him toward them. That discontent, jealousy, envy, disgust, and those heart-burnings, which keep in a ferment the laboring classes in the vicinity of our higher seminaries, would give place to kindlier feelings. These classes would become approachable—a brotherhood would be established—and the student would enjoy a variety of facilities for acquiring a knowledge of men as they are, which would otherwise be denied him.

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[*] "I cannot here omit particularly noticing, a quality of the manly character which our effeminate education is continually rendering more scarce. This is a certain wise confidence in our own powers, which prevents us from crying out for help, or falling into despair on every trifling occasion—a quality which must be at the bottom of every great or little enterprise, and which is indispensably necessary to enable us as men and citizens, to preserve a certain independence."—*Salzman.*

[†] "In a word, industrious habits of daily labor will metamorphose a book-worm into a *man*; a man prompt and ready for all emergencies.—*a man of the nineteenth century.*"—*Professor Staughton, Med. Col. Ohio.*

X. *It would greatly diminish the expense of education.*

XI. *It would increase the wealth of the country.*

Such a system would enable the sons of our farmers and mechanics, to acquire a thorough knowledge of those branches of science whose *practical application* to agricultural and the mechanic arts, would greatly increase both in quantity and quality the productions of the soil, and enhance the value of mechanical products. The benefits resulting to the *farming interest especially*, from a thorough acquaintance with the sciences of chemistry and geology, are little appreciated in comparison with their practical importance.

The system would increase the wealth of the country in another respect. In our academies, high schools, colleges, and professional seminaries, there are not far from thirty thousand youths. Let each of these fill up three hours a day with productive labor, and he makes no inconsiderable contribution to the resources of his country. He multiplies the means of subsistence, and augments the common stock of conveniences and comforts. These thirty thousand, by laboring three hours per day, would furnish an addition to the productive labor, and of course to the wealth of the country, equal to the labor of at least five thousand working men, who should labor ten hours per day. Besides this, the manual labor system would increase the wealth of tbe country, by contributing to its *health* and *muscle*, and no less to its *mind.*

XII. *It would tend to do away those absurd distinctions in society, which make the occupation of an individual the standard of his worth.*

Let the contents of our sixty colleges, and fifty professional seminaries, with a thousand academies and high schools, pour themselves into our fields and workshops, and there, for three hours each day, ply the implements of agriculture and the mechanic arts, would it not have a powerful tendency to render labor honorable, and the laboring man more respected?—Would it not create sympathies between the learned and the laboring classes, a permanent community of feeling, and identity of interests?

The thousand repulsions arising from dissimilarity of habits, which have so long operated to estrange them from each other, cease with the causes which produced them. Instead of being driven asunder by jealousies, and smothered animosities, they approach each other with looks of kindness, and form a compact, based upon republican equality, and the interchange of mutual offices of courtesy and kindness. He who does not perceive in such a system a tendency to these results, has mingled little with men; and however profound in other things, is a novice in human nature.

XIII. *It would have a tendency to render permanent our republican institutions.*

This would be the result of such a state of society, as has just been noticed. The elementary principles of republicanism are equality and reciprocity, its basis industry, economy, practical habits, general intelligence, and morality. We have seen that the connection of manual labor with study is calculated to produce these effects, and consequently to perpetuate our republican institutions."

A Compliment to our Correspondents.

The two hundred correspondents, who have given a value to the Cultivator, cannot but feel deservedly flattered by the following, which we quote from a letter, dated

"*Nashville, Tenn. March* 4.

"I have, independent of the $70 above, placed in the hands of Messrs. Trabene & West, 15 or 20 dollars, since they consented to become agents for the Cultivator. When the merit of the work was unknown in this section of country, I found it difficult to get an agent for the work; *but things have vastly altered.* I have no doubt, and I feel fully warranted in saying, that the circulation of the Cultivator, in middle Tennessee, has done more to improve our agriculture within the short space of eighteen months, than eighteen years would have done without it."

The compliment and invitation which are subjoined, by the writer, to the conductor, are very gratefully received, and the latter will be accepted, as soon as circumstances will permit.

A Comparison.

By comparing matters that are rather abstruse, with objects that are familiar with our senses, we often bring home to the understanding, truths of much practical benefit. The farmer who profits nothing from the better practice of his neighbor, but depends solely upon his personal experience, may be compared to the isolated spring, which bubbles from the earth always the same. The farmer of more enlarged mind, who sees and adopts the better practises of his neighborhood, may be likened to the brook, made up of the waters of several springs and which propels the water-wheel of the manufacturer. While the farmer who combines science with practice—who profits from all the improvements of our land, and of other lands, may be likened to the noble Hudson, which is fed from ten thousand fountains, and which bears upon its bosom the riches of every clime. Let those who consider the comparison bordering on the extravagant, contrast the powers and usefulness of a Fellenbergh or a Thaer, of a Chaptal or a Davy, of a Sinclair or a Coke, whose labors are adding millions annually to the products of the soil, to the drivelling ignoramus, who is delving in conceited ignorance, exhausting those riches of the soil, which Providence designed for his posterity.

The Corn Laws of Great Britain,

Are often spoken of in the public journals, without their object, or their operation at home or abroad, being generally understood by the American reader. The better to illustrate the matter, for it is a question which, if our agriculture ever reaches the state of improvement which it ought to reach, that may deeply concern Americans as well as Britons, it is proper to premise, that the farmers in Great Britain are not generally the proprietors of the land which they improve, but merely tenants to the nobility and gentry, who are the land owners. The rates of rent depend materially upon the ability of the farmer to pay; and this ability depends upon the price of grain in the market; the higher the price the better ordinarily for both landlord and tenant. Leases are given for different terms, often for twenty-one years; and if the improved condition of the farm and the price of grain will warrant it, the rents are raised at every renewal of the lease. To protect these two classes, or rather the first of them, or in other words, to secure a home demand, and a good price for the products of British husbandry, free from foreign competition, the corn laws impose a heavy duty upon foreign grain coming into British ports, so great as to amount to a prohibition, except in times of great scarcity, when the average price in market is sixty and seventy shillings the quarter of eight bushels. Were foreign grain admitted free, or by paying a nominal duty, prices would fall, and rents would have to come down, or the farmers be ruined. This explains the reason why the northern products of American agriculture are virtually excluded from British ports.

The continental powers of Europe have greatly increased the products of their agriculture, since the establishment of a general peace; and finding that these products will not be received on fair terms for British manufactures, they have been for some years turning their attention to the manufacture of their own goods. The consequence has been, that the demand for British merchandize has been constantly lessening in these countries, until the manufacturers, and a portion of the merchants, have become seriously cramped and alarmed; and meetings are now being held in all the manufacturing districts, to petition for a repeal of the corn laws.

On the one hand it is alleged, that if the corn laws are repeapled, and foreign corn admitted free of duty, English farmers, burthened as they are with heavy rents, tithes and taxes, can never sustain a foreign competition; that prices will consequently fall; that rents must come down; that the land holders and tenantry must consequently suffer severely; that the culture of poorer lands must be given up and abandoned; that the farm laborers, unable to obtain employment at prices by which they can live, will be reduced to want and misery; and that ultimately every class will be seriously injured.

The merchants and manufacturers, on the other hand, contend, that a reciprocity of trade can only secure the custom of foreign nations; that many of the manufactures have been stopped, the workmen thrown out of employ, and reduced to want; that the corn laws operate in favor of the land owner, at the expense of the merchant and manufacturer, the great supporters of British power, and the great sources of British wealth.

At our last dates matters were assuming a serious, if not an alarming aspect. Lord Melbourne, the premier, had declared in the House of Lords, that it would be the wildest and maddest scheme imaginable, to leave the agricultural interest unprotected; and in both houses, ministers oppose the repeal of the corn laws, and are supported by heavy majorities. In the mean time a radical convention was sitting in London, of which O'Connell and the Rev. Mr. Wade were active members. In reference to the determination of the government not to repeal the corn laws, and the strengthening of the military power of the throne, the convention recommend a rural police,—every man to go armed with a bludgeon, and to resist any attack on his person, &c. The Woburn, or Duke of Bedford's estate, is pointed out as among the spoils to be divided, if the landlords and capitalists, who are denounced, as "robbers, traitors and murderers," do not yield to the people—that they ought to be pursued by fire and sword, &c. All Yorkshire is said to be actually armed.

This state of things in England should admonish us, sedulously to protect our own resources, the agricultural and manufacturing labor of our country, and to avoid those enormous burthens upon agriculture, which there have become necessary, to pay the interest on an immense national debt, and to maintain, in idle extravagance, a privileged nobility, and a host of sinecure pensioners.

Wire Ropes.

It will be remembered, that many lives were lost during the last year, by the tiller-ropes of steam-boats being burnt off, when the boats have taken fire, thus leaving the boat and its passengers at the mercy of the stream and the fire, without the means of running the boat on shore. Samples of wire tiller-ropes for steam-boats, and also of wire tow-ropes for canal boats, have been left for examination at the Cultivator office, patented by J. McCord, of Harrisburgh, Pa. The tiller-ropes are already in extensive use in steam-boats on the Mississippi and Ohio; are three-eighths of an inch in diameter; have two strands of one hundred wires each, and, when submitted to a white heat, and cooled instantly in water, are as pliable as a hempen rope. The other sample is one-quarter of an inch in diameter, and has three strands, embracing one hundred and twenty wires. The larger kind is sold at twenty-eight cents, and the smaller at twenty cents per foot. We consider this a useful invention, calculated alike to economize expense and to preserve human life.

G. Farnham, No. 7 West-street, New-York, is agent for the patentee.

Items of Intelligence.

"Nothing," says Sir H. Davy, "is more wanted in agriculture, than experiments in which all the circumstances are minutely and scientifically detailed—this art will then advance in proportion as it becomes exact in its methods."

A Steam Threshing Mill has been put in operation in Switzerland. The machine is a five-horse power, and portable. It may be set at the barn-door. A few quarts of coal suffices for half a day. It requires but two men to tend it; and their work is equal to the labor of ten men with flails.

The state of Maine paid a bounty last year, of $87,352.39, on 1,107,849 bushels of wheat raised in that state; and $66,628.80, on 1,630,996 bushels of Indian corn—making an aggregate of $153,981, paid in one year, "to encourage agriculture."

THE BUDGET.

Under this head, we shall hereafter notice such correspondence as our limits will not permit us to give in detail, and such as requires to be noticed in a summary way. We have considerably increased the contents of our sheet, by the use of small type, yet our correspondence has been so enlarged as to compel us to condense some portion of it.

DWARF BLUE IMPERIAL PEA.

Joseph Kellogg, of Holland Patent, Oneida, a veteran of 72, has sent us an account of the field culture of a remarkable large blue garden pea, which he believes to be the dwarf blue imperial, and which he highly recommends. Mr. Kellogg received a handful of these peas in 1834, which were then selling at $6 per bushel; from this small beginning, he was enabled to raise, last year, twenty-four bushels of extraordinary beauty, and perfectly free from the bug. Mr. K. considers the pea as the best preparatory crop for wheat. In locations where the pea bug does not prevail, and on suitable soils—and clay loams and clays are the best—the field culture of garden peas, for seedsmen, may be made a lucrative concern. At present, most of the garden peas sold in the shops are imported, and sell at high prices.

APPLE ORCHARDS.

Philo Mix, of Waterbury, Conn. has sent us an interesting communication, recommending the attention of the young farmer to the cultivation of orchards, for farm stock and for family use. Mr. Mix remarks, that the old orchards in Connecticut have most of them died from old age, and that very little effort has been made for many years to replace them. Our correspondent seems to have been long familiar with the propagation, transplanting and management of fruit trees. He urges the importance of care in taking up trees, so as to preserve the fibrous roots—the mouths; and of making large holes to set the trees in, that the roots may have their natural position; of surrounding the roots with fine surface mould; of pressing the earth firmly round them, and of spreading upon the surface, around the tree, some litter or coarse dung, to counteract evaporation, to protect them from the cold of winter, and to prevent the growth of grass. Mr. Mix prefers autumn planting, and that the orchard be tilled two or three years, taking care, however, not to cut or bruise the roots or the stem in the operations of tillage. Mr. M.'s directions are all proper and beneficial.

REMEDY AGAINST THE BLACK ANT.

Joseph F. Plummer, of Richmond, Ia. sends us the following:—"Put half a tea-cup full of tanners oil—the more rancid the better—in a large dinner plate, or any vessel as shallow and broad, and set it on the floor of the closet, close the door, and in a day or two the ants will disappear. We have had them feasting in our sugar barrel, and by setting a plate on the sugar, with a cloth steeped in the oil, they soon left; and indeed I know of nothing more offensive to insects than the smell of this oil."

Mr. Plummer is informed, that there *is not* any agent in the United States, that we are advised of, for the importing of foreign cattle and horses; and that we receive subscriptions at all seasons.

SILK CULTURE IN POOR-HOUSES.

G. W. Forman, of Fleming county, Ky. asks—if it would not be a good plan to establish the silk culture in the poor-houses through the United States? We concur with him in the opinion that it would. We have urged the propriety of adopting this plan some years ago. And, to adapt the business more to the ability of the children and invalids of such establishments, we recommended that the mulberry be cultivated in hedges, or as shrubs, rather than as trees, to facilitate the gathering of the leaves.

AN AGRICULTURAL GLOSSARY—THE CORN CROP.

It is suggested by W. P. Vail, of Stroudsburgh, Pa. that we give a glossary of those terms in the art and science of agriculture, which are not generally understood. We gave a glossary of chemical terms in No. 1, of vol. iv. and we propose to carry out further the suggestions of Mr. Vail, as soon as opportunity will permit.

Mr. Vail says, that twenty-five bushels of corn per acre is deemed a good average crop, in his neighborhood; and that his neighbors are rather sceptical of their being able to get eighty bushels per acre. If they will plant northern seed, at the distance we plant, feed every acre with twenty-five good loads of long manure, on a dry sandy or loamy soil, and cultivate as we cultivate, our Stroudsburgh patrons may have their doubts removed in this matter. The great bar to heavy crops of corn at the south, is the tall habit of growth, which necessarily requires thinner planting, and, we fear, a scantiness of dung to feed the crop. The Pennsylvania mode of planting, 4 by 3, gives but 3,600 hills to the acre; and if there are but two stalks in a hill, it gives but 7,200 stalks. In our mode, 3 by 2½, and four stalks in a hill, we get 5,808 hills, and 23,232 stalks—and every stalk will yield at least one good ear—*if the crop is well fed and well worked;*—but upon poor ground, or even upon rich ground, without good manuring, all the stalks would not produce ears, nor would all the ears be good ones. The business of corn raising is the manufacture of dung into grain; and without a plenty of the raw material, we cannot expect a great abundance of the manufactured article. There is scarcely any farm crop that makes a more liberal return for manure than Indian corn.

THE MULTICAULIS.

"Some complaints are made here by your subscribers," says our Georgetown, (D. C.) correspondent, "because you do not *encourage* the cultivation of the morus multicaulis. Many of my neighbors have been inocculated for the disease, and some have taken it in the natural way. I hope they may not be much *pitted* by it." We hope so too; and doubt the propriety, therefore, of administering *stimulants* during the paroxysm of the *fever*. But we can say to our patrons on the Potomac, that our remarks in regard to the multicaulis have been meant to apply to the north. We do not doubt the tree may grow well, and *sell* well, and become a profitable and useful article of culture, perhaps in all the country south of New-York—but *here*, while we think it no better than other and hardier varieties, we should feel it a dereliction of duty to encourage its extensive culture, especially if it is to be purchased at the present high prices.

THE DESTRUCTIVE SYSTEM.

Luke Fish writes from Brush Creek, Ohio—"We are three miles east of the *Great* Miami, which, by the way, is not very great here. Our land is very flat in general, with large timber, beech, ash, bur-oak, hickory, lime, poplar, elm, buckeye and some walnut. Land rates from ten to twenty dollars an acre. Farming with us is in a most wretched condition—to take *all off*, and put *nothing on*, is all the go here." This system has been *all the go*, in the old east, till the meal-chest has become empty—the field wretchedly poor. We beg our patrons in the west to pause, and to consider the inevitable tendency of this *destructive* system of farming.

NEW DISCOVERIES.

A worthy friend in Lancaster co. Pa. B. Clendenon, writes us, what seems to be new to him, and what we fear many have not yet found out—1. That our doctrine in regard to manure constituting the proper food of plants is orthodox; for, says he, "some corn that I manured lightly, was fifty per cent better than that alongside without manure;"—and 2. That the government expends millions of dollars annually, "for the benefit of the commercial interest, while the agricultural interest is left to take care of itself, though I admit it is incidentally aided by commercial facilities."

EXPERIMENT IN HARVESTING CORN.

S. Hitchcock, of Sharon, Ct. has sent us the result of an experiment which he made last season, in harvesting Indian corn; and we are pleased to find that the result corresponds with the results of our experiments, made in 1837 and 1838—and shows a manifest advantage in *cutting up* over *topping* the stalks. "I counted off 48 hills," says Mr. Hitchcock, "and cut them up at the roots. I counted off other 48 hills, and topped them according to the old mode. On harvesting, I found by weight, that there was at the rate of eight bushels per acre more corn on the cut up, than on topped corn. There was no manure on the spot experimented upon, and the crop was not large, otherwise the difference might have been greater."

Mr. Hitchcock asks what grasses will grow in a maple grove. It will be difficult to make any flourish, unless the ground is first ploughed. The orchard grass and white clover will, we think, do best under the shade of trees.

REARING CALVES WITHOUT MILK.

We have several inquiries as to the most economical mode of rearing calves. The practice of many, and we are included in the number, is to take the calf from the cow at three days old, and to give it sweet milk ten or fifteen days, and afterwards skimmed milk, with a gill of flour or Indian meal, till it is fit to wean, at twelve weeks old. This is the common mode. The following, from the Bath Society papers, is perhaps a better, if not a cheaper mode.

"The following is as near a calculation of the expense of rearing my calves, without milk, as I can at present assert. In the year 1787, I weaned seventeen calves—in 1788, twenty-three, and in 1789, fifteen. I bought, in 1787, three sacks—[three bushels each]—of linseed; I put one quart of the seed to six quarts of water, which by boiling ten minutes, became a good jelly; this jelly is mixed with a small quantity of tea of the best hay, steeped in boiling water.

"Having my calves to drop at different times, I did not make an exact calculation of the expense of this hay-tea; but out of my three sacks of seed, I had better than two bushels left at last. I gave them the jelly and hay-tea three times a day. To the boy who looked after them, 6d. (11 cents) per day: the price of the linseed was 4s. 6d. (say $1) a bushel: the whole three years' feed £2.5s. ($10.) My calves are kept in a good growing state, and are much better at this time than my neighbors, that are reared by milk; they do not fall off so much when they come to grass."

We beg of our dairy folks, who are in the habit of murdering their calves at their birth, to save milk, to try the above mode. Here were fifty-five calves raised at an expense, in linseed jelly, of about 18½ cents each, with hay-tea and attendance, as cheap here as in England, without a particle of milk. If interest does not prevail, humanity should.

As a cure for *scouring* in calves, mix a ball of wheaten flour and chalk with gin, and give them—or lay before them a lump of chalk, which they can lick.

To young calves, the food, be it sweet or skimmed milk, hay-tea or linseed-milk, as it is called, should be given of a temperature similar to cow's milk when first drawn; as they advance in age, the heating may be gradually dispensed with; and wisps of hay should then be placed before them, in order to induce them to eat. Barley, Indian corn and oat-meal may be given in small quantities in their drink, and increased as they advance in growth. Beets, shredded fine, are said to be excellent for calves, when they get four or five weeks old.

MR. OSBORN'S PREMIUM CORN.

Mr. Osborn has felt called upon, by the remarks of Mr. Dodd, to send us a corrected statement of the profits of his corn crop. He has made his crop debtor for board, threshing, keeping team, &c. a little more than $17, in addition to his former charges, making the expense of an acre $37.85. The manure he still makes no account of, as he says it will sell for nothing, and he can get it from others for carting away. But he also adds to the credit side $6 more for stalks, upon which he says he has kept almost entirely sixteen head of cattle during the winter; and he also raises his corn to $1 per bushel, the market price. So that in striking the new balance, he makes the nett profit of the acre $96.65, instead of $87.71.

TRANSPLANTING EVERGREENS, &c.

Mrs. Sarah Battell, of Norfolk, asks directions for transplanting the white pine and rhododendrons. In addition to the directions in our last, we advise, that a circle be made round the pine or rhododendron to be taken up, with a spade, of such diameter as to embrace the principal roots; that the spade be inserted six or eight inches, or below the roots, and that the plants be lifted carefully, with as much earth as will attach to them, and that they be planted two inches deeper than they stood in the forest, and the roots covered with litter, well wet, and then with earth. In this way we transplanted six large white pines on the 8th July, at midday, thermometer at 82°, and the sun shining bright—all of which lived and are doing well.

We recognize in our correspondent, an amateur florist and pomologist; and we would be glad to instruct her in the means of preserving her fruit trees and her flowers. The diseased branches of the plum should be cut off and burnt *as soon as the disease appears*, and not *periodically*, as has been the practice of our correspondent. We have improved the health and growth of our pears, we think, by throwing round the collars of the tree some shovels full of tan. We have considered a clay soil so essential to the plum and pear, that we have deposited a barrow full of this earth in the hole intended for a plum or pear tree, and about its roots.

The *Brake—(Fern)*—of which our fair correspondent's neighbors complain, and which one says, "will ruin me—will run out my pasture and my meadow," can only be overcome by labor and perseverance—by subjecting the land to thorough tillage, and by collecting and burning, when necessary, the *root* of the evil.—*Ferns*, of which there are many species, are cultivated in Europe, as rare and scarce plants, but in no case, we believe, as useful ones. And yet they cannot be said to be without their use: they admonish the slothful, that if he would enjoy the treasures of the soil, he must win them by the "sweat of the brow." Mrs. Battell's "Cardinal," or "Eye-Bright," is noticed in our floral department, under the name of "*Lobelia*," which is the Cardinal flower.

QUERIES.

"1. What kind of manure is best for a sandy soil, with clay three feet below the surface?

"2. Is deep or shallow ploughing the best mode to protect such a soil, in order to make it produce clover, or small grain?"

ANSWERS.

1. The answer to the first question depends upon the inclination of the surface; but any vegetable or animal manure is good. If the surface is flat, the soil will be inclined to be cold, and will be benefitted by warm unfermented manures; if sloping, fermented or colder manures may be preferable. Unfermented manures should be applied to hoed crops; fermented manures may be applied to small grain crops.

2. The deeper the better, to the extent of twelve inches, provided that the soil to this depth can be made sufficiently rich. Deep ploughing, with the above contingency, should be resorted to once in a course of crops, be it a course of four or six years. But if the soil is poor, it should be deepened gradually, as the means of fertility can be imparted to it.

TEA TREE.

Geo. N. Burwell, of Buffalo, wishes to know the address of the gentleman who cultivates the tea tree, so called, in Ohio. Who will inform him?

The greatest clogs to improvements in agriculture, are indolence, ignorance, and self-conceit; wherever their influence extend, they paralyze the very earth, and produce sterility.

CORRESPONDENCE.

Leached Ashes and Brine—Steaming Ruta Baga.

New-York, April 12, 1839.

Judge Buel—I noticed in your April Cultivator, a communication on the subject of the use of leached ashes, and suggesting advantages to be derived from a mixture of salt or brine, in its application, of which I am disposed to think favorably, and shall try its utility in the western part of this state, where the soil is of a sandy and gravelly loam, and where we have abundance of leached ashes, & where we have used them without much apparent advantage. I, however, must differ entirely with Mr. Easton, as to its utility upon clay soil, having used it in connection with a few loads of manure, at the rate of seventy-five bushels to the acre, some twenty-five years since, on a clay soil, some two miles west of Hartford city, where nothing but five fingers grew; a very stout crop of herds grass and clover was brought forward the first season, and continued a first rate piece of meadow for some years, until I removed from there. And had I clay soil now, I should apply ashes, with perfect confidence of its great advantage.

The distribution of saline qualities over land, must, I think, be attended with beneficial effects. We may at any dry time observe the dampness of the soil where there has been brine turned out, continuing for a length of time; and from this fact, we have a right to anticipate advantages. Its connection with leached ashes may be advantageous, or it may not, farther than in the mode of distributing it. This we must learn from future published experiments.

One of your correspondents complains of the quality of his beef, as made from ruta baga, which I suppose must arise from his having fed it raw. I had a steamer put in operation last fall, made sufficient to contain twenty-five or thirty bushels, which were well steamed in less than three hours; and several hogs and one ox, were fed and fatted on steamed rutas. The ox, with about six weeks feeding, made very fair beef, and my folks say they never ate better. There can be no question but steaming is a great improvement in feeding all kinds of roots, and I am inclined to the belief that all unpleasant flavors may thereby be avoided.

My box for steaming, was made with a door on top, to put in the roots, with a door at the end to haul them out when done, into a cooler, secured by scantling, let in to each other, in the manner ship-carpenters steam plank.
AGRICOLA.

Inducements for Cultivating Fruit.

J. Buel, Esq.—Feeling desirous in common with you as conductor, and the numerous readers and correspondents of the Cultivator, of "improving the soil and the mind," I have taken the liberty of extracting from a periodical I took some years ago, from a subject the title of which is "Fruit a substitute for ardent spirits"—The writer says, "I am fully of the opinion that the habits of temperance and intemperance in different nations, are to be ascribed to some extent at least, to their possession or want of an abundance and variety of fruit, particularly of the finer and more delicious kinds.

The temperance which prevails in the south of Europe has been ascribed to the general use of wine.—That this is a cause of very considerable influence cannot be doubted. For the tendency of wine to produce an intemperate appetite is far less than that of distilled spirits or malt liquors. But when it is considered that in the northern countries of Europe, those wines only are held in estimation which are fitted to produce excitement, and that to a considerable extent they are subservient to intemperance; while in Italy, for instance, where intoxication is of exceeding rare occurrence, those wines are preferred which are sweet and pleasant to the taste, and that they are used solely for the purpose of refreshment; it becomes necessary to look out for some other cause for the singularly temperate use which is made of wine itself in the southern countries of Europe. This cause, it is believed, will be found in the use of fruits, which are very abundant in those countries where the vine flourishes. But the tendency of wine to create an intemperate appetite is comparatively so small, the quantity of weak and therefore harmless wine made and consumed in countries producing the vine is so great, and so excellent is the fruit itself, that the vine may doubtless with propriety be cultivated for the purpose of checking intemperance.

In the United States of America, though well fitted for the production of fruit throughout nearly their whole extent, drunkenness or intemperance is every where common. This may perhaps be considered an anomaly. But it admits, I think, of a satisfactory explanation. The original settlers of this country were principally from the British Isles, and brought with them a taste for fermented liquors, which they had contracted in their native land. For a long period they were of necessity wholly destitute of fruit, with the exception of a few inferior kinds which grew wild. And even to this day the more delicious fruits, such I mean as are suited to the climate, are by no means extensively raised. On probably nine-tenths of the farms in what may be termed the old states, there is little fruit of any value, with the exception of apples, and these often not grafted. Peaches were formerly common, but now they are very rare, though with a little pains easily raised in any quantity. English cherries, with the exception of a few places, are by no means abundant. Good pears in any considerable variety are seldom seen. And strawberries, raspberries and gooseberries, are cultivated in only a small number of gardens. Here and there an individual is attentive to the raising of fruit. Though but few families, probably not more than one in five hundred, are well supplied the year round with the various fruits suited to the season. Hitherto, therefore, in this country the use of fruit can have had but a partial influence in promoting temperance.

The manner in which fruit is made to supply the place of fermented liquors is easily explained, and the statement, it is believed, will correspond with what most persons have experienced or observed. In the intervals of our regularly established meals, we all occasionally, and very many of us constantly, either feel, or fancy that we feel, the need of some slight refreshment. At such times, if fruit is not to be had, many persons resort to fermented liquors, and thus insensibly lay a foundation for intemperance. But if they are in possession of delicious fruits, these are almost always chosen by temperate people in preference to the choisest wines. This need of refreshment is more especially felt in summer, consequent upon the exhaustion occasioned by heat and fatigue. Fruit is then found to answer the double purpose of quenching thirst, and recruiting exhausted animal nature, and in the most perfect manner. It is a consideration also worthy of remark, that when our friends visit us, the feelings of hospitality very justly prompt us to set before them some refreshment, a refreshment not only generally acceptable, but often needed. Those who have no fruit very commonly offer their friends some kind of fermented liquors, the very thing, perhaps, which is neither needed nor desired. But those who have fruit, almost invariably bring it forward, and to the evident satisfaction of their guests. And when fruit and liquors are both presented, the first is seized with avidity, and the wine, the strong beer, and the spirits are generally left untouched. The man, indeed, whose appetite is not satisfied with the delicious fruits alone, already possesses a dangerous fondness for spirituous liquors. It may be thought by some, that the laboring classes of the community would set but little value upon the substitute here proposed for ardent spirits. Whether they would or not, it is certain that the use which they make of ardent spirits is detrimental.—But what reason can be assigned why they should value fruit less than other men. They have the same appetite, and fruit is equally refreshing to them. The reformation of drunken laborers, by the substitution of fruit for ardent spirits, is certainly not expected; nor indeed the reformation of any class of drunkards. But in those cases where the natural taste has not been vitiated by the use of ardent spirits, it is believed that fruit would be chosen by laborers invariably, in preference to ardent spirits—allowing at the same time, that they were properly aware of the danger of intemperance. Nothing certainly can be conceived of, more suited to the wants of a laborer, toiling in the dust or sun, athirst and weary, than a plate of strawberries, a melon, or basket of cherries, or peaches, or apples.—With these and other fruits, which might easily be raised in sufficient abundance, together with some simple drinks, as common beer, milk and molasses and water, and cider when desired, the laboring classes of the community would undoubtedly be able to perform the greatest quantity of work, with the highest health, and in the best spirits.

The expense of cultivating fruit is much less than is generally supposed. In the court-yards and gardens connected with most houses, there is ground sufficient—and ground usually unoccupied—for raising in abundance, every variety of fruit suited to the climate, with the single exception of apples. The original expense of procuring the trees is trifling; and even this may soon be wholly saved, by a little pains in raising them. That which is indispensably necessary, and which constitutes the principal difficulty in the way of procuring fruit, is the frequent attention requisite for preserving the trees from injury while young, for improving the fruit by introducing good sorts, and keeping up a continued supply. But this requisite attention makes no serious encroachment upon the time; and those who have bestowed it, have found themselves abundantly compensated by the pleasure and healthfulness of the occupation, aside from the direct enjoyment of their labors.

Very great exertions are now making, to banish all improper use of ardent spirits from our land. In these exertions, every Christian and every philanthropist must rejoice. Since the commencement of these exertions, the importance of providing substitutes for ardent spirits has frequently occurred to the benevolent, and various substitutes have been suggested. In recommending fruit for this purpose, it is not designed to have it take the place of other suitable substitutes; but to have it introduced into their number, with that rank and importance in the scale to which its just claims may entitle it."

If in your judgment, there is any thing in the foregoing extract, worthy a place in the columns of the Cultivator, you can insert it. It is submitted entirely to your consideration. Yours, SIMEON McCOY.

Deckertown, March 1st, 1839.

Query.

Westmoreland county, Va. 1839.

The machine for taking off the heads of clover seed, having performed its office, how is the seed to be cleaned, or prepared for market? An answer to this would greatly oblige A SUBSCRIBER.

ANSWER.

The seed is to be taken off in a machine constructed for this especial purpose, called a clover machine, which costs $60 to $70, one of which will serve for a neighborhood. See article Clover, in the editorial department of our March No.

Inquiries in regard to Hedges.

Saline county, Mo. February, 1839.

Mr. Buel—Sir—Permit me to say, that I feel highly gratified to find developed in the columns of the Cultivator, so much useful information to all classes of society, and that I feel a particular interest in common with many of my fellow-citizens, in its circulation and the adoption of its principles in the far west.

Agricultural improvement is certainly one of the most laudable of all pursuits, for thereby the interest and happiness of all classes of society are greatly advanced; and as this seems to be the primary object of your highly useful periodical, permit me, sir, to draw your attention, and, (through your columns,) also your intelligent correspondents, to a circumstance relative to some of the most fertile districts of country west of the Wabash and Mississippi rivers, which greatly retards the progress of agriculture and population: It is the very great scarcity of timber for fencing. This circumstance is at present a barrier to a large portion of our country, best adapted to agricultural purposes. Your attention therefore, to the following inquiries, sir, will be very gratifying, and may be extensively useful in the great valley of the Mississippi.

Can we not enclose land by hedging? If we can, what is the best mode or material to be used for that purpose? How should the hedge be treated, and where can we get the seed or quicks? Will not the pyracantha, or evergreen thorn, answer for that purpose? Can any kind of shrubbery be made to grow, to hinder animals from the size of a pig to the sturdy ox, from passing through or over it? Please to give us such information on this subject as may come within your knowledge, or that may be communicated. In doing so, you will, no doubt, save us from many fruitless attempts in the way of fencing, and confer a favor not to be forgotten.

We feel, sir, that we have a right to view the situation which you now occupy, (compared with our opportunity of information,) as a focus of intelligence, on the subject above stated. Any observations, therefore, which you make, (apart from our particular inquiries,) will be gratefully accepted. A. F. BRUCE.

REMARK.

The subject of hedges has been fully canvassed in our fourth volume, to which our correspondent is referred. We doubt if the evergreen thorn would be stout enough to stop cattle. The seeds of hedge plants, and of forest trees, might be obtained from the Atlantic border. See our numbers on planting, volume iii.—*Cond.*

New Disease in Sheep.

Moray Farm, Fairfax co. Va. Feb. 22, 1839.

J. Buel, Esq.—Dear Sir—Will you allow me to solicit your aid in eliciting information through the columns of the Cultivator, which may enable myself and others to understand the cause and treatment of a disease which has recently attacked my sheep. The subjects affected are ewes with lamb. The symptoms, in most cases, are total blindness—a twitching of the limbs, similar to a nervous affection—apprehension of fear, and a state of indolent lassitude, much inclined to lie down, from apparent stupidity. The symptoms in all are very similar, with the exception of the loss of sight.

While writing, will you allow me to request Mr. Whalen, who speaks of his drill-barrow, at page 59, volume 5, of the Cultivator, to favor the public with a description of it. By so doing, I presume he will much oblige many patrons of the Cultivator. Yours respectfully, LEWIS BAILEY.

Culture of the Mulberry.

Judge Buel—Sir—In the spring 1838, I made a plantation of ten thousand white mulberry trees; and the success and trifling expense with which it was effected, have induced me to offer to you for publication a detailed account of my operations, with an estimate of the expense.

In the spring of 1836, I made a small experiment in raising the trees, which was so successful that I determined to attempt the making of a plantation; and purchased from Mr. Thorburn, of Albany, about six shillings worth of seed, which I sowed on the 24th of May, 1837. The land was a light sand, sufficiently rich to afford corn at the rate of thirty-five or forty bushels to the acre. It was prepared for the seed by once ploughing, harrowing and raking. The line was laid down, and drills about half an inch deep, were made with a pointed stick. The seeds were sown by hand, care being taken to drop them in the bottom of the drills: and not to have them so thick as to rise in bunches. To expedite the vegetation of the seed, which, in the mulberry is slow, I poured upon the seeds about a quart of water, as hot as the hand could bear, and left it to cool; then pouring it off and covering the seeds, they were put in a warm place and permitted to stand over night, and just before sowing, they were spread to dry, so much as to prevent their sticking together. The drills were three feet apart. The mulberry plant is small and delicate on its first appearance: and the first weeding is not only somewhat tedious, but the young mulberries are often pulled out, along with the weeds To obviate these inconveniences, I carefully marked the exact course of drills by setting up small sticks at convenient distances along the drills, and pulled out the weeds as fast as they appeared, and before the mulberries came up. After the plants were up, they were kept free from weeds, by frequent hoeing and hand weeding. The bark of the young mulberry, at the surface of the ground, is so delicate that it is often destroyed by the frosts of winter. It is expedient, therefore, to protect them by a covering of litter from the stable, before the hard frosts of the fall. By this means, my mulberries to the number of nine thousand, were carried safely through the winter of 1837–8. In order to have them ready for transplanting, I raised them out of the ground early in May; tied them in parcels of fifty each; cut off the tops within an inch or two of the ground; cut off the tap-root, and such roots as were wounded in the taking up, and buried the plants in the earth to protect the roots from injury by drying. Thus far, I kept no exact account of the labor bestowed, and must rely principally upon estimation. But as the details are given, every one will be enabled to correct my estimate, to suit his own judgment and circumstances. The same remark may be made as to the expense of preparing the ground for the plantation; the soil of which was very similar to that in which the plants were raised. It had been under the hoe in 1837, and was ploughed in May, and harrowed. It was then laid out in broad furrows, six feet apart. To make the furrows straight, I set up a line of stakes about four feet high, quite across the field. By this line of stakes, the ploughman struck his furrow, passing directly over, and ploughing down the stakes; then turning and passing the plough in the same furrow to the side of the field where he began. While he was doing this, another hand set up the line of stakes again, at two paces, or six feet from the first furrow. The ploughman struck his second furrow by this new line of stakes, and proceeding in this manner, the whole field was laid out in broad straight furrows at six feet apart, sufficiently deep and wide to receive the roots of the plants, without the necessity of digging holes for them.

On the 16th of May, 1838, I commenced the setting out of the plants, with four ordinary field hands, wholly unacquainted with such work. Each man took his furrow and his plants. If the bottom of the furrow was smooth, and sufficiently broad and deep to receive the roots, no further fitting of the ground was necessary; otherwise, the ground was fitted by the hand; deepening, filling up, widening, levelling or smoothing it, as occasion required. The plant was placed on the bottom of the furrow; the roots spread out and covered by pulling down with the hand a sufficiency of earth to hold the plant in place, and pressing it down with the hand. In this manner, the furrow was filled with plants, at about two feet apart. The planter then took his hoe, and drew down the earth about the plant, filled up the furrow, and levelled the earth around the plant; leaving at present, that part of the furrow between the plants, to be filled up at the first hoeing, or sooner if dry weather should follow, and threaten injury to the plants.

On this day, the four hands set out four thousand plants. On the 17th, one of the two best hands was taken off, leaving only three hands in the field; but these three set out four thousand seedlings, and about fifty plants of two years growth. The setting of the residue of the ten thousand was done at intervals, but with equal despatch. Thus the setting out of ten thousand trees was accomplished with eight and a half days' work of ordinary and inexperienced field hands, and the whole expense of the plantation, as it then stood, did not exceed fifteen dollars. That the work was well done, appeared from the subsequent growth of the trees; some of which rose to five feet, the whole averaging about two and a half feet. A very inconsiderable number of the plants perished; but I do not believe that a single good one failed by the operation of transplanting. They now appear to have gone well through the winter. The ground occupied by the plantation is three acres, by estimation. The items and estimate of expense stands thus:—

ESTIMATED EXPENSE OF REARING 10,000 PLANTS.

Ploughing and harrowing 1-5th of an acre, by estimation,	$0 40
Raking the ground and making the drills,	0 25
Sowing the seed and covering it,	0 25
Seed,	0 75
Weeding and after culture,	1 25
Covering with litter in the fall, one day,	0 75
Taking up and tying in parcels of 50 each, 2½ days	1 87½
	$5 52½

Expense of preparing three acres of ground for the plantation.

Ploughing, harrowing and furrowing, estimated to be equal to the work of a man and pair of horses three days; but as corn was planted between the rows of trees, only half the expense of ploughing, &c. should be charged,	3 00

Actual and known expense of setting out 10,000 *trees.*

First day, 4 hands, at 75 cents for wages and board, set out 4,000,	3 00
Second day. three hands, 4,050,	2 25
Setting out the remaining 1,950, at the same rate,	1 12½
	$14 90

Our farmers, fearing the expense, and unacquainted with the culture and habits of the mulberry, are reluctant to enter into the silk-growing businss. No farming operation, however, is more easy. It resembles, in every particular, and almost exactly, the field culture of the carrot, and I do not know that it costs more to raise a seedling mulberry, than it does to raise a carrot. The work may be performed by the farmer himself, and a small plantation of 3,333 trees, occupying one acre, made with a very few days' labor, and without the expenditure of a shilling in cash, except for the purchase of a paper of seed. The price of labor or board may be thought by some, perhaps, to be too low; or that the estimate of the quantity of labor bestowed on some of the operations are not sufficiently high. Let such add any amount, to either labor or compensation, which good judgment may deem sufficient; still the expense of a plantation will be trifling, and within the means of any one who is desirous to embark in the business. The tree is very tenacious of life; it will bear stripping of its leaves to a moderate extent, the next year after transplanting, and then begin to yield a return for its cost; the silk worm is healthy, and the attendance it requires can be performed by children, aged people and females; its profits are greater, its risk less, and the labor it requires lighter, than any other farming operation; its production is easily and cheaply transported to market, and meets a ready sale, at a high price.

Why, then, should our farmers longer delay to enter upon the raising of silk, by which they will enrich themselves, render our country independent of foreign nations for our supply, and save at home those millions which are every year sent abroad for its purchase.

R. WESTON.

Sandy-Hill, Washington county, State of New-York.

Light Crops, &c. in Illinois.

Naperville, Ill. March 19, 1839.

Last year, in this section, it was rather discouraging to farmers; on account of the drought, not one-half a crop was realized. Spring wheat very poor—oats very light—last fall very dry; what winter wheat was sown, not one-half came up; I sowed fifty acres, and I do not think that over one-third of that came up. This spring some of it has shown itself, that did not make its appearance last fall; what it will amount to, I cannot tell. The farmers here, generally, are afraid to put in fall wheat, from the fact that much of it kills out during winter and spring. I should judge that the system of farming in this country was bad. Before ploughing, they burn off the stubble, and all other matter which will burn; their straw, instead of converting it into manure, they pile up and burn to get it out of the way. Thus the land is left without support, except from the ashes made from the burning stubble and grass, which does not amount to much in my opinion.

There is a kind of wheat in this country, which by some is called Italian, and by others Siberian; it is a hard flint wheat, large heavy kernels, weighs from 62 to 65 lbs. per measured bushel. Our millers complain about grinding it, on account of its being so very hard. We have another kind here, that is also by some called Siberian, and by others Italian; this latter kind is large kernels, not so heavy or hard as the first mentioned kind. Can you, from my description, say which is Italian and which Siberian, or is it not either? I intend to sow thirty bushels of each kind this spring, so that I shall be able to determine which is the best yield, and most profitable. Respectfully yours,

LEWIS ELLSWORTH.

Artificial Crossing of Vegetables.

Mr. Buel—Dear Sir—By frequently observing seedlings of different species, and of the same family maturing side by side in the garden of the heedless farmer, I am influenced by a disinterested endeavor to mention the subject of *improvement* and *degeneration* of vegetables, by crossing.

It is a very common saying with us, "my seed has run out," when in fact, instead of "running out," the plant, if rightly cultivated, may retain its first purity, and in most cases advance its fecundation, and be beneficially improved.

With many, the common practice is, to select a place in the garden to propagate the beet, turnip, cabbage, onions, &c. of the same and different species, all mingling side by side, seemingly not aware that although the parents may be of a different species, the progeny in the vegetable kingdom, as well as the animal, are inclined to take a new form. It being the natural tendency to mixture in corn, potatoes, cabbage, artichoke, turnip, beet and radish families. Therefore, to retain the present qualities of each variety, the different kinds should seed by themselves, remote from any other species of the family.

Several species among the common productions of our country may be *improved* as well as *degenerated.* Among these are wheat, rye, oats, Indian corn, pease, beans, potatoes and the squash.

The specific change in vegetables, as well as in animals, can be produced only by a slow and gradual process, a valuable property which at first is merely accidental, may, from one generation to another, by a repetition of impressions, become at last confirmed and hereditary.

When new properties are impressed on one generation, they are in some degree inherited by the next, which, after receiving additional and stronger impressions of the same kind, at last the effect is carried to its ultimate point, by selecting the best for propagation from year to year.

The new and choice varieties may be retained, if not carelessly allowed to grow among, or alongside of other inferior species, being exposed to impregnation by the male parent of its inferior, while in blossom.

I have seen this strikingly illustrated, by an experiment on the *pie plant* or *American rhubarb.* The common yellow dock grew near this vegetable, and by a few crossings, a new variety was produced, which partook of the nature of both. Your patron,

SOLOMON W. JEWETT.

Weybridge, 10th April, 1839.

Millers' Tolls.

Burlington Co. N. J. 3d mo. 11th, 1839.

Friend Buel—I had presumed that any thing more on the "vexed question" of "millers' tolls" was inadmissible in your columns; but inasmuch as you have seen proper to open them again, not only in regard to an experiment which it was obligatory upon you to notice, but also some erroneous remarks of a personal character, on which account I think I am entitled to be heard again, after which I bid adieu to the subject and to your correspondent William A. Stone, whose optics, whether natural or artificial, are possessed of too great magnifying powers, presenting that to his vision which never existed; for he cannot show in either of my communications where I have said that all the loss alluded to is to be attributed to fixed air, or that all solid bodies contain it; and I consider his declaration of it but a forced construction of my words, or the effusions of a volatile imagination that can dress off an idea in a garb of gossamer to please its own fancy or to suit its purposes.

I consider it of no consequence what the natural causes of the loss may be, or whether one or many. It is not them, but the effect of them that I wished to make known and am much obliged to our friend of Rahway for his assistance in establishing the fact. I also have made an experiment, confirming a part of my premises, viz: on the 21st of 1st mo. last, I accurately weighed a quantity of wheat brought to my mill belonging to a regular reader of the Cultivator, full as clean as is usual to take to mill. I then cleaned it and weighed again, and found it had lost 1¼ lbs per bushel, which add to W. A. Stone's 10 ounces and it will make nearly 2 lbs. per bushel loss. But since your correspondent contends for causes, I am very willing to admit his first to be a prominent one, but his other lighter than air in every sense. But why does he account for only a part of the loss? Is he afraid of the explosion of fixed air? For can he suppose that air does not constitute a part of wheat, and that too in a fixed or condensed state, although it does not grow as large or as hollow as a pumpkin; for the milky substance he speaks of must either harden and condense, or clarify, as in berries. And what does his favorite Blair say? Why that water, air, and all other fluids are in a certain space equally solid with the hardest body. I am happy to congratulate him in converting *ten*-tenths of the agricultural community to the belief that more than one in a hundred parts of their wheat is water, and is absorbed by heat in the process of grinding. Seeing his proof is so positive, for he says, he has lost 10 ounces per bushel; and as 960 ounces make one bushel or 60 lbs; and the 100th part of that is but 9.6 ounces, therefore it must be composed of more than 100 parts of water, and that it is much more philosophical to attribute the loss to it than to suppose it all to be fixed air as Mr. David Walton has. Now I have no objections to his philosophy being received. It will answer my purpose full as well; for it matters nothing to the farmer whether his grain loses by the form of air or water. The object I contend for is granted, and I am now perfectly satisfied. Respectfully,

DAVID WALTON.

Millers' Tolls.

Medford, N. J. 3d mo. 9th, 1839.

Friend Buel—From a previous editorial remark, it would appear you would not readily give insertion to further comments under this head; but seeing in a late number of your paper, not only the experiment called for by the editor, but an appendage of argumentative strictures on previously advanced propositions, I consider (if I meet with a corresponding liberality of feelling and sentiment from the proprietor) I can with the same propriety, take up a small portion of your paper as your correspondent, William A. Stone, who in his last, contends my former assertions are erroneous, by arguments, the principal facts on which they are founded it will be seen are incorrect. He considers it absurd to say wheat contains fixed or condensed air, "which he says, he will not admit without plain proof; because if it contains air while in its milky state, it has more room as the grain grows." This is an error of no small magnitude. The grain with us contracts from its milky state as it ripens. I presume he was rather hasty in making this reply, or at least not prepared to, from actual observation. Though to do him justice, it is believed the cause he assigned for the loss sustained during the progress of the manufacture of his wheat into flour, is obvious, the effect variable, and the result as justly attributable, (from the profound data of O. Evans, whose experiments no doubt were rigidly exact as his own,) to the escape of fixed air or the loss occasioned thereby. But in opposition to the demonstrations of O. E. and to prove the impossibility of my assertions with regard to fixed air, he exultingly declares this wise man has discovered what no philosopher has done before him; referring to his favorite author, and says, Blair's definition of solidity, "is that property which every body possesses of not permitting any other body to occupy the same place with it at the same time." Here he has inappropriately used the quotation of Blair, and for his further information, I will annex, verbatim, the illustration and experiment of this author belonging to his definition.

Illustration.—"If a piece of wood or metal occupy a certain space, before any thing else can take possession of that space, the wood or metal must be removed."

Experiment.—"If some water be put in a tube closed at one end, and a piece of wood be inserted that fits the inside of the tube very accurately, it will be impossible to get the wooden piston to the bottom of the tube unless the water is taken away."

2d. "The experiment may be made with air instead of water."

Corollary.—"Therefore, water, air and all other fluids are in a certain space equally solid with the hardest body."

I cannot conceive how your correspondent, from these quotations, can invalidate my previous assertion; for a few considerations will show, that two bodies of external figure or form, (for these are essential properties of all bodies,) without regard to their size, composition or inherent properties, cannot exist in the same place at the same time. The author, in this experiment, has no allusion to the substances which, by union or chemical combination, form these masses. Analysis has shown, that during the decomposition of wood are obtained a quantity of water, an acid, several kinds of air, and there remains carbon, a black porous substance called charcoal. These quotations from this author only prove solidity to be essential to all bodies, and before one can occupy the space of another in identity, the latter must be removed or annihilated, which is not acquired by human aid. Since the power of Omnipotence was required to create something out of nothing, that same Omnipotence will be required to reduce any thing again to nothing. His inference from that quotation cannot be admitted; thus his anticipations on this score are completely frustrated, while my proposition remains good and authentic. It would be more wise, at least more exemplary, if this man before making public harangues on the wisdom of others, would be more lavish in giving his own publicity. The critic catches at the word fixed or condensed air, (which I connected as synonymous terms, and are equally appropriate as his own "loose" air,) for there is as much reason to believe it exists in a fixed as a "loose" free state. In his last communication I find no proof against the point I contend for; and from the determination Oliver Evans made to write on this subject, I believe justice was his motive, and his knowledge deduced from experiment and observation; who for many years pursued the business of a miller, and understood the mechanism of mills for grinding wheat and other grains, and at that time was the most skilful millwright and experienced miller in this or perhaps any part of the United States.

From renowned authority, I assume my statement to be correct, and do scrupulously adhere to it until the contrary shall be proved. Respectfully, &c.

SILAS WALTON.

Suggestions to Builders of Stone or Brick Houses —Asphaltum Pavement.

New-York, March 18, 1839.

J. Buel, Esq.—Dear Sir—Having been engaged in building some fifteen years, and feeling much indebted to others for the useful information I have received during that period, I will offer a few remarks in answer to the second and third queries of your subscriber at Morristown; and although they may not benefit him much, they may be of service to those who have yet to erect country dwellings. To such I would say, never erect a house of brick or stone, unless overruling circumstances compel you to adopt that course. If so, fur off all your outside walls with joist or strips of plank, and lath and plaster on them, instead of plastering on the walls. By so doing, a part of the evil arising from a stone or brick building, may be obviated. It is a common opinion, that all the objections to stone and brick buildings in exposed situations, arise from the walls receiving moisture at the surface. That injury does arise from this cause, there can be no doubt; but as human ingenuity and skill can overcome it, it sinks into insignificance. The irremediable evil exists in the condensation of vapor, with which, I presume, every one who drinks cold water in summer, is acquainted.—The walls of an isolated stone or brick building, will retain the cold they have imbibed during winter, until May or June; and holding an unequal temperature with the atmosphere, will condense all the vapor which comes in contact with them. We often see the water running down the walls and windows, and find the rooms chilly, damp and uncomfortable, while the air out of doors is bland, warm and delightful. This fact could be established by a thousand witnesses, while the cause remains almost unnoticed. A stone palace and a stone prison are alike in one respect at least, and both are destructive of health and comfort, unless they are kept warm by fire, and well aired, until midsummer. I would not increase the chills of those who suffer the evils of a stone or brick house in the country, or any exposed situation, but if I could, I would prevent an increase of the evil. It may be asked why these effects are not experienced in cities where most of the buildings are composed of brick, I answer, they are more compactly built, and the walls protect each other and seven in ten of the rooms have fire in them continually during winter. To your correspondent at Morristown, (and there are others there suffering with him from the same cause,) I would say, if your walls have not been painted or whitewashed so as to prevent the cohesion of mortar, take two parts, by measure, of clean sand, and one of good fresh burnt lime; slack dry; mix and use while hot or warm; lay the coat on thin and float it; finish up like hard finish or white wall, and trowel it very hard and smooth. The plastering should be done early in the spring, and the wall receive a coat of boiled linseed oil in October following; this if well done will make the surface of the wall impervious to water—the only point to be gained—without it, the mortar will freeze off. I think no Asphaltum has been used in this city for covering walls. I saw the two pieces of pavement done with it in Broadway, in front of Nos. 167 and 241, and think it could not be well laid on perpendicular walls. It is prepared with coarse sand, in an iron vessel, over a furnace, and requires a high heat to enable the workmen to mix and spread it. The ground received no preparation, except hard treading; the coat is laid on about an inch thick; short iron bars were laid down twenty inches from, and parallel with the curb stone, and the space filled level with the bars, which formed the line and thickness of the first course; and this process was repeated until the whole was finished. It is smooth, and to this time stands well. I have no knowledge of the expense.

Your remarks, elicited by a former communication of mine, have given me new light on the value of manure in the west. If Mr. Osborn carted out the manure, for the purpose of breaking his steers, I have done him wrong, and ask his pardon for it. I am working a farm by proxy, and would like to have a few pairs of steers broke upon it in the same way. Yours truly,

JOHN M. DODD.

Great Crop of Potatoes.

Middlefield, Mass. March 13, 1839.

Mr. J Buel—Dear Sir—Having read with interest, the various experiments, as detailed by your correspondents, and published in the Cultivator, I thought I would contribute my mite, by giving you the account of an experiment which I made the last season in raising potatoes. The piece of ground upon which the experiment was made, contained eighty-two rods, planted the previous year to corn, yielding about twenty bushels of unsound corn. Upon this ground I spread nineteen loads of compost manure, and ploughed it in; I then threw it into ridges of three and a half feet width, planting the hills on each side of the ridge, thus * * * * * * * * * * * * * * * * * hills twenty inches apart. The ground is naturally dry, and the severe drought of last season must have contributed to lessen the crop. The account stands as follows:—

Dr.	To carting and spreading manure, ...	$2 00
	ploughing and ridging, ...	2 00
	11 bushels seed, ...	3 75
	planting, ...	2 00
	hoeing, ...	2 00
	5 days' harvesting, ...	5 00
	manure, ...	7 00
	Interest on land, ...	1 25
	Total, ...	$25 00
Cr.	By 340 bushels of potatoes, at 25c.	$85 00
	Deduct	25 00
	Profit, ...	$60 00

I contemplate making other experiments the coming season, with the different root crops, and if successful you may hear from me again Yours respectfully,

EBENEZER SMITH.

Experiments in Preserving Plants from Insects and Worms.

Huntington, L. I. March 20th, 1839.

Mr. J. Buel—Dear Sir—As the time of planting corn again draws nigh, we begin to think about using some means to prevent the destruction of the seed and young plants, by the grub, wire-worm, birds, &c.

The grub was very troublesome in this section of the country, last season, and I believe there was no remedy better than hunting them out and killing them. Some of your correspondents recommended soaking the seed in warm water, strongly impregnated with nitre, from twelve to twenty hours before planting, and you also recommend a trial of this, and to be favored with the result. We tried it faithfully last season, but we only found that they loved the taste of salt as well as other animals. We carted on our corn ground, a load of old wall, strongly impregnated with lime, and ploughed it under. *No worms troubled the corn where this was put on.* Whilst on every side, they destroyed one-third. In the last May number, page 63, under the signature of "*A Subscriber*," from Dutchess county, feeding the worms is recommended, by laying heaps of mullen, dock, &c. about in your corn, about the time of its coming up. This we have also tried, *with success*. But we only caught the cut-worm. They do but little injury to our corn; but beans, pumpkins, cucumbers, melons, &c. they devour greedily; they come to the top of the ground in the night, and travel till they can find something to feed on, when they fill themselves by eating off the plant near the surface of the ground. If you will take a lantern, and go in the field in the night, where they are plenty, you will see them crawling about in search of food. But the grub that has been so troublesome here, is of a light colour, with a red head, and eats the corn off between the surface of the ground and the kernel, destroying it wholly at once.

Buckwheat sown among turnips will not protect them from the fly, as recommended by "*A Lady*," in the last March number. We sowed a patch of turnips in the middle of a piece of buckwheat, to protect them from the grasshopper; the buckwheat came up all over the patch, and the fly was as thick as I ever saw them any where. I saved my turnips, by putting Scotch snuff on them in the morning, when the dew was on.

H. B. ROGERS.

P. S. Does the Rohan potato vines require to be supported up by stakes? [*Answer*—No.]

Farming—Seed Corn—Calves.

Dear Sir—In offering a few remarks for your consideration, I do not wish to be considered as being actuated thereto by a love of notoriety, or the mere vanity of seeing my name in print. The very flattering notice taken of the contributors to the last volume, in the last number of said volume, is the incentive to the present undertaking. Though I feel willing to give myself a very humble place among said contributors, yet I know that there must have been something worthy of observation in what I have written, or *you* would not, to please *one*, have inflicted a penalty upon *thousands*.—Encouraged by these views, I offer again for your acceptance, a few remarks on the all-important subject of husbandry.

That the tillage of the soil ranks the highest in point of usefulness, of the various occupations of men, I trust there are few or none, in the nineteenth century, to deny. The beneficent Creator of the universe, has connected with this employment, the highest enjoyment of which human nature is susceptible, with the least corroding care. Breathing a pure air, and "catching health from the balmy breezes," rising with the lark and retiring betimes, who so enjoys "tired nature's sweet restorer," as the farmer? He alone that tills the soil receives nature's bounties fresh from her hands; and consequently he only enjoys the produce of the soil in its highest perfection. Though husbandry is generally considered as the most simple of all occupations, there is no one employment to whose aid more *science* can be brought; nor which is more highly improved by the light of science. The greatest talent of the age has been enlisted in its behalf, and every day witnesses more and more of the brightest genius enrolling itself as its ardent admirer and most successful follower.

It is really wonderful, that husbandry, forming as it does the *foundation* of all prosperity, should yet have received so little attention from the legislative wisdom of our country. Much has been done and is doing for schools, academies, and colleges, the object of which is to train the young for mechanics, merchants, lawyers, doctors, &c. This is well; the perpetuity of our free institutions depends mainly upon educating the common mind. But it would be better that attention were given to train more of the young for the healthful, delightful and profitable employment of husbandry. I hope, then, that the agricultural periodicals of the day will exert themselves to attain this most desirable object, and I have been truly gratified to find that yours has done much to forward it.

I will close this article with a few practical remarks on the subject of this communication. My neighbors and I have found, without, I believe, a single exception, that corn planted as it comes from the cob, without any artificial preparation, comes up better, and stands better, than when soaked in any liquid. I, one season, planted corn and put next the corn a handful of unleached ashes, not one grain in a thousand came up; I replanted with corn in its natural state, and it grew well. One of my neighbors desires to state that chamber-lye placed where young calves can get to it, will be greedily partaken of by them, and it promotes their health and growth in a surprising degree; I have not tried it.

The system of agriculture is slowly but gradually improving in this vicinity. Manure in its long state, is more used than formerly; the use of the cultivator in dressing fallow crops is extending; and much more use is now made of clover and other grass seeds, than a few years back. Other improvements might be mentioned, but feeling that I have taxed the patience of you and your readers sufficiently, I close.

E. H. VANUXEM.

Insect Enemies.

Last summer, just after my squash and melon plants put out their rough leaves they were completely riddled by the little striped flying bugs, that literally swarmed upon them. A friend who was visiting me at the time proposed that I should try what had proved to him an effectual remedy: accordingly I put some fresh cow droppings into a tub, mixed therewith water, until so thin that the liquid could be sprinkled over the plants with a whitewash brush. I applied it three times each for two days; the bugs all disappeared from them; the plants soon put out a new and vigorous growth of leaves, nor did bugs again attack them.

ROB. WHITE, Jr.

Shrewsbury, N. J. 3d mo. 25th, 1839.

Farming in Virginia.

Greene co. Va. March 10, 1839.

J. Buel, Esq.—Sir—At this enlightened day of agriculture, there are numbers of people in Virginia, who cut down and wear out one acre of land, to buy another to cut down and wear out, and so on. And finally old age creeps on them, and they find themselves only comforted with but a sun of galls and gullies, the fruits of their youthful labor.

> "For his shrunk shanks, and his big manly voice,
> "Turning again towards childish treble, scisses."

They are no longer able to continue this wretched course; they are brought to rest with this bright example and rich inheritance for their children. Can you not, Mr. Editor, stop them in this wretched system? Can they not be brought to reflect, that their money-purse has a hole in both ends, and that their cash runs out as fast as poured in? Cannot you convince them, that land can be kept at its virgin state, yea, and improved far above it, and at greater profit or saving of labor? I know a number of farms that will not, upon an average, produce two barrels, or ten bushels, of corn per acre, and I overshoot the mark at that. This would appear to you hardly credible, but it is too true.—They certainly do not believe that land can be kept to its primitive state—nor can they believe this exhausted soil can be entirely restored. The new husbandry is what they lack—they do not know how to get out of this old way into the new one. You have the means, and the talents, too, to set them right. This, too, it seems would be a work without faith, for some of them have many fine examples of good farming before them—but some lack enterprise, and others too selfish to take the advice or pattern after others, particularly their neighbors.—And perhaps, Mr. Editor, by its perpetually flowing from you, a foreign and an intelligent source, it may eventually have the desired effect; time will remove the prejudice. For instance, I know a very old gentleman in Albemarle county, who, at one time, (when I was a boy I heard it spoken of,) ridiculed the idea of sowing clover seed—though his land was, I think, then rather under medium quality; but about fifteen years ago, he turned the somerset, and I think I hazard nothing in saying, he is now one of the best and most prolific farmers in that county; his last crop of wheat, I have been credibly informed, was the best in that county—and from the quantity he made, I think two-thirds was the result of the restoration and improvement of his farm. These land killers can see this. Can you not induce them to believe, that it is cheaper to work one acre of land than it is three? I say three, because I think the average crops of new land in Virginia, would be about six barrels per acre, and much far above it. This they would answer as a very simple question.—Why, then, do they work three instead of one, for the same number of barrels? Simply because they have so impoverished their land by this wretched old way.—Persevered in, it takes three acres to produce what they formerly cropped-off of one, and in the latter, the expense increased three-fold in every way—labor and money—and but the same result—how large a hole, too, does this make in the profits. The profits are proportioned by the expense. For instance, a few years ago, when I commenced farming, I had a small parcel of flour sold in market at $4 per barrel; here the expense was one-fourth. My last crop of flour was sold at $8, one dollar deducted for carriage; here the expense was one-eighth, which is less than one-half of the expense when sold at four—though apparently the same, but obviously less than half, for when sold at $4, I had but $3 left, and now sold at $8, I have $7 left, which is more than double of $3, for the same expense. Hence it is plain, that as the profits increase, the expense diminishes, and by this rule I work the renovation of the soil. As the land increases in production, in the same ratio the expense diminishes, or even keeping it in statu quo, increase of expense is prevented.

In the above, Mr. Editor, farmer like, I have given you the true practice of many tillers of the soil amongst us; and if you think it might have a stimulating effect in sliding some out of this bad old way into the new one, and preventing others from getting into it, it is at your pleasure or not, to honor it with a place in your journal, which paper I recommend to every brother farmer.

I have now just finished hauling out my manure.—From my horse stables, in February last, I hauled and spread twenty-two four-horse wagon loads of dung upon meadow land. From my barn-yard, one hundred and upwards, of well mixed, unfermented compost, upon the field I intend for corn, which will be spread only as fast as ploughed under. My manure yard is made in the form of a basin, to prevent the liquid from running off. What straw I generally have left, (which will be nearly half this season,) after wintering my stock, &c. I haul out and spread upon my thinnest land one or two years previous to cultivation. This mode of improving land, from experience, is much faster than ploughing the straw under forthwith. Hence I have come to the conclusion, that the additional improvement gained by covering, over that of ploughing under immediately, is caused by the nitre produced by the shade, and hence I have settled down to give my fields two years successively in clover, previous to fallowing for wheat, or ploughing for corn. The above statement of manure is not given to vie with you northern farmers, nor many in Virginia, but to inform your readers what some of us are doing here, and as a criticism upon some of our soil butchers, who only haul out some eight or ten loads of manure, of the old year's making, upon a little piece of land, for tobacco. In former days, in Virginia, he who cut down and wore out his land the fastest, was said to be the greatest man of business—but the dawning change now cocks up his nose at such a one.

T. G. G.

Much that is to be Commended.

Maryland, March 21, 1839

Mr. Buel—I notice with a peculiar concern and interest, the statement of the condition and circumstances of "Agricola's" farm. His is not a solitary case—there are hundreds of such, and a system that will help them will be doing more than all your premium crops on deep limestone soils, or soils made rich to fatness by the facility of obtaining manure from towns. You may playfully throw the "Yankees" at us, and tell us to follow them—but it won't do, sir. We must have legs like them to walk as they do. *You* made a poor farm rich—so say some of your correspondents. But you were in the possession of the *needful*, and your purchase was near Albany, where you could get lime, and ashes, and bone dust, and street scrapings, and stable manure, &c. Any man that would not make his land rich with all these favorable circumstances, deserves to—— have no land.

My experience and observation tell me, that there is a way for a man to improve a large body of land, without forgetting that he has more than fifty acres, when he has nine times that much. Don't make a man feel poorer than he is, and throw him into the pit of despair! There is no necessity for his forgetting any of his land. Come, don't trump up that old tale, that poor land makes a poor man poorer, just in the ratio of the increased quantity of land he owns, and frighten us from five hundred to fifty acres to make us *feel* richer. No, no! Let him look the whole in the face, without fear or despair. But let him have a beginning—a starting point—any thing within the compass of his capabilities to improve—five, ten, fifteen, twenty acres, or more—let the determined quantity be properly tilled, and manured, and cropped so as to pay its way, and then put down in grass.

As to spreading manure on a sod, and ploughing it down immediately, *true* theory and enlightened experience must condemn it; and particularly if the subsoil be porous. If the manure be mere straw, or grass, or other substances, containing little or no soluble matter, it will be better to cover it any way, without being particular whether it be turned down on the subsoil or not; for fermentation must be promoted, and the gases retained. Here all is right. But when the general term *manure* is used, without a particular application, we understand the productions of our stables and barn-yards. Now, in this kind of manure, there will always be more or less matter that will mingle with the rain, and will pass down into the *pan*, leaving the coarser particles to be formed into manure by the process of fermentation. The loss in this case must be equal to the urine and other finer parts of the manure from the yard.

I admit that manure of all kinds ought to ferment *in* the land where it is to be applied; fermentation and drainage in the yard, reduces it both in quantity and quality; and the sooner manure can be got out and properly covered the better. But it must not, if we would get *all* the benefit, be turned down on the subsoil.

But, say you, how is the objection to be obviated, if I intend putting a grass field in corn, on which I would have my manure? No other way than to plough the ground first—harrow well—then spread your manure and *list* it. By forming the *list*, you throw two furrows together, which will nearly if not quite cover all the manure, if not planted too wide; and by the time you harrow your corn, you will find it sufficiently short to mingle with the earth, so as to prevent loss in fermentation. In this way you get the benefit of all the manure, both of the soluble and gaseous particles.

Now, as Agricola is not to forget that he has three hundred and fifty acres of open land, he is to be kept from despair of ever reclaiming the whole. And to do this, he must see how, after having improved one piece, he can apply his resources to another, without suffering that which he has improved to relapse into its former condition. It will be impossible for him to do this, if he entirely depend on clover. Clover is too soon gone. And to have to return to tillage operations, and of necessity, the application of manure, to this partially improved land, will prevent the advancement of improvement very little if any beyond that which he improves the first two years. If he plough, he must apply manure, or there will be a perceptible retrograde. Plough down clover! Let this be done where it can. But there are frequent obstructions, which I need not stop to notice. Now, if in the list of grasses, any one can be found that will be permanent, enduring for years, and tending all the time to the melioration of the soil, that is the grass *mainly* to be depended on by Agricola, in his reclaiming system. Such a grass we have—orchard grass, or what in England is called rough cock's foot—(*Dactylis glomerata.*)

This once lauded—sometimes abused—and now much neglected grass, is the only one with which I am acquainted, that will fully answer this purpose. Its durability is wonderful. From its early vegetation, it gets the ascendancy of all other grasses, and from the quickness of its growth after the scythe, it keeps it. I have always found, that where land was occupied with this grass, it broke up more mellow and friable than any other. After being six and seven years *sett*, it has ploughed like an "ash heap." It does not only *not exhaust*, but positively adds, from year to year to the fertility of the soil. It makes an excellent hay, when cut in blossom, and one of the earliest and latest pastures. You will find in the 9th volume, page 81, of the "American Farmer," some remarks of mine on the utility of this grass as an auxiliary on a grazing farm. What is said there on the comparative merits of clover and this grass, I have for some time past dissented from.

Let Agricola seed down all the land he has properly tilled and manured, with this grass, and let that stand. "So far, so good." Let him take another piece and do likewise, and by this means he will get round his three hundred and fifty acres. His means to support an increase of stock will grow upon him—this will increase the quantity of his manure, and by the time he gets round, he will have the means of doubling his operations. Your advice, to economise and accumulate all the matter that can be turned into manure, must be strictly attended to. Let all the bare parts of the barn-yard be thickly covered with leaves—two feet thick.—Let all the corn fodder be saved, by cutting the corn off at the ground, and let this be cut up in the winter, by one of Eastman's or R. Sinclair, Jr. & Co.'s chaffing machines; so that instead of feeding straw, he may have all his straw for litter and yard purposes. Let him raise mangold wurzel and sugar beet, and *try* a little ruta baga. This last does not often succeed, this side the Delaware river. If his land *require* plaster of Paris, let him use it, and if spared a few years, he may *think of all his acres*, with more satisfaction than despair, any how. Z.

A fact or two on the operation of plaster, as I have yet a scrap of paper unoccupied. I have seen a fine limestone land, after having been reduced by a succession of white crops so that it would not bring ten bushels of wheat the acre, restored in a few years, by the application of plaster. One field of this description I saw the clover hay and seed mowed off three years in succession—then ploughed and bring a heavy crop of wheat. The clover could not have produced this effect as a manure. There are other lands on which plaster makes but little impression. If plaster only acts as food for plants, what can make this difference? May it not bring out the carbonic acid gas, latent and inert, in the subsoil of limestone lands, so it can be reached by the mouths of the plants?

A hit some time or other *may be* on your summer pruning.

A new Correspondent,
But an old Thinker.

The Silk Business.

Shrewsbury, N. J. 3d mo. 25th, 1839.

Jesse Buel—Dear friend—From some notice of the proceedings of the *Convention of Silk Growers*, lately held at Albany, I see that it had decided to form a *State Silk Society*. There has been one organized in New-Jersey, and in Pennsylvania they have a *Sugar Beet Society*. Is it not questionable whether thus dividing the strength of the farming interest into various and distinct associations, will be the best means of establishing permanently any particular branch? If it be not, then those mostly engaged in raising corn, growing wool, breeding cattle, &c. &c. may each get up a society to promote such business exclusively.

I do not see it avowed by those who have associated to further the silk business, that the growing of food for man and beast is to be superseded, or that wool and cotton may not still be used as a part of our clothing; but on the contrary, the producing of silk is urged upon the attention of every farmer, as being an *addition* and an *auxilary* to the ordinary course of husbandry, which if combined therewith, promises to increase the profitable use of land, labor and capital. There is no doubt in my mind, of the correctness of this view, nor yet of the vast benefit already conferred upon the country, by those who have so zealously and praiseworthily labored to enlighten our farmers on this subject. The success of a small experiment made by me last season has encouraged me to increase my investment in the silk business twenty-fold this, and my limited influence has been used to induce others to embark in it

I have been looking for a caution from thy able and ready pen, against the getting up of these separate and unconnected societies, and to encourage the concentration of strength and unity of action amongst us in county and state agricultural societies, as one means of placing agriculture in this country, in proper relative posi tion with manufacturing, mercantile and professional business. If we silk folks would but take our place in agricultural societies, and trust this particular branch to the action of committees, would it not be as effectuly promoted?

Having thus mentioned what I have thought to be a matter of some importance, I leave it with thee, not doubting that if it really is so, it will be duly considered and attended to. Respectfully thy assured friend,

ROB. WHITE, Jr.

Encouragement to Agriculture, &c.

Brooklyn, March 15, 1839.

Judge Buel—Sir—Your zealous and efficient efforts to promote the agriculture of this country, continue to produce results which justify the most sanguine anticipations. Science must be combined with practice, to effect great improvement in any art, especially in agriculture. This desirable end cannot, I conceive, be better attained than by the establishment of agricultural schools, which you so ably advocate. I have been led to this reflection, by noticing the following extract from the late annual report of the Treasurer of the United States:

"It is an interesting fact, that during the last three years, more than $86,000,000 annually, or an average of nearly *nine-tenths* of our whole domestic exports, have been derived from agriculture. More than *seven-tenths* of our whole population, are probably employed in that useful pursuit."

What a commentary upon the neglect of this subject, by our State and National Legislatures. It is a lamentable fact, that political strife has engrossed the attention of our Legislature. Who are responsible for this neglect? I, sir, can assign the responsibility where it mainly belongs, but where it is rarely charged. The *public press*, (exclusive of agricultural journals) are censurable not only for *failing to aid*, but actually for *retarding* improvement in agriculture. The enactments of the Legislature are made in unison with *public sentiment*: which is controlled by the press. Am I not therefore justified in charging the responsibility upon the press? I have facts, however, to support my case: I will cite but one. The New-York Courier & Enquirer of the 24th March, 1838, after stating that $77,000 had been paid by the State of Maine, as a bounty on wheat, thus remarks:

"It would seem that as in other countries, the absurd notion is exploded, of encouraging by legislative grant, the pursuit of any particular branch of industry; in the United States, it is immediately taken up and acted on. What can be more in opposition to every sound principle of political economy?" &c. &c.

Again, he adds: "And if we mistake not, a similar policy is pursued in Massachusetts, and we believe has even been suggested in the legislature of this state.—Are the people in this country of intellect so obtuse that they cannot discover, without a bribe, those branches of industry?" &c. &c. pursuing the same strain of school-boy argument, for nearly half a column of his paper.

These, you will observe, are the editorial remarks of a paper, in general, as ably conducted as any in the United States; certainly enjoying the greatest circulation, and possessing, therefore, a corresponding influence. This editor probably does not imagine, that agriculture may be made a science; and would be surprised to hear that the very bounty he so rails at, has been already the means of saving more than its value in wheat, by causing a discovery, by which the destructive ravages of the *weavil* may be arrested.

The formation of county agricultural societies, is another powerful aid to agriculture. The combined efforts of these societies and the public press, would soon place agriculture in the high station among the useful arts, to which she is justly entitled. To effect this desirable object, I suggest, whether it would not be advisable that each county agricultural society, should appoint a suitable committee to awaken the public, through the public press, to the vast importance of agriculture to this country.

Pennsylvania, Ohio, and many other states, are far ahead of this state in the improvement of farm stock. The high price of the improved breeds, places them out of the reach of our farmers. This must necessarily be the case, while our great breeders are endeavoring to raise only the *pure blood*.

True policy dictates that we should obtain a good breed by *crossing*, while we at the same time, obtain the best breed from the pure blood.

The great improvement in our horses, was effected by carrying studs of blood, to "stands" through the country. The same course might be pursued with the improved breeds of imported bulls, Berkshire boars, &c. &c. In this way, the attention of our farmers would be led to improvement in breeds; they would be better enabled to appreciate the good breeds, and would thus gradually acquire a desire to improve their own stock. Breeders would thus sooner experience ready sales of the high priced stock, and would, I have no doubt, even benefit themselves, by establishing such stands *gratis*.

In the last November number of the Cultivator, your correspondent, Mr. John Bodden, of Poughkeepsie, states that nearly seventeen acres of his corn were destroyed by the grub worm, although the corn was soaked in saltpetre, which he observed had been stated in the Cultivator as a preventive.

On Long-Island, and in New-Jersey, a worm very similar to the grub worm, has been very destructive to corn for the last two seasons. As very little has been published in relation to this worm, and as it may be desirable to preserve a record of their visit among us, I will briefly describe them. In the month of May, 1837, this worm commenced the work of destruction in our corn fields. It resembles the common grub in size, colour, and general appearance; both are a light gray colour, with red heads. The grub has legs only near its head; this worm, however, is legged as a caterpillar: from head to tail. The grub has a rough, serrated skin; this worm has a smooth, glossy skin. The grub preys upon roots; this worm upon the stalk, under, though near the surface of the ground. In 1837, my corn was planted early, upon an old sod, which was so infested with this worm, that I was obliged, for more than a month, to go daily through the field, pulling out the worm and replanting the corn, where necessary.—In some cases, corn of the third and fourth planting, was destroyed by these persevering rascals.

Their presence in a hill is easily detected, by the withered appearance of the stalk eaten off by them.—The low and wet parts of the field were free from them, while the dry and sandy knolls in the same field, were overrun with them. They disappeared about midsummer. In 1838, they were less numerous. One of these worms ate through a stalk of corn three quarters of an inch in diameter, and two feet five inches long.—One of my neighbors says, these worms, about eighteen years ago, were as numerous and destructive as lately, and that they disappeared after a visit of two or three seasons. They were called, he says, *tiger worm*. Wolf grub, I think, would better designate their voracity.

With regard to soaking corn in saltpetre, my experience fully proves its efficacy as a security against birds. In 1836–7, tame pigeons and crows fattened upon my newly planted corn, despite of fowling-piece and scarecrows. In 1838, however, I soaked my corn, as you directed, in saltpetre, to quicken germination, and as a security against birds. To my delight I found that pigeons, crows, and barn-door fowls, left the corn unmolested; though they all, at first, tried to acquire a relish for saltpetre. And here it is but justice to say, that I have been remunerated twenty fold for subscription to the Cultivator.

I fear I have intruded too much upon your valuable columns. I will only add a question: Have you proved the short horned Durhams to be good milch cows?

By the bye this privilege of questioning, is no inconsiderable benefit to the patrons of the Cultivator, though it doubtless imposes on the kindness of the editor.

BROOKLYN.

Inducements for entering on Rural Pursuits.

Greenfield, Mass. April 2, 1839.

Mr. Editor—In speaking of the inducements that present themselves to young men, for embarking in agriculture, we cannot forbear saying a few words with regard to the pecuniary profits that are held out. We do this, not to feed that love of money making and money getting, in which most of our citizens seem all absorbed, and which we are almost ready to pronounce our country's greatest curse, but rather to obviate an objection that is often urged, that but a very scanty and uninviting livelihood is to be obtained from agricultural pursuits. And on this point, let not the profits resulting from the present system of farming be, by any means, taken as a criterion. The ignorance of our farmers, and their prejudices against improvement, preclude them from reaping more than a tolerable subsistence, and we think we do not exaggerate when we say, that our present agricultural products might be more than trebled, by a more enlightened and liberal system of culture. Besides, these products will always find a market. They consist of the necessaries of life, and so much greater, at the present moment, is our consumption than our production, that we are obliged to go abroad to find the wherewithal to feed our citizens. In this, as in every other pursuit, the profits must be in proportion to the skill, industry and intelligence of those engaged in it. The gains of the farmer cannot be rapidly acquired from the nature of his profession; they are generally not inordinate, as more capital is required for extensive agricultural operations than most men can command: but they are sure, and are amply competent for the wants of life, and all the luxuries and gratifications, that mind or body need demand. They are uninfluenced by the changes, that are engendered by the speculations of businessmen, and politicians, and, when restricted at all, are so by the ignorance or blunders of those dependant upon them.

But we wish to view the subjects from higher grounds than those of pecuniary interest. We find one of the greatest charms of an agricultural life in its perfect independence. The farmer's prospects stand unaffected by the many fluctuating relations of society, and depend, in a great measure, upon his single energy as directed to the operations of nature. His hopes and fears are not gauged by every breeze that blows in the mart, and the political arena. He feels, or ought to feel, that his pursuit is the corner stone of all others. He *creates* what the manufacturer works, the merchant barters and the ship master conveys to the different quarters of the globe. He draws from the bosom of the earth the very food of commerce and manufactures. And hence the dignity of agriculture. Its powers are creative, while most other professions are merely constructive. It elicits ten thousand products, that otherwise might never have existed, and which are remodelled in the hands of the mechanic, and converted into cash by the merchant. And this great independence of other pursuits cannot, we think, but create a corresponding independence of character in those engaged in agriculture. It must engender a freedom of thought and action, so desirable for mental development, and which is so often crushed in other callings, by their subserviency to each other.

We particularly admire the character and influence of rural pursuits. Very many, we know, view the farmer through the medium of the plough, the harrow and the spade, and make the most drudging details of his pursuit a criterion by which to measure his profession. For this, it must be allowed, there is in many instances too much cause. But we are urging the choice of an agricultural life on different grounds. It is the character of the men engaged in it, and not of the profession, that gives a dignity and weight to it. The most noble pursuit may be disregarded by the ignorance and baseness of its votaries, and the most humble may be elevated and dignified by education and intelligence. The culture of the soil is becoming a *science*, and one of the noblest of all sciences. Study and discipline are made its ground work, and the structure is raised on the most liberal principles, united with taste and refinement. Natural science in all its departments is made subservient to it. Chemistry, mineralogy, botany, vegetable and animal physiology, mechanics, &c. &c. are constantly in action in all its operations, and their practical application develops every energy of mind or body. New wonders are ever being disclosed, and the harmony of nature brought to view, and that excitement and interest, so necessary in all pursuits, is constant, high toned, and healthy.

We have already spoken of the unadulterated pleasure to be derived from rural pursuits, and we appeal to those who have had the advantages of experience, to correct us if we have advanced any thing beyond the truth in urging the choice of an agricultural life. We offer these imperfect considerations at this time for various reasons, and among others because we see a due sense of the importance of agriculture is beginning to be felt by the public, and a strong desire manifested to elevate its character, and we should regret that this desire should be disappointed from the absence of those, who might meet the wishes of the public. There is a want of pioneers in the cause of those who may disseminate the discoveries of science and the observation of others in the culture of the soil, and impress their utility on our whole farming population. If the public spirited intentions of some of our leading agriculturists are carried into effect in the establishment of an Agricultural School, an opportunity not to be lost offers to those of our young men, who are willing to turn aside from the dazzling visions of wealth and office to the more quiet but not less honorable and dignified duties of the scientific farmer.

H. V.

Proposed mode of Planting Corn.

Petersham, Feb. 26, 1839.

Mr. Buel—I have a piece of green sward which has been mown six years. I wish to take it up in the spring, and plant it with corn. The soil is a dry, stiff, yellow loam; and it has been the practice about here to plough the land both ways, and harrow it down; dung it in the hill and plant it. I told a book farmer in Hardwick, that I thought I should try the new way about planting time, to spread on a large quantity of barn yard manure, say twenty-five or thirty cart loads to the acre, as I have a plenty of it; then turn it over as slick as I can, roll it down; harrow it with a harrow that has short teeth, mark it out into rows both ways, and plant it. As soon as it is large enough to weed, to go through with the cultivator both ways, and then with the hoe, alternately; the gentleman told me that I should not be successful; that if it should prove to be a dry, warm summer, the sod would not decompose in time to furnish the food that the young plants require; that turning over a green stubborn sod with so much unfermented manure, it would firefang, and that the grub worm would be a great deal more likely to injure it, and he thought that I should have a very light crop. I should like to have your opinion through the columns of your paper.

I have another piece of one acre, the soil the same, which I wish to plant with carrots. Three years ago it was a clover ley. I spread on to it a very large quantity of manure two years ago, and ploughed it very deep, say twelve or fifteen inches; then crossed it and harrowed it; furrowed it out, and dunged it in the hill with fine manure, and planted it. I had a very great growth, but the frost came so early that I lost it entirely. Last spring I ploughed it, and it was very light; I sowed it with four bushels peas and oats, two thirds peas; ploughed, harrowed and bushed it, and it was perfectly pulverized like a garden; I also seeded it with timothy and clover. It all came up very fine; the oats grew very rank, and soon began to lodge. I had so much to do, that I let them stand too long, or rather lay, for it took three hands one day to mow them. The weather was bad, and I had to turn them three times. I had four very large loads of straw, and fifty-seven and a half bushels of grain; and I should think there was left on the field as much as ten or fifteen; but if you think this land would bear a good crop of carrots, I should like to know the best way of raising them. Respectfully yours,

D. C. PAIGE.

Remarks.—If the manure had been spread, and the ground ploughed last fall, it would have been better. But as it is, spread the dung and plough early; if the dung is unfermented the better. Do not plough *slick*, if that means a flat furrow, but lap the furrow-slices on to each other; and if the surface is horizontal, gather the land into ridges for three or four rows. If the furrows are lapped, and then well harrowed down, the injury and inconvenience from rain and from grass will be sensibly diminished. The dung, if spread, will not fire-fang, nor is much to be apprehended from the grub—which will feed upon the green matter turned under. The second piece of ground will be in good condition for carrots, though had the soil been more sandy it would have been preferable. See our directions for culture in another column. Will Mr. P. advise us of the result of his experiments?

Directions for making good Mortar.

Schenectady, 5th April, 1839.

Dear Sir—Until the Society for promoting Useful Knowledge, shall be in active operation, the Cultivator appears to be the proper vehicle.

Soon after the great fire in the city of New-York, in December, 1835, I noticed an inquiry in the Commercial Advertiser, "whether the art of making good mortar had been lost," as in the modern built brick buildings, the mortar "did not connect and adhere to the bricks." I wrote, and stated the former and modern method of making and using mortar, and it was published in that paper.

As inquiries on this subject are frequent, and as it is painful to see the impositions practised on those who employ builders, without knowing how to guard against deception, I will give the opinion I have formed, by long observation, and some practice in erecting buildings.

Formerly, hard burnt bricks only, were used for building houses. The bricks were put into a tub of water, kept on the scaffold for the purpose; and when saturated with water, they were handed by the laborers to the mason, who laid them into the wall. Walls made in this manner, when taken down, a crowbar and hammer must be used with force, to separate the mortar from the bricks.

It was noticed by persons who were present at the great fire above quoted, that some of the new brick stores then lately built on Exchange Street, when partly burnt, fell down; and the adjoining buildings, to which the fire had not extended, fell after them.

A few years ago, the six story brick store of Messrs. Phelps & Peck, on the corner of Cliff and Fulton-streets in New-York, fell down, and crushed several persons—an awful sight and calamity. I was in the city, and passed by the store, about one hour before the fall. It was observed, that the bricks separated from the mortar, as clean, as if they had not been laid in the mortar, and the mortar was fine, like dry sand.

Modern brick walls, are chiefly made, not of hard burnt, or what are called weather bricks, but what are called salmon, or half burnt, or imperfectly burnt bricks. These bricks are brought dry, and in some instances, *warm* from the kiln, and laid immediately in the wall. The moment such bricks are laid on the mortar, they absorb all the water from the mortar, as quick as a flash, leaving the mortar merely damp. The mortar when dry, will be soft, and the wall may be taken down with the hands, as there is no cohesion in the mortar. If the bricks are saturated with water, before they are laid in the wall, even such bricks of inferior quality, will make a tolerable wall, though not so strong as of hard burnt bricks.

This is the mode of erecting buildings all over the country, because a little labor and expense is saved, by not wetting the bricks. Too much mortar is often used. Enough to fill the seams and make a solid body, is best.

Those for whom buildings are erected, particularly in the city of New-York, in general, are as ignorant as children, of what constitutes the difference between good and poor walls. Placing perfect confidence in masons, carpenters, builders—as they do in lawyers and other professional men, they get a building for a little less money, and a very little less too; and in some cases, it falls down before it is finished and off the hands of the builders, when the walls are only of the thickness of the width of the bricks, as they frequently are, particularly when against another building, to hold them up.

Another fault is, in making mortar of loam or quicksand, (common in some places,) instead of clean and coarse sand.

One part of quick stone lime, and five parts of clean coarse sand, will make good mortar for brick or stone walls.

The masons object to much sand and little lime, because the mortar will be short and crumbly when used, particularly the over-head ceiling, but when so made and put on, it will be twice as hard as if otherwise made. The loam and more lime, make mortar much more easy for the mason for plastering ceilings. The quantity of lime wanted, is merely to fill the interstices, and make of the sand a solid body, for strength.

When masons want a winter's job, they will tell you that the mortar will *freeze dry*, and be as good as when laid in summer. Such masons, if honest, are not philosophers, nor will philosophers believe and employ them.

In the March number of the Cultivator, it is asked by a subscriber, "What is the best method known among our builders and mechanics, of protecting north-east brick walls, and generally, of keeping stone and brick walls dry." Hard burnt bricks, called clinkers, will not absorb water. If north-east walls are made of such, or covered with boards, water cannot penetrate them. But few persons understand the difference in the quality of bricks. Street pavements made of clinker bricks, will last an age and be dry, except while it rains.

Stone walls are liable to be wet, by condensing moisture from the air, when the atmosphere changes suddenly to a warmer temperature. Respectfully,

DAVID TOMLINSON.

Clover Machine.

Courtland, Ala. March 27th, 1839.

The re-appearance of a paragraph, in a late number of the Cultivator, describing the machine for gathering clover seed, used by M. L'Hommedieu, constructed with an open box and teeth in front, suggested to my mind the propriety of informing you of a trial made of one, made from the same description, published perhaps in the 4th volume. This experiment was a complete failure. The shafts were fastened to the ends of the axletrees outside the wheels, which were eighteen inches in diameter; which left the body completely under control of the driver, to be raised or lowered at pleasure, according to the growth of the clover. On putting the machine to work, the clover-heads and stalks, in a few steps, choked up the teeth, so that the driver was compelled to stop and relieve them; and this happened so often, that I determined to attach a revolving cylinder, with four steel knives, just above where the choking took place, according to a suggestion in the Farmer's Register. This cylinder was driven by a three inch band, running on a notch on the inside of the wheel, twelve inches in diameter. The addition was beneficial in some degree, but the original objection of choking continued to be so inconvenient, that the machine has been laid aside as a complete failure. Very respectfully,

JAMES E. SAUNDERS.

Rotation of Crops.

Putney, Vermont, April 6th, 1839.

Mr. Buel—Sir—Having been for some time a regular subscriber to the Cultivator, and having practised in the rotation of crops, for the last twenty years, I deem it a duty I owe to the public, to speak on the occasion—to add my testimony and experience to what has been published in your valuable paper. My farm is situated on the bank of Connecticut river, and is fast returning to that native purity and fatness, for which these lands were once noted. My land, in 1815, when it came into my possession, poorly paid for cultivation, owing to the successive croppings, without grass seeding, until it would not return a crop, and was left in common to diseases and mullin. I am thus particular, in order to show the downward course a farm will take, if there is nothing returned to the soil, by successive croppings. I commenced in June, 1815, to summer fallow my poorest land, and first of September sowed it to rye, and seeded it to Dutch clover, as the southern clover was not known among us then. I purchased one ton of plaster of Paris, which was just beginning to be used in this section of country—of which, I sowed a bushel or more upon an acre. I had a fair crop of rye. The next year I commenced another ten acres of fallow, in the same course. My clover did well on the first piece. I sowed another bushel of plaster of Paris in April, after I took my crop of rye off—and first of July, I ploughed under the clover, and a heavy job it was. In September, I ploughed it again, lightly, and sowed it to rye, and seeded it to clover and herds-grass. The next year I mowed it—the next year, I planted it to corn; and the next year I sowed it with oats. My next crop was rye, and seeded to clover as before. At the same time, I was bringing up other lands in the same way, and with equal success, until I had brought all my farm into this mode of cultivation. For the last ten years, I have left out the crop of rye, as not so profitable a crop—and left my land heavier, and adopted a three course system, which I think is the better way. I have only to sow my oats early, in order to seed clover, which takes surer and better when sown early than late. I have used plaster of Paris freely on my grass crops and corn land. I use a roller on my oats, as I always have seeded to clover all my small grain crops, which I think much of, both for seeding and rolling down the ploughing before planting. I use the southern clover, which is much the best for rich land in the rotation of crops, as you get the first crop for hay, and of a better quality than the Dutch clover, and the second for seed, which is a clear profit, and a good one this last year, as it is worth twenty dollars per hundred pounds, and 200 lbs. is our average crop.

I use my manure in its green state, and plough it under as soon as possible; as I plough all my planting land, and plant as soon after as possible, I am not troubled with worms but little. When I mow but one year, I prefer planting early, and much thicker than is generally practised.

My experience in making manure, may be worth communicating, as it is to me an important branch of agriculture, and should excite the energies of all farmers. I have yards attached to my hog-houses, that the hogs may go in and out at leisure; these I keep supplied with soil, loam, or muck from swamps, with a good quantity of straw, or litter from the barn-yards, which every good farmer has for the occasion, from which, by care and some labor, almost any quantity of manure can be made, and that which is good. I have only to add soil, weeds, straw, green clover, summer manure, or any, or every vegetable substance, as all are acceptable to the hogs, who are very industrious, and will manufacture more manure in value, than their expenses in keeping. I feel that my position is good—that my lands are continually increasing in fertility. If any of it flags, or decreases in richness, I have only to plough in a crop of clover, and it immediately takes its place among my richest lands.

Thus you will readily see, that where lands will produce clover, by the aid of plaster, there is no trouble in raising land to a high state of cultivation. I have always returned to my lands all my crops, except my grain, which I market, except what is needed for farm stock &c. With much esteem, THOMAS WHITE.

Curing Hams.

Hanover, Mich. March 7, 1839.

JESSE BUEL, Esq.—Sir—Having had the perusal of your valuable paper from the commencement, I beg leave to present to the public, through its columns, my manner of preserving hams. I turn my barrel over a pan, or kettle, in which I burn hard wood, (commonly hickory or maple,) for seven or nine days; keeping a little water on the head of the barrel, to prevent it from drying. I then pack two hundred weight of ham in my barrel, and prepare a pickle, by putting six gallons of water into a boiler, with twelve pounds of salt, twelve ounces of salt-petre, and two quarts of good molasses; this I stir sufficient to dissolve the salt, &c. and let it boil, and skim it. I then let it cool, and pour it on my ham, and in one week I have smoked ham, very tender, of an excellent flavor, and well smoked. When the weather becomes some warm, there will a scum rise on the pickle; by keeping my ham under the pickle, it will keep the year round.

N. B. It is better to have a *good* white oak barrel than any other. Try it, and if you ever have had meat smoked earlier after killing, and more palatable, please inform the public through the columns of your paper, and oblige a subscriber. Yours, &c.

H. FOWLER

JUDGE BUEL—Dear Sir—I send you a copy of the within directions for using urate and poudrette—if you are of the opinion it is of sufficient importance to the agricultural interest to publish it in the Cultivator, you will do so. I think highly of it myself, and intend to make some experiments on it in the ensuing season, and propose to submit the results to you for publication.

Very respectfully, your most obedient
A. DEY, 63 *Cedar street.*
New-York, 7th March, 1839.

Urate and Poudrette.

The attention of the public has recently been directed to the use of *urate* and *poudrette.* It has long been known in France, as the most efficacious of all manures, and the few experiments made the last year (1838) in the use of *poudrette,* in and around the city of New-York, has awakened the attention of farmers and gardeners. The Royal Academy of agriculture in England have caused experiments to be made of the respective power of the different manures, and upon the trials so made it appears beyond a doubt, the superiority of manure, made from sinks and privies, over any other productive agent for agricultural purposes.

DIRECTIONS.

The following directions are given by *Peter Barthelemy,* (who was one of the first discoverers, in France, of the present system of preparing the articles,) how and in what manner it should be applied, and who recently has introduced its manufacture in the city of New-York.

Urate is the product of the *liquid* part, and *poudrette* of the *substantial* part of sinks, or privies, both of them reduced by different processes, to a dry and inodorous substance, and used as the best of all manures known to the agriculturists or horticulturists; *being animal manures of the richest kind, and the most powerful of any application that can be made to the earth.*

URATE.

The urate may be used in its dry state by spreading it on the land as you would lime or ashes, *or* after having been dissolved in water, may be used through a watering pot, or by a cask, on cart wheels, in the same manner as the streets in the city of New-York are watered in summer.

For all kinds of small grains, such as wheat, rye, oats, barley, flax, and others of a like kind, it may be sowed dry, upon the soil in the proportion of 12 to 18 bushels per acre, according to the quality of the land.

For *corn* and *potatoes*, and such like, it is best to mix the urate in an equal quantity of dry soil, and put in the hill about a gill, or handful, sprinkled round the seed corn and potatoes, as is usually done with ashes.

For beets, turnips or other vegetables, sowed or planted in drills, the urate is to be prepared in like manner and sowed in the drill.

For grape vines, fruit trees, forest trees, flowering trees, flowers; also for garden vegetables, such as cauliflower, cabbage, melons, cucumbers, and the like, *urate* is dissolved in water, in the proportion of one pound to a gallon of water, and poured on the subject; *one application* is sufficient: and for articles not herein enumerated, it may be sowed dry on the surface of the ground.

Where the land retains water, during the *winter, urate* must be used only in the *spring,* in order that its salts may not be absorbed in too large a quantity of water.

Where the land is dry, or does not retain water, during the winter, *urate* may be used in the autumn; if however the sowing takes place, shortly before the hard frosts, it is better to use urate only in the beginning of spring.

As a *general rule,* more urate is required upon the same quantity and quality of land in *autumn,* than in the *spring,* if used in the *spring* it is better to apply the urate in a damp day, or immediately after a heavy rain, if it cannot be applied shortly before the rain.

There is a great advantage in *soaking corn* or other *grain for one hour only* in a strong solution of *urate* before planting or sowing it, the corn or grain will *start sooner,* be stronger and less liable to attack by worms or birds.

POUDRETTE,

Is to be used, in the same manner as urate, with the following exceptions, namely; the *quantity* must vary from 18 to 35 bushels per acre, according to the quality of the land, less than 18 bushels to the acre may not be very satisfactory, and more than 35 is useless.

Poudrette is never dissolved in water before being used, as is urate, but in other respects, it is used, in its dry state, or by mixing it with dry soil in hills or drills, or sown broadcast, as lime or ashes.

The difference of the season, between spring and autumn, and the state of the atmosphere are to be considered, before using either urate or poudrette; damp weather is always to be preferred. Neither of them contain any seed of weeds of any description; an application of urate and poudrette once in every three years is sufficient.

Urate and *poudrette* may be sent to any part of the country in barrels or bags, barrels to be preferred, when it is liable to get wet. Orders may be given, post paid, directed to "*The New-York Urate and Poudrette Company,*" *Box No.* 1211 *post-office, New-York.*

The urate and poudrette, made by this company is not confined to distribution among its stockholders only, and therefore farmers and gardeners may expect a supply in the order in which their application is made without any condition of becoming a stockholder, or advancing any more money than may be sufficient to purchase what they need.

The public should be on their guard in relation to the use of the poudrette, as it is feared, it may be brought into dispute by other manufacturers of the article, where quantity, rather than quality is considered most desirable.

It may be that on trials of urate and poudrette, a different application may be found more desirable; in such case it is hoped the experimenter will make known to the public his discovery.

FURTHER TESTIMONY.

Dr. Granville, in his report to the Thames Improvement Company, in speaking of the immense source of agricultural wealth which the sewers of London afford, but which is now worse than lost, makes the following statement of facts furnished by them.

If a given quantity of land sown, and without manure, yields three times the seed employed, then the same quantity of land will produce 5 times the quantity sown, when manured with old herbage, putrid grass or leaves, garden stuff, &c; 7 times when manured with cow dung; 9 times with pigeon's dung; 10 times with horse dung; 12 times with urine; 12 times with goat's dung; 12 times with sheep's dung; and 14 times with night soil, or bullock's blood. Or in other words, an acre of land sown with two bushels of wheat, without manure, will produce 6 bushels; 10 bushels with vegetable manures; 14 bushels with cow dung; 18 bushels with pigeon's dung; 20 bushels with horse dung; 24 bushels with goat's dung; 24 bushels with urine; 24 bushels with sheep's dung; and 28 bushels with night soil, or bullock's blood. But if the land be of such quality as to produce, without manure, 5 times the sown quantity, then the horse dung will yield 14, and the night soil $19\frac{2}{3}$ the sown quantity; or land that will yield without manure 10 bushels an acre, manured with horse dung will produce 28, and with night soil about 39 bushels of wheat per acre.

These results, and multitudes of recorded experiments, prove that they in no case vary far from the facts, show the immense superiority of night soil, or Flemish manure, over any hitherto employed. In addition, Dr. Granville found that some crops which yield large profits, and are so extensively cultivated in Flanders, can only be obtained in abundance, and of the finest quality, by employing what may emphatically be termed Flemish manure in the preparation of the soil.

Another important matter in the comparative value of manures, and of essential practical interest to the farmer, has been established by the same authoritive investigations; and that is, that while night soil has produced fourteen times the quantity sown, where horse dung has yielded only ten—the proportion of the former, or Flemish manure, was, to the horse dung employed, only as one to five; so that with one ton of the Flemish, a larger produce was obtained than with five tons of the best stable manure.

Defence of the American Society for the Diffusion of Useful Knowledge.

CONCLUDED.

This communication has already reached such a length, that we shall say but a very few words, on the only other subject, which we proposed to touch; the character of the published library.

Your correspondent observes, "Many of the volumes are excellent works in their way; but most of them are not adapted to the capacities of the young;"—and your own remark is, that they are "wholly unsuited to form the *basis* of a common school library for an agricultural population."

The circumstances under which that library was published, have been mentioned; and it is only necessary, to refer you to what has already been said, and to remark here—that the library published, was never offered as specimens of what the society proposed to produce in the way of school libraries; such libraries, as the society well knew, could not be produced without the means requisite to employ capable men in producing new books, and re-modelling old ones.

As to the character of the books—we think an examination of them, will show many of them to be intelligible and interesting to the most youthful readers at our district schools, and scarcely one above the capacity of the elder pupils. The objections too, that are made, are not for any bad qualities which the books have, but for the absence of certain qualities which they ought to have possessed; no one has denied, that the books are valuable as books, but they are not considered as possessing all the qualities which should be found in such publications. We could add more than this negative praise; we could mention those, whose names have added lustre to some of most lofty stations both in our state, and in our national governments, who have examined the published library, and have given it their most unqualified approbation. But we have no wish to discuss the character of those books; they are before the country, and the people may judge for themselves. All that we ask, is, that the library may be judged with reference to the circumstances under which it was prepared: that the motives which led to its publication may be appreciated; and that it may be considered not as a *basis* of a common school library, but as a commencement of a new undertaking, made under peculiar difficulties, prepared to meet a peculiar emergency, which would not admit delay.

We make these statements, not, from feeling that our conduct calls for justification; but, because we are not willing, that a combination of means, the result of great labor, and capable, as we believe, of effecting great ends, should be rendered useless, by a misconception of our proceedings, or a misconstruction of our motives.

We embarked in this cause, under a sense of duty; we have devoted to it money, time, and labor, under a feeling that we were bound to do what we could to supply the great want of our country—a want, which every reflecting man sees, and every good man desires to remove. We have, after much exertion, provided means, which we believe, if carried to perfection, will be commensurate with the great objects we wish to effect; we shall proceed in using our utmost powers in perfecting those means; and should we fail, however much we may regret not having accomplished what we had hoped for our country's good, we will have the satisfaction of having done our duty in this great matter, and will have relieved ourselves from all responsibility for our failure, by having done all we could to ensure success.

But we shall not fail. An interest in education, has always been a predominant one in the minds of the American people: and every day are we receiving from different quarters of our country, encouragement to go on in the work we have undertaken. Arrangements are making, which will soon produce a library possessing those qualities, which the inauspicious state of the times, prevented our giving to the first series; and the benevolent and the patriotic, are responding cheerfully to our applications for pecuniary aid.

We call upon every lover of his country, to aid us in our undertaking; we ask him to examine for himself, whether the measures we have adopted, are, or are not adapted to the ends we propose; and should there be any thing erroneous, or any thing defective in our plans or proceedings, we ask his friendly counsel and advice, and while he corrects our errors, to do justice to our motives: But should he find, that the means we have selected, are well calculated to elevate the character of our national education, and to extend its limits, we do not solicit as a favor to ourselves, but rather demand, as a duty to his country, to his children, and to himself, not to stand an idle spectator of our proceedings, still less, to throw obstacles in our path—but to exert to the utmost the powers which God has given him, whether talent, wealth, or influence, in co-operating with us in the great enterprize of extending the benefits of sound education throughout our whole land. *New-York, March 1st,* 1839.

On behalf of the Executive Committee.
JAMES BROWN, CORNELIUS BAKER,
THOMAS COCK, ROBERT KELLY,
JOHN T. GILCHRIST, GEO F. ALLEN,
A. P. HALSEY, CHAS. SAM'L. STEWART.

Statement of Receipts and Expenditures of the American Society for the Diffusion of Useful Knowledge, up to March 1, 1839. (The book of subscriptions made in Western New-York, being in the hands of the Agent who collects in that region; the amounts therein mentioned, are not included in the statement below. The actual receipts of moneys, by that agent, have not been equal to his expenses.)

SUBSCRIPTIONS.		SUBSCRIPTIONS.	
James Brown,........	$1,000	John Sergeant,........	$5
J. T. Gilchrist,........	300	J. M. Porter,..........	5
S. V. Renssalaer,.....	500	Geo. McKeim,.........	5
James Wadsworth,....	100	David Potts, jr.,........	5
Jacob Abbott,.........	100	M. W. Baldwin,.......	5
Peter G. Stuyvesant,.	200	J. C. Biddle,..........	5
A. Barclay,...........	25	James Wadsworth,....	10
George Douglass,......	200	J. J. Astor,...........	200
Thaddeus Stevens,....	100	James Roosevelt,......	100
C. Bartlett,...........	5	James G. King,.......	20
G. P. Oakley,.........	5	Samuel Ward,........	20
William Brown,.......	5	William Kemble,......	5

Total amount of receipts,..................... $2,925

EXPENDITURES.

Paid for printing, binding, and stationery,..........	$443 58
" " rent,....................................	138 50
" " postage,..................................	39 50
" " actual expense of secretaries..............	1,399 54
" " agencies,.................................	162 33
" " travelling expenses,.......................	198 38
" " expenses of secretary,.....................	132 40
" " rent,.....................................	65 00
" " custom-house expenses,.....................	11 07
" " printing and stationery,...................	17 02
" " postage,..................................	26 82
" " agent,....................................	50 00
" " advertising,..............................	7 14
1839, March 1,—Balance in treasury, ...	233 71
	$2,925 00

EXTRACTS.

[*From the New-England Farmer.*]

We proceed in the publication of Premium Farm Reports—intending to give them to the public with as much despatch as the state of our columns admits. They will be read, we are pursuaded with much interest. We give them without regard to any order, as is most convenient; but we shall very soon wind off the worsted. The subjoined account is from Mr. Fay, in Southboro', who received a gratuity of fifty dollars. H. C.

A SCHEDULE OF PETER FAY'S FARM, SITUATED IN SOUTHBOROUGH, IN WORCESTER COUNTY, MASS. 1838.

Question 1. Answer—one hundred and fifty acres.

2. It consists of loam, gravelly loam and gravel, and under the stratum a clay gravel.

3. The best method of improving my land—the *plough* is decidedly the best.

4. I till about eighteen acres, and I put twenty-five loads of manure to an acre on that which I plant with corn and potatoes.

5. I apply it both in its long or green state and in compost.

6. I do both spread and plough in the manure put upon fields to be planted with corn and potatoes, and also put it into the hills.

7. My method of cultivating green sward is by ploughing it at any part of the year, and of frequently harrowing the same the year previous to its being planted.

8. I mow from thirty to thirty-two acres of upland, and averaging two to two and half tons to an acre,

9. I irrigate about four acres, commencing about the first of May, and allow the water to flow about one month, and I think I get about one-fourth more in quantity, and the quality not as good.

10. I do manure the land that I irrigate, and a part of my other land that I mow, once in two years, and I put twelve loads of compost manure to the acre.

11. I have mowed about ten acres of land not suitable for the plough, and the quality of the hay very ordinary, and producing more than five tons upon the same the present season.

12. My method of reclaiming my low land has been to dig out the stones and then to smooth or level the same, and give it a top dressing of loam or gravelly loam or gravel and then compost manure, and by seeding of herds grass, red top or clover, and roll in the same. On bog or peat meadow I never have performed any operations.

13. I have planted nine acres of corn the present season; my method of preparing the ground has been, of ploughing the same fine in the spring, then harrowing it, then carting on my manure and spreading it, then ploughing in the manure fine, and then rolling the land where it will admit, if not bushing it. Six acres of it I have cultivated in this way, by putting ten loads of long or green manure to an acre, and fourteen loads of compost manure in the hills, and planted the same in hills three feet and six inches apart each way. And on the three acres in addition to the ten load of long or green manure to an acre, I spread fifteen loads of compost manure to an acre, by putting the loads between the long or green manure, and ploughing in the same, and not manuring it in the hills; hills four feet and six inches apart from east to west, and three feet apart from north to south. I soaked about one half my corn in water about twenty-four hours and rolled the same in gypsum; the other half I planted dry without any preparation. When I planted my corn I put a table spoonful of gypsum into each hill, and when the corn had come up I put six bushels of wood ashes, lime and gypsum around the corn upon the hill, in the proportion of one half ashes, one fourth lime and one fourth gypsum to an acre upon the said nine acres. I used the cultivator instead of the plough among my corn and hoed the same three times, and made the hills of a small flat form.

14. I have planted five acres of potatoes the present year, four acres of which I ploughed the land fine in the spring, then harrowed it, ploughed it the second time fine, then spread twenty loads of compost manure on the acre and harrowed it in, furrowed the ground four feet and six inches apart north and south and three feet apart east and west, and planted them the first week in May, when the ground froze every night, and on the north side of the wall the ground did not thaw through the day; when I planted the potatoes, I put a table spoonful of gypsum into each hill, and when the vine made its appearance through the ground, I put twelve bushels of wood ashes, lime and gypsum on the hills in the proportion of one half ashes, one fourth lime, and one fourth gypsum; I ploughed and hoed them three times. The produce was one hundred and sixty bushels to the acre. The kinds, a part of them a red potato called among us here the Rutland, and a part of them were the blue potato: the soil a gravelly loam.

The one acre was a green sward ploughed in about the middle of May, this spring, then harrowed the land and spread twenty-five loads of long or green manure to the acre, and planted it in rows three feet and six inches apart each way; ploughed and hoed the same twice: the soil was a gravelly loam: the produce one hundred bushels to the acre. The hot and dry weather in the month of August, was very severe with my potato crop upon both fields, and the product not half of an usual crop. The kinds of potatoes were the same as planted upon my other field.

15. I have among the corn in one of my fields of about three and a half acres, the English turnip, where my corn was very much injured by the cows, and the growth is extremely promising, but I have not harvested them now.

16. None this year of winter grain; of spring grain three acres and three quarters. The ground was prepared by ploughing it fine, then harrowing it; then cross ploughed it, then rolled it, sowed the grain and got it in with the cultivator; put no manure upon my land in the spring; the land the season previous having been planted with a potato crop, sowed two and a half bushels to an acre. My grain was all of wheat of the Black Sea kind, except one half bushel, and that was of the Italian: the soil of a gravelly loam of a hard pan bottom: my method of preparing the grain was by washing all the foul seed therefrom, then put the grain into baskets and let it drain until dry, then put the grain into tubs and soaked it in as strong a solution of salt and water as could be made to dissolve in the water at a heat of one hundred and twenty degrees, and soaked the same ten minutes, then took it out upon a floor and raked in as much of dry lime as would adhere to the grain. When the grain was up about three or four inches in height, I sowed eighteen bushels of wood ashes, lime and gypsum in the proportion to one half ashes, one fourth lime and one fourth gypsum to an acre; this dressing is highly valuable to the wheat crop and to the succeeding crops of grass, and visible for a number of years, and one of the cheapest and best manures used.

The half bushel of Italian wheat was sowed upon the same field side by side of the Black Sea wheat, and the same process of preparing the land and seed was had as with the Black Sea wheat, and the produce was about the ssme with the Black Sea wheat, and the crop when ripe for harvest was one week later than the Black Sea wheat. The crop of both kinds was twenty bushels to an acre, and the last year I raised thirty-five bushels to an acre of the Black Sea wheat; my wheat was sown the last week in April.

17. I have laid down three acres and three fourths of an acre to grass the present season; I sowed the seed on the first day of May; my usual practice of seeding is, half a bushel of herds grass, one peck of red-top, and ten pounds of clover seed to an acre, and I sowed the same quantity this year; and was sown with the grain crop after the grain was got in with the cultivator and then rolled in.

18. The means and manner of collecting and making manure, are from my cattle and hogs, and by digging the loam out from under my walls; where I new set them or make new walls; the loam and sand beside the roads and from loam pits in my pastures, and the same carried into my barn yard.

19. I keep six oxen, twenty-six cows, no young cattle, two horses, sheep none. One of my barns is 84 feet long and 30 feet wide, one other barn 50 feet long, 36 feet wide, and 20 feet posts, and a cellar under two thirds of the same; one-third part of said cellar occupied for my hogs to lie under in the winter. Manure not covered.

20. My cows are all of the native breed.

21 I have raised no calves. I have fatted all my calves for the market this year and for several years past; I have fatted 37 calves for the market this year, which have brought me at my house $317; but I am convinced that I am pursuing a wrong course, and I intend to raise ten or twelve of my best calves yearly in future.

22. Of butter I have made up to the 15th day of October the present year, twenty-five hundred pounds, and of cheese only for my own consumption, six hundred and fifty pounds of two meal and four meal, and none of new milk.

23. Of swine I have on hand three old ones and twenty-two pigs; I intend to fat the three old ones and seventeen of the pigs, and keep five of the pigs through the winter for breeders; my swine are all of the native breed, and I make my pigs weigh on an average at ten months old, when dressed for the market, three hundred pounds, and have for many years past. I fatted seven thousand one hundred pounds of pork the last year, and sold six thousand and five hundred pounds of the same, which brought me six hundred and fifty dollars.

24. I feed my swine through the summer upon the skim milk and whey from my dairy, and give them no meal in the summer: I fat them upon corn and potatoes; I boil my potatoes and mash them fine and make the composition in the proportion of one bushel of potatoes and half a bushel of meal, and keep my hogs dry and warm, and keep them well littered with straw, which is of the utmost importance in the fattening of hogs.

25. I have a yard in front of my barns, 100 feet in length by 75 feet in depth, where my cattle and swine all yard through the summer and winter; and I get from 300 to 400 loads of manure a year from the same, meaning all that I make of long or green manure and of compost. The materials are of loam, sand that I cart into the yard in the autumn after I have taken the manure out, and of meadow hay, straw and corn stover that I throw out into my yard for my cattle in the winter for them to pick over. It is decidedly the best way that cattle and swine be yarded together for the making of manure.

26. I employ upon my farm three men for eight months, commencing on the first of April, and one man in the winter, and one man three months by the day: I have paid fourteen, sixteen and seventeen dollars by the month for the eight months, and from five to six shillings by the day, and boarded said men.

27. I have five hundred of engrafted apple trees and from two to three hundred trees not engrafted

28. I have forty two pear, 35 peach, 25 plum, 14 cherry, 8 apricot, and 4 almond trees.

29. My trees have never been attacked by the canker worm, to my knowledge; the borer has destroyed one apricot tree and four or five apple trees; I have not taken any means to destroy them.

30. I do not use any nor allow any ardent spirits on my farm, and have not for the last five years.

Horticulture.

[*From the Northern Journal.*]

Mr. CLARK—Observing that you occasionally devote a column of your Journal to the interests of agriculture and horticulture, I am disposed to give some of my notions and experience upon the latter; and if you think them *paper* worthy, you are at liberty to give them an insertion.

I have long been satisfied that our country gardens lose much of their interest and utility, by the unskilful and slovenly manner in which they are usually managed. Not only are they suffered, through shameful neglect, to be overrun with all manner of noxious weeds, but the garden vegetables are planted or sowed (as the case may be,) in such a crowded manner, that it is physically impossible that they should ever approximate to within 'gun-shot' of perfection.

Onions, parsnips, and carrots, should be sowed in drills, lengthwise of the beds, at least twelve inches apart, nor should they be suffered to remain too thick in the drills. Beets should be sowed in the same manner, with the exception, that the drills should be made twenty inches apart, and the plants six inches in the drills. Marrowfat peas should be planted in double drills, three and a half feet apart; and dwarf marrowfats in double drills three feet apart; while melons and cucumbers should be planted in hills at least seven feet apart each way, and no more than three plants should be suffered to remain in a hill.

By adopting the rules, as I have just stated, and keeping our gardens clean by often stirring the ground, we should add much to their beauty, and still more to their utility. It requires but a very small piece of ground, properly managed, to furnish in great variety a full supply of garden vegetables, which not only add much to our table comforts, but are eminently conducive to health; without which, life can scarcely be considered an enjoyment. But I must not stop to lecture or moralize; but, adding a little of my experience the last season, in support of my theory, I will close this communication, which I fear will be too long before I have done with it.

About the middle of May, I planted a part of my side border next to the street with cucumbers. The ground had formerly been thrown up and used as a hot-bed. Owing to the continued wet and cold, one solitary plant made its appearance; nor did this, until near the middle of June. But it did not lose much time after it was up. About the first of July, it commenced giving off its branches, and in less than a month from this time it completely occupied a space of six feet by ten, and scores of young cucumbers might be seen at a time, in different stages of development. Seeing it was a plant of great promise, I conceived the idea of keeping an account of its produce, and thought I should get two hundred; instead of which, I picked with my own hands, rising of four hundred as perfect cucumbers, from this one plant, as was ever set upon a table, or put into a pickle tub.

The circumstances which led to this astonishing result, were obviously, the high culture, the kind of cucumber, the uncommon fecundity of the season, and last, but not least, the ample space allowed to this plant.

It may not be improper to remark here, that many of the branches passed through the pickets into the street, and were fed off by the cattle. Others passed over into the walk, and were trodden under foot—and I will add to these, the untimely frost which happened on the morning of the 4th of September, which killed more than half the leaves—all of which operated as so many drawbacks, but for which, I have no doubt, my crop of cucumbers from this solitary plant, would have been augmented to 500! The greatest number I picked in any one day was 35—the greatest number in any three successive days 72. The length of the cucumbers when picked would range from 2½ to 3½ inches; and with the exception of a dozen or so, at the close of picking, were perfect in shape, and without spot or blemish.

I am well aware, that such a result cannot be reached except in highly favorable seasons; but then it should be remembered, that good seasons ever are lost upon us when the culture is bad; and that good culture will do much in supplying the defects of an indifferent season.

If the above remarks and detail of facts, thus hastily thrown together, shall have any influence in improving the state of our gardens, I shall feel myself amply rewarded for the trouble I have taken in placing them on paper.

DAVID PERRY.

Lowville, 16th Jan. 1839.

Extract from an Address of the Hon. JAMES M. GARNETT, *before the Fredericksburgh Agricultural Society, Va.*

The scripture injunction "*seek and ye shall find,*" is eminently true, not only of spiritual knowledge, but of every species which human beings are capable of attaining, and to no class of mankind is the frequent repetition of this most momentous truth more necessary than to ours; for the worst of our besetting sins is an overweening confidence in our knowledge of husbandry, and the consequent neglect of all the means essential to its improvement. Our secluded country lives, if long continued without interruption, serve only to cherish and confirm this self conceit, almost beyond all hopes of cure. The symptom which usually indicates this disease, in its most inveterate state, is, when the infected person is found, whenever an opportunity offers, constantly and most complacently, talking about "*his* method, *his* system."—When the disorder appears in this aggravated form, a recovery very rarely occurs, for there are only two modes of cure, and both of doubtful efficacy. The first is, to persuade the sufferer, if practicable, to go a little from home, and examine *other men's methods and systems;* for he will then surely find, either that *his*, upon which he has prided himself so much, as sole discoverer and practitioner, have really nothing new in them, or that they are much inferior to the methods and systems of many other persons of his own profession. The second remedy is, to tempt him to read (provided he can,) a few scraps or whole articles in print, about husbandry. If well selected, they may possibly coax him on to peruse a pamphlet, or book or two, on the same subject, when he will discover that the great bug-bear which he has always despised so much under the name of book-farming, is, in reality, neither more nor less than a well authenticated record of the best practices in every branch of husbandry, from the earliest ages to the present day. It is true, that he would find some mere speculations—some useless trash; but what books except the Bible, were ever yet exempt from these defects?—Yet, even the most illiterate believe books to be absolutely necessary to the perfection of every honest trade, profession, and calling under the sun. Strange then, most strange would it be, if *that* calling, upon whose prosperity even human existence itself depends, should be the only one which can prosper without books! The vainest fool that ever lived, if he were not an absolute idiot, would not fail to admit this, provided you could prevail on him to think long enough to form an opinion. How shameful—how disgraceful then is it, that any of our fraternity who are certainly *not fools*, should ever be found among the idiotic declaimers against the study of books on agriculture! This study would put him in possession of *one fact*, which of itself should suffice to animate his professional exertions for the rest of his life. It is, that all the greatest benefactors of mankind have been either practical agriculturists, or the devoted friends thereof—that they have deemed agriculture not only an *art* but a *science*, to the perfection of which the study of books is indispensable; and, moreover, that to the end of time, it will always fall so far short of perfection, as to leave ample room for constant improvement, even to the wisest and most experienced of our profession. To strive therefore with might and main after this improvement, and with a zeal and perseverance proportioned to its importance, should be deemed the indispensable duty of every man who presumes to call himself a friend to the great, the vital cause of agriculture. All who give it only *lip service*, should be ranked amongst its worst enemies, since the tongue alone is worse than nothing, unless the heart, the hand, and the purse, unite in its promotion: nay, more, unless this union, in the case of us Virginians, should so work as to obtain legislative aid to our cause. But no man in his senses can hope it, as our legislatures are now constituted, if he judges by their undeviating neglect of agriculture, from the end of our revolutionary war to the present time; although strange to say, a large majority of them have always been agriculturists! Of this there can be but one even *probable* explanation; it is, that they must believe *party politics* to be much more deserving of their patronage than *agriculture*.—To cure them of this hallucination, there is only one remedy, and *that*, thank God, is still in our power, although there is some doubt whether we shall all be sufficiently alive to our own interest to apply it. This remedy is, either to elect no more representatives, without clear, unequivocal pledges to do something for agriculture; or to instruct all who will not give such pledges, that they *must* do something, or never again expect our suffrages. Why this course has not been pursued, after so many fruitless and deeply mortifying applications to our legislatures, is to me utterly inexplicable, but upon the supposition that the majority of us are stone blind to the obvious means of relief; or that those who *can* see them, and are fully aware of all their momentous bearings, want the courage and perseverance to combat that fearful and most formidable obstacle to improvements of every kind, which consists in a union of ignorance and asinine indifference relative to our best interests. We agriculturists *may*, and often *do* live so comfortably at home, by industry and frugality, almost in spite of government neglect, nay, even of government hostility, that we remain ignorant of the vast extent to which legislative enactments have benefitted agriculture in other countries, and might advance our own, if we would only exert over them *that* influence, *that* control, which our constitution has secured to us. Should we much longer neglect to do so, all argument, all persuasion, used for any such purpose, will be as entirely thrown away, as an attempt to show how a dead man's life might have been saved, had a certain nostrum been administered while he was alive. Unless we mean "*to give up the ship*," in other words, to abandon our good old mother, Virginia, to her aboriginal inhabitants, the bears and wolves of the forest, and flee to "the far west," we *must* insist upon the establishment at public expense of a board of agriculture, or an agricultural school, or an agricultural survey of the state, or all three together. One or all of these means are indispensably necessary, if we would maintain among our sister states, that relative rank and importance to which our soil, climate, natural resources and population, so justly entitle us. * * * * * * *

Poudrette.

Mr. Minor, manager of the poudrette establishment at New-York, has furnished us with the following extracts, from highly respectable farmers, demonstrative of the great value of this new species of manure.

Extract of a letter from Dr. Josiah Bowers, dated Smithtown, Long-Island, 14th Jan. 1839.

"I have used poudrette on several crops with very satisfactory results. On one-half of a field of corn containing six acres. I applied it at planting time, at the rate of *one gill* to the hill. The produce was more than double that of the remaining half of the field. It is proper to remark that the soil was clayey and cold, and not calculated to produce good corn without warm manure. One-half of another field of ten acres, was planted with a gill to the hill; the next day the remaining five acres were planted without manure. Both parts came up equally well, but that treated with poudrette, very greatly excelled in rapidity and vigor of growth, being at least twice the size of the other, at the time of second hoeing. At this period, I treated the remaining five acres, with the same quantity of poudrette per acre as had been put in the hill of the first, sowing it on the ground at broadcast, and working it in with the cultivator and hoe. The result answered my expectations. That manured in the hill maintained its superiority for a few weeks, but it became daily more obvious that its rival was gaining upon it, and at the time of cutting up no difference could be perceived in the crop, both being excellent for the season. Forty bushels per acre on ruta baga, produced a result beyond my most sanguine expectations. A large number of experienced farmers examined the crop on the ground, and agreed in pronouncing it the most abundant they had ever seen.

"In the garden it was no less effectual, producing the finest melons, squashes, cucumbers, peas, beans, &c. Indeed I consider it peculiarly suitable for all annual plants, or such as require a rapid and vigorous growth. In addition to my own experiments, I have been careful to observe its effects, as used by my neighbors, as well as to ascertain their opinion of its value, in comparison with other manures. The best evidence of the high estimate they put upon its value, is the extreme solicitude manifest in all who have used it, to secure to themselves a future supply. J. BOWERS."

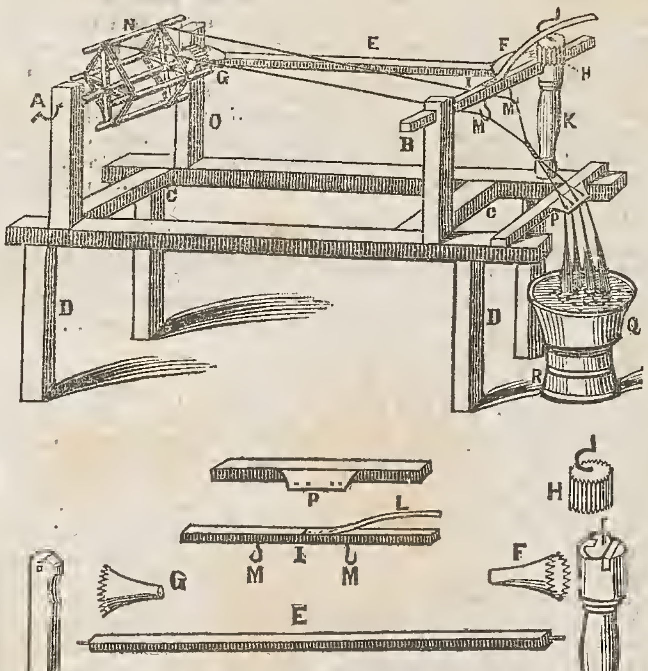
Extract from a letter written by Wm. F. Blydenburgh, Esq. dated Smithtown, L. I. Jan. 29th, 1839.

"To D. K. Minor—Sir—I have used poudrette in the hills of Indian corn, say a gill or handfull to each hill, with very decided benefit. The corn in the same field, manured in the hill with first quality hog-pen manure, for the first 60 or 90 days, appeared to be inferior to that treated with poudrette, at least 30 per cent; but at gathering time, little or no difference in the produce was perceptible. The quantity of hog-pen manure, put in each hill, must have exceeded the quantity of poudrette 600 per cent, or more. I should prefer, for the purpose of manuring corn in the hill, one bushel of poudrette to six of the best hog-pen manure.

"During the first thirty days, after the corn above named was planted, I would remark, that the part of the field treated with poudrette, appeared at least fifty per cent better than that treated with hog-pen manure. The beneficial effects of poudrette upon all spring crops are immediate, so far as I have observed. On grass lands, in the month of May, it has a decidedly beneficial effect, as a top dressing. I should think twenty bushels to the acre on grass, would double the crop, for one year; but the effects on that crop, for the second year, I should deem very slight. So far as I have been able to make up an opinion as to the value of poudrette, I should say a bushel of it is worth 12 bushels of street manure, 7 of horse manure, 6 of hog-pen manure, 3 of ashes, 14 of cow-yard manure, and ¾ths of a bushel of *ground* bones, for any crop, allowing all of them to be on the farm, or at least near to it, so that no freight is to be charged on either. When freight and cartage are to be considered, the difference in favor of poudrette, bating bones, is greater. I should be glad to purchase this season, 1,000 bushels of poudrette, at 30 cents per bushel. In fact, rather than not have it, I would give something more. W. F. BLYDENBURGH."

Piedmontese Silk Reel.

[Fig. No. 12.]



The frame is 6 feet 5 inches long, 4½ by 3 inches thick. Distance of the upright posts A and B, 4 feet 4½ inches.

C, C, length of the connecting bars of the frame, 20 inches in the clear.

D, D, legs, 2 feet 3½ inches long.

E, E, shaft, with the cogs at each end. Cog F has 22 teeth: cog G 25 teeth.

H, cog of 35 teeth, with a crank on the top, 4 inches sweep; point of the crank ¾ths of an inch from the edge of the cog.

I, a moveable bar, 2 feet 10 inches long, ⅝ths of an inch wide, ¾ths of an inch thick, playing through the upright posts B, K.

L, an iron carrier, of wire No. 1, one end fixed to work free, by a screw in the moveable bar, 18 inches from its extreme end K. The other end is fixed by a burr to the centre of the cog on the top of the upright, K.

M, M, two wire hooks, 7¾ inches asunder, at equal distances from the ends of the moveable bar to which they are attached. The hooks are 4¾ inches long.

N, the reel: arms 2 feet 5 inches long; 1½ inches wide; ⅞ths of an inch thick; outer rim 20¾ inches long; 2 inches deep; ⅞ths thick; one of the arms is jointed, to enable the workman to take off the silk when reeled. There ought to be an extra reel, to put in the place of the one taken off, to prevent the work stopping.

O, upright support for the axle of the reel, to which the cogs of the reel, and of the shaft E, are fixed.

P, an iron plate, 12 inches long, projecting 3½ inches from the bar, with 4 holes, through which the threads of the silk pass.

Q, the copper to contain hot water, in which the cocoons are placed, when reeling off.

R, the furnace to contain charcoal, to keep the water of the proper and uniform heat.

The copper bason is 1½ feet long, 1 foot broad, and 4½ inches deep.

Note.—B. F. Pomeroy, turner, corner of Dock and Walnut streets, Philadelphia, will make Reels, at $10 per piece, upon the plan of the one given above.

Address, by J. J. Viele, Esq.

Delivered before the N. Y. State Agricultural Society, February 6, 1839.

Gentlemen—Among the many objects, for the attainment of which associations have been formed, there is none more laudable or philanthropic in its design—none that promises greater utility in its results, than that which has for its purpose the improvement of our agriculture. Whether we view it in its effect upon the welfare and prosperity of the great mass, composing the nation, or whether we have reference only to its effect upon individual happiness, we inevitably arrive at the same conclusions. To ameliorate the condition of mankind—to multiply the blessings of Providence—to increase the productions of our country—to beautify the face of nature—to develop new sources of wealth—to diffuse knowledge, and promote the great cause of universal education—in short, to augment the nation's wealth, and promote the interest and happiness of individuals, is the great object of our association.

In the early ages of the world, it is supposed that mankind lived mostly by fishing and hunting, upon herbage and fruit, the spontaneous productions of the earth. The first step in improvement, was to the pastoral life, or the rearing and keeping of flocks and herds. As mankind increased in numbers, they began gradually to cultivate the earth, and in a measure, to obey the injunction of High Heaven, requiring them "to eat their bread in the sweat of their brows."—This employment however, was not considered the most honorable, and was mostly performed by slaves and females, while the males devoted themselves to the pursuits of war, and the chase. With the advance of civilization, agriculture became more respected, and began to be considered of more importance; but it has always been viewed by many, as a servile and menial employment, and those who pursued it, have been subject to oppressive exactions, to mantain an indolent and corrupt clergy, to defray the expenses of war, and support the administration of the affairs of State.—Land became the property of the successful chiefs, and was considered among the legitimate "spoils of victory." This was parcelled out in large tracts, among the favorites of the conqueror; and in their turn subdivided among their servile followers, on condition, and with the most solemn asseverations, "that they would, from that day forth, become their man, faithful of life and limb, and terrene honor." Here is the origin of the feudal system, under which Europe has groaned for centuries, and a landed aristocracy has been built up, and engrafted upon their governments, which the advance of civilization and free principles, has as yet in vain endeavored to shake off. Grants of large tracts by the crown, to particular favorites, entailed upon their posterity in perpetuity, and by them leased to a degraded and oppressed peasantry, borne down by tithes and oppressive taxation, are among the causes, if not the principal, why agriculture has slumbered in ignorance for ages and centuries, while the other useful arts and sciences, have advanced with a rapidity only equalled by the march of time itself.

But thanks be to the spirits of our forefathers, that we can congratulate ourselves that our lot has been cast in a land of free and equal privileges, and that we have "a goodly heritage." By the constitution and laws of our country, estates entail, and in perpetuity, have been abolished, & there is no intermediate being requiring homage and fealty, between man and his God. Yet, as our population and laws were originally derived from countries where unequal laws prevailed, and where, through their influence, great and wide distinctions had grown up in society, based not upon merit, but upon government favor and patronage—the accident of birth, or the influence of other adventitious circumstances, we could not at one blow, entirely throw them off, and rid ourselves of their baneful influence. The established principle, however, is working admirably, and it needs not the eye of prophecy to foresee that the time is not far distant, when our farmers, hitherto despised by the "*ruffle-shirt*" or "*blue-stocking*" gentry, shall have arisen from the low, degraded, and ignorant state of the oppressed peasants and serfs of the old world, to the first station in the ranks of a highly civilized and enlightened nation. This desirabe result is not to be produced by the flattering appeals of noisy demagogues, and candidates for popular favor, but by the action and combined efforts of the agriculturists themselves, seconded and aided by the co-operation of an enlightened and liberal government.

The United States of America, extending from the twenty-fifth to the fiftieth degree of north latitude, embraces a greater variety of soil and climate, than any other nation; and is capable of producing in perfection, almost every article of necessity or luxury, now afforded by any part of the civilized globe. Yet, notwithstanding these advantages of climate, soil, and government, our agriculture has been suffered to languish and decline, to an extent that almost makes us tributary to foreign powers, for the humblest necessaries of life.

> "Can such things be,
> And overcome us, like a summer's cloud,
> Without our special wonder?"

The truth is, that even in our comparatively free country; while every other interest has been fostered and encouraged by bounties, appropriations and protective duties, the humble, but all important business of agriculture has been left to take care of itself. While the other avocations have been aided and forced by artificial stimulants, agriculture has been overlooked and neglected. While the light of science has been reflected upon all the other pursuits and avocations of man, agriculture has been left to grope in darkness, unaided, unnoticed, and without any particular inducement to stimulate her sons to action. The old impressions still lingering upon the minds of men, that she was of humble and menial origin, and that the only road to honor, distinction, or even any great degree of respectability, was through the learned professions, or the pursuits of commerce. The effect produced by this state of things is, that the consumers of our country are increasing in a ratio vastly disproportioned to the producers. The professions are overstocked, mercantile business is overdone, and speculation becomes the great business of the community, instead of the ordinary pursuits of industry.

Hence it is of the greatest importance not only to the agriculturist and manufacturer, but to the real and lasting wealth and prosperity of all classes of our citizens, that by a liberal and enlightened policy, our government should adopt measures for educating those who desire to till the soil, in the arts and sciences connected therewith; thereby placing them on a level with those who are educated in other pursuits in life, and qualifying them to understand, adopt and bring forth, all valuable improvements in their various departments, and by a proper distribution of rewards and bounties to those who shall greatly excel, encourage and stimulate the industry of the producing classes, by means of which the productions of our country would be vastly increased, new sources of national wealth be opened, and our country rendered in truth and in fact, wholly independent of foreign powers. Thus we should be enabled to sell more, and buy less. The same rules govern the economy of nations, as individuals. If an individual's expenditures exceed his income, he draws upon his principal, and is made poorer in proportion to the amount of the excess. Just so with a nation, which is nothing but a vast association of individuals. If she buys more from foreign powers than she sells, she is impoverished to the full extent of that excess.

That our agriculture is not in a very prosperous condition, is evident from the fact, that although we possess a salubrious climate, and a soil scarcely equalled in fertility, we have for a few years past been dependant upon foreign nations for the necessaries of life. Millions of dollars have been expended annually, for the last few years, for those articles of domestic consumption which our own agriculture should have supplied. Wheat, rye, Indian corn, oats, barley, butter, cheese, potatoes and hay, and a vast many other articles, have been imported to supply the demands of our consumers. There is no question in the minds of many who have investigated this subject, that our own agriculture is susceptible of such an improvement as would not only obviate the necessity of importations, but produce a vast surplus for exportation. By introducing an improved system of culture, greater economy in the use of manures, double, yea, quadruple that is now obtained, might be produced; the fertility and value of the soil enhanced; old, worn out lands might be renovated; and the taxable property and wealth of the nation increased in a corresponding ratio.

In addition to the improvement of our old routine of husbandry, there remain sources of wealth to which American industry has scarcely as yet been directed. I allude particularly to the introduction and cultivation of the mulberry, and the sugar beet. That these are both objects of great national importance, will not, I think, be controverted. When we take into consideration, that the average quantity of silk imported into this country for the last seven years, amounts to the enormous sum of fourteen millions annually, it would seem that wisdom would at once suggest the policy of encouraging, by legislative bounties, the growth and manufacture of an article that enters so largely into our consumption. The manufacture of silk, it is said was introduced into Greece as early as the sixth century. It furnishes one of the staples of China, from whence a sufficient quantity of the eggs of the silk worm to commence business, were clandestinely conveyed in the hollow of a cane, by two missionaries; from whence it has spread to almost every part of Europe that is adapted to its culture. It has been found by experiment that the mulberry flourishes in almost every State in the Union, and in some of them, considerable advances have been made in the manufacture of silk. The growing of the mulberry seems well adapted to our worn out soils, as it requires not the richest land to enable it to flourish best. From the little experience that has been had in this branch of industry in this country, there is little doubt but that it might be made a most lucrative branch of agriculture.

Of scarcely less consequence than the production of silk, is the cultivation of the beet, and the manufacture of sugar. The annual imports of sugar for the last seven years, average about six millions of dollars. This vast amount might also be saved to the nation by the encouragement of this branch of husbandry. The manufacture of sugar from the beet, is of very recent origin in the world. It was first introduced into France in 1811, under the continental system of Buonaparte. It was discovered by that sagacious man, to be an object of great national concern, consequently, it was patronized and encouraged by the imperial government, until its production has swelled to the enormous amount of about one hundred millions of pounds annually, which is about half the quantity consumed by the kingdom. It has been ascertained by experiments in this country, that sugar of equal quality can be made from the beet, with that produced from the cane, and at such an expense, that it might be afforded much cheaper in the markets. Our soil is well adapted to the beet. The product per acre is variously estimated at from twenty to thirty tons, depending of course much upon the state of the soil and the knowledge with which it is cultivated. This will probably yield upon the average about six per cent of sugar, making from 2,400 lbs. to 3,600 lbs. of sugar from an acre. To this may be added the molasses and cakes, also the tops, all of which is said to be highly valuable for the feeding of stock.

If there are so many advantages to be derived from the cultivation and manufacture of these two important articles of consumption, of necessity and luxury, if our soil and climate are adapted to them, if they promise such an abundant harvest of public gain and individual profit; why it may be inquired, may we not become a great silk and sugar manufacturing people? Why may not the twenty millions of dollars that is annually sent out of the country for these commodities be saved to the nation? I answer, that it may; and it only requires that public attention should be called to the subject, correct information with regard to it be diffused, and that some legislative encouragement should be given for a short time, that the difficulties and obstacles always attending the introduction of any new enterprise, may be surmounted.

Hemp and flax are also objects of great commercial importance and domestic utility. They are supposed to be natives of the north of Africa, from the rich alluvial bottoms of the Nile. They are now cultivated almost exclusively in the provinces of Europe, situated in latitudes corresponding with our northern and eastern states. They constitute the staples of Russia and Ireland, and enter extensively into their domestic industry. No soil is better adapted to the growing of flax, than almost any of the grain lands of our country. Our rich alluvial bottoms and western prairies, would doubtless yield great returns, if appropriated to the culture of hemp. But so far are we from producing enough of these commodities for our own use and consumption, that we annually import about six hundred thousand dollars in value of sail-cloth, and about the same amount of the manufactures of flax. Almost all the fine linen that is worn in our country, is imported, and the few linen factories that we have among us, are under the necessity of sending abroad for flax and hemp, to fill out their contracts, to furnish canvass for the United States navy. It is a fact humiliating to our national pride and patriotism, that our country in the fifty-third year of her *independence*, is as yet, *dependent*, upon the empire of Russia, Ireland and the nations on the Baltic, for the canvass which floats our vessels; and upon Europe, the East Indies or China, for the fabric from which to construct the American Flag, that proud emblem of our national character and honor.

There are other important subjects requiring more particular attention from our agricultural community, but it cannot be expected, that in the short compass of an address, I shall be enabled to enumerate them all; nor can I enter into detail as to the "modus operandi" of the culture and manufacture of those, to which I have briefly alluded. At the last annual meeting of the society, committees were appointed having many of these subjects under special charge, and reports will doubtless be made replete with interest and useful instruction.

That these sources of national and individual wealth, if properly fostered and encouraged, would in a few years grow to be of vast consequence, and that upwards of twenty millions might be saved annually, in addition to their being articles of export, I have no doubt. Ignorance may reject them as innovations unworthy of a passing notice, and incredulity may smile at these fond anticipations, but he, who will take the trouble to investigate the subject, in connection with the history of agriculture in the world, and more particularly in our own country, must inevitably arrive at the same conclusions. Cotton and wool, raw and in the manufactured state, are now the great staples of our country. The history of both will show that the time is not very long since they were introduced; and that the obstacles and difficulties that they first encountered, were not less than those that now present themselves to the successful production of silk, sugar, flax or hemp. The cultivation of cotton, the great staple of the south, was first commenced in South Carolina about the year 1783. Its progress was slow, being attended with much inconvenience from the want of experience in its cultivation, and the difficulty of separating the fibre from the seed. In the year 1793, an invention was wrought out, by a young man from Mass. by the name of Eli Whitney, that completely obviated the difficulty of cleansing it. Since which time it has increased with a rapidity, and to an amount, most truly astonishing. From one million of pounds in 1789, it has increased to near five hundred millions in 1838. The quantity exported in 1792, amounted, to one hundred and fifty thousand pounds. In 1836 the exports are swelled to the enormous quantity of four hundred and forty-four millions of pounds, amounting in value to about sixty-three millions of dollars. The increase and growth of its manufacture, has also been very rapid. In 1790, there was but one small establishment of the kind in the United States, which was located in the state of Rhode Island, and contained about seventy spindles. In 1835, there was running about one million, three hundred thousand spindles. It appears from the reports of the secretary of the treasury, that above one-half of our domestic exports are derived from the culture of cotton, and that nine-tenths of our entire exports arise from agriculture.

The growth and manufacture of fine wool, is of still more recent origin, and was in its commencement, attended with great difficulties and discouragements. In 1802, the first pairs of merinos were imported into this country from France, by the public spirited and patriotic late Chancellor Livingston. It was a long time before they were received with favor, and but few years have passed since they were ridiculed and denounced, as unworthy a breathing in our free air. Yet, notwithstanding the obstacles and prejudices in the way of their introduction, they received the favorable consideration and patronage of many of the states, and have multiplied and almost replenished the land. From the best data that we have, it is calculated that the number of sheep now in the state of New-York, is about five millions; and in the United States, about twenty millons. About one-fifth of them, it is thought, are of the native, or coarse-woolled race; and the remaining four-fifths of high-grade, or full-bred Saxony and merino. Our woollen manufactures have increased in a corresponding ratio, by means of which, many millions are annually saved the nation. Wool has now become the great staple of Eastern New-York, and New-England, and a source of great individual and national wealth.

Thus we find that the cultivation of cotton at the south, and the growing of wool at the north, are comparatively of recent origin; that they were introduced and commenced under great embarrassments, and yet have grown to be the prominent and controlling interest of the country. Ought we not to inquire, whether there may not remain sources of great wealth, as yet unopened and undeveloped? And have we not reason for encouragement and perseverance, when we reflect upon the many obstacles that have been surmounted, and the many storms that have been weathered, in the history of wool and cotton? That silk, and sugar, and flax, and hemp, should be regarded as of equal importance, in a national point of view, and that they promise ultimately under proper patronage and encouragement, to become as lucrative branches of industry, I cannot entertain a reasonable doubt.

The wisdom of the policy of making judicious appropriations from the public treasury to improve our agriculture, and to encourage those productions to which our soil and climate are adapted, seems generally to be conceded, and the principle has again and again been acted upon, with reference to other interests of minor importance; but the primary business of agriculture, which belongs to all, and in which all are concerned, is made secondary in our legislation. Special legislation, private and local interests, almost always crowd themselves in advance of matters of general concern. Another reason, perhaps, why legislative action has not been had in this state, is the want of intelligence, comprehensive views, and concert of action, on the part of farmers themselves. So long as they will be blind to their own interests—so long as they will allow themselves to be the mere drudges and slaves, "the hewers of wood and the drawers of water" to the learned professions, and the other avocations of life—so long as they will consent to be the tools of power, and the mere automatons of designing politicians, just so long will their interests be disregarded, and their condition be comparatively degraded; just so long will they occupy a secondary position in the scale of respectability and honor.

Many of the states of the Union, to say nothing of foreign countries, have set a noble and praiseworthy example in patronizing and encouraging this most useful of all the arts. Almost all the New-England states are offering bounties upon wheat, silk and sugar, produced within their borders. A number of the middle, southern and western states, are also turning their attention to these subjects. Foreign nations have, for a long time seen the necessity of doing something to make more broad, and stable, and sure, this foundation of a nation's greatness and glory. The result of this policy is, that the old world, instead of being our market place, produces a surplus with which it supplies the deficiency of our miserably neglected soil. It is to be hoped that New-York, proudly styled the Empire State, will follow, if not lead, in this noble enterprise. With an extent of territory greater than many of the kingdoms of the world; with a population amounting to about one-sixth of the Union; with a salubrious climate, whose fertility is unrivalled, why will she lag behind her sister states and the world, in this march of improvement? The subject of internal improvement seems to engross, at this time, much of the public attention. But our authorities should recollect, that however important and useful they may be, it is not *alone* rail-roads or canals, or mushroom cities and villages, that enrich a nation. Although that species of improvement is, to a certain extent, desirable, it should not be forgotten, that the internal improvements which contribute most to enrich a country, are those which improve and fertilize the soil, adorn the face of nature, increase the productions and enhance the value of the land. It is the successful cultivation of the soil *alone*, that furnishes the means for the support of villages, cities, railroads and canals. If that is left to languish and decline, the former will fall into premature decay, and the latter will truly become "solitudes and desert wastes of waters."

(Concluded in our next.)

Young Men's Department.

Hints to Young Farmers.

NO. XIII.—"DESPISE NOT SMALL THINGS."

The small trees that were set out by your fathers, have grown into a fruit-bearing orchard, and yield subsistence to the family and the farm stock. The once puny saplings which in childhood you assisted to plant about the house, give shelter and picturesque beauty to the old homestead. The grape cutting has become a wide spreading vine, and yields an annual tribute of luscious fruit. The acorn has grown to a towering oak. How many of the comforts and pleasures which you enjoy, do you owe to the happy circumstance that your parents *did not despise small things?*

Our passions and habits, like the oak and the apple-tree, have their small beginnings. We may train them to our will, and render them subservient to the noblest purposes of life. Thus the seeds of useful knowledge, planted in early life, will spring up, and give an abundant increase in manhood. Thus, too, habits of industry and frugality, established in youth, although then often considered *small things*, are the germs of wealth and happiness in riper years. Moral soundness and purity will lead to honor and respect; while the habit of scrupulously respecting the rights, and promoting the welfare of our neighbors, is the surest means of obtaining what we all stand in need of, the kind offices and good will of others. If these *small things* are not regarded while the twig may yet be bent, you cannot rationally expect to enjoy the pleasures and profits which they yield in maturer life.

The vegetables must be planted while they are yet *small things*, and they must be nurtured and protected, or they will fail to yield the promised food and shelter. The good habits, too, must be established in the germ of life, and the passions disciplined, if you would realize the parallel of usefulness and beauty. The plants may become the property of others, and you lose the promised reward of fruit. But your good habits and sound principles are exclusively your own. You can enjoy the rewards they bring, while you live, and can indulge the hope that your children will be benefitted by the influence of your example.

Plant trees and vines, that they may yield you the comforts of life: cultivate the better passions, and establish the good habits, in yourself and children, that you may all truly *enjoy* those comforts.

NO. XIV.—TIME IS CAPITAL.

Every young man has this capital at command, when he reaches the age of manhood; and in this respect all are equal. We may state it at an average, at one thousand dollars; because every prudent laborer, if he is blessed with health and a tolerable knowledge of any useful business, may save from his annual earnings seventy dollars. This seventy dollars, accumulated annually from one's earnings, and prudently husbanded, will, at the end of ten years, form an aggregate of more than one thousand dollars; and if continued ten years longer, will have accumulated to nearly three thousand dollars. Every dollar saved, and duly vested in the outset of life, multiplies progressively as time advances.

How differently do young men employ this capital! Those who best appreciate its value, and who employ it to the best advantage, are such as depend upon it solely as the *foundation* of their fortunes—who do not lean upon a paternal inheritance. The most wealthy and distinguished men of our country were of this class; whose time constituted the only capital they had to begin the world with, and who, with this beginning, which every young man has equally at command, have accumulated vast fortunes. With them time has truly been money.

On the other hand, when we have seen young men, either because they did not appreciate its value, or because they relied too much upon hereditary rank and fortune, throw away this capital—this time of youth—or waste it in frivolity and fashion, we have generally seen them sinking in the scale of society, both in regard to wealth and usefulness; and have too often seen them reduced to want or to crime.

If the young man will look about, and inquire into the early habits of the generation before him, he will find abundant reason to concur with us in opinion, that *time is capital*—is money—which, if discreetly employed in the outset of life, will lead to fortune and happiness; but which if wasted, or unemployed, will give neither increase nor character to its possessor.

We have assumed as the basis of our comparison, the time of a common laboring man, who exerts merely his bodily and mechanical powers. We have made no reference to the powers of the intellect. Where these are brought out, by reading, observation and reflection, and made auxiliary to labor, they very materially enhance the value of the capital of which we are speaking. They add to its value two, three and four fold. A common laborer's time may be stated at $110 a year; while there are others, whose education qualifies them for higher duties, whose services will command twice, thrice, nay ten times as great a salary; so that every young man who expects to start in life with the bare capital of his time, has it in his power very much to increase the value of this capital, by the early improvement of his mind. Thousands and tens of thousands are constantly making experiments and improvements in agriculture, a knowledge of which would double or treble the profits of his labor. These experiments and these improvements are registered in our agricultural periodicals; and he may obtain an early knowledge of them for a trifle, and without infringing upon his labors, and may apply them to the increase, and consequently to the income of that capital. There is no art, no calling, but demands industry and perseverance, to attain to excellence in; and there is probably no business to which this remark is more applicable, than to agriculture. It embraces the whole of animated nature—the animal and vegetable kingdoms—and the crust of the globe which he works. Were the farmer to live the age of the patriarchs, he might continue to learn something useful in his business to the last day of his life.

How to Ruin a Son.

1. Let him have his own way.
2. Allow him free use of money.
3. Suffer him to rove where he pleases on the Sabbath.
4. Give him full access to his wicked companions.
5. Call him to no account for his evenings.
6. Furnish him with no stated employment.

Pursue either of these ways and you will experience a most marvellous deliverance, or will have to mourn over a debased and ruined child! Thousands have realized the sad result, and have gone mourning to the grave.—*Philadelphia Observer.*

*Moneys received up to 20th of April, in sums of five dollars and over. The total receipts are included from post-offices marked with an asterisk.**

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PRICE CURRENT.

ARTICLES.	New-York. April 20.	Boston. April 17.	Philadelphia. April 20.	Baltimore. April 20.
Beans, white, ... per bush.	2 00.. 2 25	2 00.. 3 00	1 50.. 1 75	2 00.. 2 50
Beef, ...cwt..	8 00.. 8 25	8 75.. 9 00	9 00.. 9 50	9 00..10 00
Bacon, western, ...lb....	12.. 13	16.. 00	11.. 12	13.. 15
Butter, fresh,..............lb....	20.. 25	25.. 27	15.. 16	25.. 50
Cheese,. ....lb....	8.. 10	8.. 10	8.. 9	8.. 9
Cotton, best, ...lb....	14.. 17	14.. 20	9.. 15	13.. 16
Flour, best, ...bbl..	7 62.. 9 00	8 00.. 8 75	7 50.. 7 75	7 12.. 7 75
GRAIN—Wheat, ...bush.	1 70.. 1 75	....	1 60.. 1 75	1 70.. 1 75
Rye, ...bush.	1 10.. 1 12	1 15.. 1 20	1 10.. 1 15	1 00.. 1 05
Oats, ...bush.	42.. 52	60.. 00	43.. 46	50.. 52
Corn, ...bush.	87.. 90	94.. 1 00	84.. 91	85.. 87
Hams, pork,........ ....lb....	12.. 14	11.. 17	12.. 15	12.. 13
Pork, in hog, ...cwt..	....	8 50..10 00	7 25.. 8 00	9 37.. 9 50
SEEDS—Red Clover, ...bush.	12 00..13 00	12 00..14 00	13 00..13 50	14 00..15 00
Timothy, ...bush.	2 35.. 2 75	3 00.. 3 12	3 00.. 4 00	.. 3 00
WOOL—Saxony, fleece,...lb....	55.. 65	57.. 62	55.. 60	50.. 55
Merino, ...lb....	45 . 55	50.. 55	50.. 55	45.. 50
1-4 and com......lb....	36.. 40	35.. 40	35.. 37	35.. 40
Sheep, ... head,	4 25.. 5 50	6 50.. 6 75	1 00.. 2 87	....
Cows and Calves,........	33 00..55 00	30 00..57 00	18 00..40 00	35 00..46 00

FROM THE STEAM PRESS OF
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THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ To our Patrons. ☜

In order that our next volume may begin with the commencement of the year 1840, the time when most of the periodicals commence their volumes, we propose to finish volume VI. in the current year, by publishing a number on the 15th of August, and another on the 15th of October, in addition to the usual monthly publications —if serious objections are not raised to this arrangement by our patrons.

☞ Failures by Mail.

☞ We are in the receipt of notices, almost daily, of moneys being sent to us by mail, which have never come to our hands. The amount thus lost is too great to suffer without repining; nevertheless, as we have assumed the risk of this mode of transmitting moneys to us, we must suffer the loss, *where satisfactory proof is rendered, that the moneys so presumed to be lost, were actually mailed*—a condition which we are obliged to insist on.

☞ We would suggest to publishers and others, that that notify the General Post-office of all failures in the receipt of moneys by mail, with dates, &c. in order to facilitate the detection of the rogues who violate their duty.

Horticultural Society of the Valley of the Hudson.

☞ In another column will be found a notice for a semi-annual exhibition of this society, to be made at the City-Hall in Albany, on the 25th of June instant.

The object of this association is stated in the notice. Should the institution be sustained, as we think it ought to be, by the liberal and enlightened inhabitants of our valley, it cannot fail of becoming highly serviceable in introducing among us all the more valuable varieties of fruits and ornamental plants, in diffusing a taste for rural embellishment, and in multiplying our domestic and social enjoyments. The descriptive catalogue of Pears, which we this day publish, will serve as an indication of the public service that may be rendered in the fruit department, by the labors of the association. We cultivate much fruit, but we cultivate but comparatively little which may be considered of the first quality.—Our garden productions are as susceptible of great improvement in their qualities as are our fruits. We unite our earnest invitation to that of the secretary, for contributions to the exhibition, and for the countenance and support of the friends of horticultural improvement. The exhibition will probably be kept open two days.

Aid to Agriculture.

We have refrained from noticing any of the proceedings of the legislature in regard to the encouragement of agriculture, from a conviction forced upon us by past experience, that nothing would be done to aid this great branch of industry.

Mr. C. E. Clarke, of Jefferson, chairman of the committee on agriculture in the assembly, introduced two bills into that house, one appropriating $25,000 annually for five years, to be awarded in premiums in the several counties, and to pay the *expenses* of a board of agriculture, and the salary of its secretary—and the other to encourage the growth of silk, by awarding bounties to those of our farmers who should raise it. These bills were each accompanied by a very able report, setting forth the many and manifest advantages which would result to the state from the passage of these hills into laws. Both bills passed the house of assembly, by respectable majorities, and were sent to the senate.—The silk bill was rejected in senate, and the one to improve the agriculture of this state, was virtually rejected there on the last day of the session, by an order to lay it on the table. The motion was made by Col. Young, who said "he could not in conscience suffer such a mischievous and dangerous bill as the agricultural bill to pass without fully discussing it."

We give the vote upon Col. Young's motion, in order that our readers may be enabled to censure or applaud, as they think meet, the conduct of their public servants.

Ayes.—Messrs. Beardsley, Clarke, Dickinson, Hull, Hunter, Huntington, Johnson, E. P. Livingston, Paige, Powers, Skinner, Spraker, Sterling, Van Dyck, Wager, Young—16.

Noes—Messrs. Fox, Furman, Hawkins, Jones, Lee, H. A. Livingston, Maynard, Moseley, Nicholas, Peck, Tallmadge, Verplanck, Works—13.

We confess that we are not familiar with the details of either bill, and therefore feel unqualified to speak distinctly of their merits; yet we are persuaded that something ought to have been done, and might have been done, had there been a disposition to do it. And we are wholly at a loss to conjecture what could have been the "mischievous and dangerous" principles in the bill, which so alarmed the sage senator and his compeers. We cannot but regret, that in a matter which most deeply concerns the interest of every class of community, party feeling should seem to have smothered the nobler impulse of public duty. Several of the gentlemen who voted against this bill, have professed to be friendly to its objects, and one of them reported, not long since, a bill of very similar import. If the details of the one now rejected were defective, they might have had it modified, or at least have made the attempt to do it.

It requires no great discrimination to perceive, that party spirit—the thirst for power and office, in the latitude in which it is now indulged—holds a paramount sway in our legislative halls, as well as in political meetings;—that it is the bane of whatever is generous, and disinterested, and patriotic, and great, and good;—that it infuses its poison not only into our legislative halls, but into the cup of our social enjoyments; and that its tendency is to impair the public morals, and loosen the bonds which unite us as a people. The question now, is not, what will best subserve the public good? but—what will best promote the interests of party?—and in the scramble for power, whatever measure is not likely to increase the political capital of a party, will pretty surely be opposed on party grounds—and whatever measure is advocated, or whatever individual is supported, by one political party, is as sure to be opposed and traduced by the other.*

Banks have, for a long time, been the locomotives of power, till the country has become far too full of them, and until they can no longer be made to exert a favorable political influence. Millions have been expended in canals, to subserve political ends, which are not likely to pay the interest on their cost for a long time to come, if ever. The eye of the politician is now directed to rail-roads, as the great avenues to public favor; and bills involving the responsibility of the state for many millions, have been in progress of passing into laws, for the construction of rail-roads, in the stock of some of which a prudent man would hardly make a permanent investment, at one-fifth of the par value of the stock. We are not opposed to canals or rail-roads, to a reasonable extent, where they promise manifest public usefulness, or any thing like ultimate remuneration for the outlay; but now-a-days they come in batches, as banks came formerly—the bad with the good—and by modern arts of legerdemain, they are so intimately joined and interwoven, that it is difficult to separate them; so that there is no alternative but to reject all, or adopt all.

We have been drawn from our purpose, which was merely to recommend to the friends of agricultural improvement, a steady perseverance in their praiseworthy efforts for the substantial improvement of their country —by the diffusion of useful knowledge, and in encouraging and honoring rural labor. In this way, the next generation which comes upon the stage, may be made to appreciate the value of our agriculture, and the policy and the duty of encouraging its improvement.

In what condition should Manure be applied?

While one set of men, embracing both practical and theoretical, contend that manures should be buried by the plough, at the bottom of the furrow, another set as pertinaciously insist that they should be covered only superficially with the harrow—the first contending that the fertilizing matters which they afford, *rise to the surface*, and the other, that they *sink* below the cultivated stratum. We copy to-day two articles from the Yankee Farmer, maintaining the opposite doctrines. A material distinction seems to have escaped the notice of both the writers, and that is—the *condition of the manure to be applied*—whether fermented or unfermented.

There is no fact better established, we believe, by chemical experiment, than that stable manure loses one-half of its fertilizing properties, by fermenting in mass, in a situation exposed to the influence of the sun and winds. A partial decomposition takes place, and the gaseous and most soluble parts are either scattered by the winds, or carried off by the rains. It is an equally well established fact, that if the fermentation takes place *in* the soil, these gaseous and soluble portions of the manure are retained there, are imbibed by the spongioles, or mouths, of the young crop, and that they contribute essentially to its growth and product. Now if long manure is spread upon the surface, these gaseous matters are lost, for they are specifically lighter than atmospheric air, as any one may see by observing the steam which rises from a fermenting dung heap. If long dung is only superficially covered with a harrow, it will but partially decompose, for lack of moisture, an indispensable agent in the process of fermentation. If, on the other hand, the manure is buried with the plough, it not only benefits by its gaseous matters, but it generates heat and benefits mechanically, by rendering the soil more open, and permeable to heat, air and moisture; it facilitates the decomposition of vegetable food, accelerates growth, and increases the product. And fermentation having exhausted its powers during the first season, in the culture of the hoed crop—for to such alone do we advise that long manure should be applied,—the plough turns to the surface, the coming spring, the carbonaceous parts of the manure which remain, where they operate most beneficially upon the coming crop.

The only plausible objection to burying long manure with the plough, in preference to mixing it with the surface by the harrow, is that adduced by Prof. Jackson, that the rains carry down its fertilizing matters into the subsoil—into wells and springs, beyond the reach of the roots of plants. With the highest deference for the Professor's opinion, we must be permitted to doubt the correctness of his conclusions in this matter. If the soluble salts were carried into the subsoil, as he supposes, this subsoil would be rendered fertile by them when it is turned to the surface, a proof that seldom occurs, until the subsoil is rendered fertile by long exposure to atmospheric influence. Nor do we admit that springs and wells are prejudiced by them, unless the water which holds them in solution, finds a direct passage into such springs or wells from the surface of the earth. We do know that impure water is purified by being filtered through charcoal and sand, and that pure springs burst forth from impure soils.

When we speak of fermented manures, or of such as are to undergo but a moderate fermentation, as rotten dung, bone dust, horn shavings, poudrette, &c. a different rule applies, and a different practice should be adopted. Those give off no gaseous fertilizing matters to the winds. Their only tendency is to sink in the soil.—Hence if they are blended by the harrow with the surface, they are calculated to act more efficiently than if buried deep by the plough.

Catalogue of Pears.

The varieties of the pear, until within a few years, have been few, and the quality, with some exceptions, indifferent or inferior. But through the active exertions of Dr. Van Mons, of the Netherlands, Mr. Knight, and other distinguished pomologists and horticulturists, the varieties have been greatly increased; and among the number now cultivated we have some of excellent quality, that are in eating during eleven months in the year.

The pear is used for the table, for stewing and baking in the kitchen, and for Perry. As most of the varieties now found in our nursery catalogues are new, and their quality, time of ripening, and the uses to which they are particularly adapted, but imperfectly known, even to nurserymen, great difficulty is experienced in making a judicious selection, that shall give a succession of fruit. We have frequently experienced this difficulty ourselves. To assist both the purchaser and the seller, and to disseminate a knowledge of the best varieties, we publish the catalogue below.

The London Horticultural Society published, in 1831, a list of 677 varieties of the pear, which were then growing in their garden. Of these, 278 kinds only had then fruited. These are described in a tabular form, and divided into three classes as to size and form—their time of ripening, their use, their color, and form and texture noted, and remarks subjoined as to the character of the tree, &c. From this catalogue our list is principally taken. And it is proper to remark, that the kinds that have proved to be the best, on comparison, in the Horticultural Garden near London, have not in all cases proved to be of a like character in America—some of No. 1 in quality being here No. 2, and some of No. 2, being No. 1 with us. Our list embraces all of No. 1 in the catalogue of the Horticultural Society, which had fruited there in 1831, and such of No. 2 as are known to be in our nurseries, but none of No. 3. There are some American varieties not named here, because we cannot speak with certainty of their quality, time of ripening, &c.

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* "Our institutions do not cultivate us," says the Rev. Dr. Channing, "as they might and should; and the chief cause of the failure is plain. It is the strength of party spirit; and so blighting is its influence, so fatal to self-culture, that I feel myself bound to warn every man against it, who has any desire of improvement. I do not tell you it will destroy your country. It wages a worse war against yourselves. Truth, justice, candor, fair dealing, sound judgment, self-control, and kind affections, are its natural and perpetual prey."—*On Self-Culture.*

We have endeavored to procure all the most esteemed varieties of the pear; and have succeeded in introducing into the Albany Nursery, from the London Horticultural Society's Garden, and from the best nurserymen about London, all the esteemed varieties, embracing several not included in this list, of high repute, which have come into bearing since the catalogue was published. Such as we have for sale, are marked by an asterisk. (*)

To aid the purchaser, who may be desirous of obtaining a succession of choice pears, we have classed them according to their time of ripening, into seven classes, those of the largest size, and of the first quality, being indicated by figure 1, and those particularly adapted for stewing and baking forming the seventh class. The synonymes are very numerous. We give, in *italics*, those only which are best known. By selecting one or more from each class, the purchaser will be sure of having a succession of this fine fruit ten or eleven months in the twelve.

NAMES AND SYNONYMES.	*Size.*	*Quality.*
CLASS I.—SUMMER PEARS, *Ripening in July and August.*		
1. *Bergamot, early,	2	2
2. *Bergamot, orange,	3	2
3. *Bon Chretien, Williams's, *Bartlet*,	1	2
4. Caillot Rosat,	1	1
5. *Citron des Carmes, *Madeleine*,	2	1
6. *Green Chissell, *Sugar*,	3	2
7. *Jargonelle, *Epargne*,	1	1
8. *Lammas,	2	1
9. *Muscat Robart,	3	1
10. Passans de Portugal,	2	1
11. *Summer Rose, *Epine Rose*, &c.	1	1
12. Vallée Franche,	2	1
CLASS II.—EARLY AUTUMN PEARS, *Beginning to ripen in September.*		
13. *Ambrosia, *carly Beurre*,	2	1
14. D'Amour, *Ah Mon Dieu*,	3	2
15. *Belle et Bonne,	1	1
16. Beurre d'Amalis,	1	1
17. *Bon Chretien, summer,	1	2
18. *Buffums,	2	1
19. *Doyenne, white, *Vergaleu, St. Michaels*,	2	1
20. Famenga,	2	1
21. *Flemish Beauty,	1	1
22. *Franc Real, summer,	2	1
23. *Green pear of Yair, *Green Yair*,	2	2
24. *Henri Quatre,	2	1
25. *Hessel,	2	1
26. *Longueville,	2	1
27. *Neill, *Calmar Neill*,	1	2
28. *Rousselet de Rheims, *Spice*,	3	1
29. *St. Ghislan,	2	1
30. *Swan's Egg,	2	1
31. Wilbeck	1	1
CLASS III.—LATE AUTUMN PEARS, *Ripening in October.*		
32. *Alexander de Russie,	2	1
33. *Aston Town,	2	1
34. *Belle Lucrative,	2	2
35. *Bergamot, autumn,	3	1
36. *Bergamot, Gansell's,	2	1
37. Bergamot Suisse,	2	1
38. *Beurre, Brown, *B. Roi*, &c	1	1
39. *Beurre de Capiaumont, *Capiaumont*,	2	1
40. Beurre Crapaud,	2	1
41. *Beurre Bosc,	1	1
42. *Beurre Deil,	1	1
43. Beurre Duval,	2	1
44. *Beurre Knox,	1	2
45. *Bezi de la Motte,	2	1
46. *Bishop's Thumb, *Rousseline.*	1	1
47. *Bon Chretien Fondante,	1	1
48. *Calebasse,	2	2
49. *Colmar, autumn,	1	2
50. *Colmar Neil,	1	2
51. *Comte de Lamy,	1	1
52. *Crassanne,	2	1
53. *Doyenne Grey, *Doyenne gris*,	2	1
54. *Duchess d'Angouleme,	1	1
55. Forme de Delicies,	2	1
56. *Franchipane,	2	2
57. *Gendesseim,	1	1
58. Grande Bretagne doré,	2	1
59. *Incomparable, Hacon's,	1	1
60. *Louise Bonne,	1	1
61. *Marie Louise,	1	1
62. *Moorfowl Egg,	2	2
63. *Parmentier, *Fortunée*,	2	1
64. Pittfour,	2	1
65. *Seckle,	3	1
66. Sieulle,	2	1
67. *Styrian,	1	2
68. Sucre vert, *Green Sugar*,	2	1
69. Superb Fondante,	2	1
70. *Swan's Egg, new,	2	2
71. *Urbaniste,	2	1
72 Warmsley Grange,	2	1
CLASS IV.—EARLY WINTER, *Ripening in November.*		
73. Beurre d'Argenson,	1	1
74. Beurre, Beauchamp's,	2	1
75. Beurre Duval,	2	1
76. Beurre Van Mons,	2	1
77. Burgermeester,	2	1
78. *Chaumontelle, winter Beurre, .. to March,	1	1
79. *Colmar, ... to Feb.	2	1
80. *Crassanne, ... to Dec.	1	1
81. Delicies d'Hardenpont,	2	1
82. Duchess de Mars,	2	1
83. *Epine d'hiver, *Winter Thorn*, ... Jan.	2	2
84. *Echasserie, ... Feb.	2	1
85. *Fondante Van Mons,	2	1
86. *Forello, *trout pear*, ... to Jan.	2	1
87. *Glout Morceau, ... to Jan.	1	1
88. *Merveille d'hiver, ... Dec.	3	2
89. *Napoleon, ... Dec.	1	1
90. *Ne Plus Meuris, ... March,	2	1
91. Passatutte, ... Dec.	2	1
92. *St. Germain, ... Jan.	1	1
93. *Thompson's,	2	1
94. *Virgoulese, ... Jan.	1	1
95. Whitfield,	2	1
CLASS V.—WINTER EATING PEARS, *Ripening in December.*		
96. *Nelis, *Bonne de Malines*, ... Jan.	2	1
97. *Passe Colmar, *Colmar Epineux*, ... Jan.	1	1
98. *Beurre d'Aremburgh, ... Jan.	2	1
99. *Bezi Vaet, ... Jan.	2	1
CLASS VI.—SPRING EATING PEARS, *Ripening in January, and lasting till*		
100. *Beurre Easter, *B. de la Pentecote*, .. March,	1	1
101. *Beurre Rance, ... March to May,	1	1
102. *Crassanne, winter,	1	1
103. Downton, ... Feb.	2	1
104. *German Muscat, ... May,	1	1
105. *Garnon's,	1	1
106. *Monarch, Knight's,	2	1
107. *Rouse Lench, ... Feb.	1	1
108. *Van Mons, late, ... Jan.	2	2
CLASS VII.—STEWING AND BAKING PEARS.		
109. *Bezi d'Heri, ... Oct. to Dec.	2	1
110. *Bellissimi d'hiver, ... Oct. to April,	1	1
111. *Belmont, ... Oct.	1	1
112. *Bequesne Musque, ... Nov. to Jan.	2	1
113. Bon Chretien Spanish, ... Oct. to Dec.	1	1
114. *Bon Chretien Turc, ... Oct. to March,	1	2
115. *Gilogil, ... Oct. to Feb.	1	2
116. *Bon Chretien, winter, ... Dec. to March,	1	2
117. *Catillac, *Bell*, ... Dec. to April,	1	1
118. *Chaptal, ... Dec. to April,	1	1
119. *Bergamot, Easter, ... March to April,	2	2
120. *Saint Germain, winter, ... Jan. to April,	1	1

Multiplication of the Multicaulis.

From the partial observation we have been able to make at the south, we are induced to believe, that the stock of the Morus Multicaulis, in the Atlantic states, will be increased to the extent of fifty millions of plants in 1839. We were informed at Burlington, N. J. that a million of young plants would be grown this season, within a mile and a half of that city. We were informed by two growers in Philadelphia, that they would raise, each of them, 200,000 plants. Indeed the propagation of this plant seems to engross the attention of great numbers of almost every class of the inhabitants south of lat. 42°. The importations from France, from the West-Indies, and from Florida, have been immense; and so late as the 10th May, they commanded from forty to seventy cents, by the hundred, at auction, in the New-York market. At the present rate of increase, one thing seems to be certain, that the public attention must soon be directed less to the *buds*, and more to the *leaves*—less to speculation in trees, and more to their use in the manufacture of silk—or that we shall ere long fail to realize all our golden dreams. The art of propagating has been so improved, as to render the ratio of increase astonishing. A single bud, or a piece of root, is placed in a green house, or in a hot-bed, or under glass, in January. It soon sends forth a shoot, and as soon as this is three or four inches long, it is cut off near the surface, the plant springs up afresh, the cutting is inserted in a pot of earth, where it grows. In a short time, under a warm temperature, which may be easily maintained, the parent and the cutting will each furnish the germ of a new plant. This process of multiplying may be kept up till June or July, and thus a single bud will become the parent of many plants, in a few weeks, and these plants will yield thirty or forty buds in autumn, attain a height of two to five feet, and be of marketable size. If each bud in this way makes three plants, and each plant grows forty buds, the increase will be one hundred and twenty fold. Thus, if prices keep up, the purchaser and propagator of one thousand buds, at three cents each, may clear by this small operation, upon the basis of the above calculation, the pretty sum of $3,300—a profit that has been more than realized in some cases.

We give the preceding estimate of profits, not to induce our readers *now* to embark largely in the business—for prices must unavoidably come down—but to show the exciting causes of the prevailing multicaulis fever, and the source of the enormous profits which the business has hitherto afforded.

The result of the multicaulis speculation will probably be—that many will make fortunes—that the tree will be extensively multiplied, and widely disseminated—and although some will be "*saddle-backed*," the country at large will be manifestly benefitted, and the silk business established as a productive branch of national industry, on a basis which nothing human is likely to overthrow.

In making these remarks, we do not intend to acknowledge any superiority in the multicaulis, over other species and varieties of the mulberry, for silk, and especially for northern culture. We have had but little personal experience in the silk business; and although our notions may be erroneous, we do not think the multicaulis is the best mulberry for silk, in our latitude, even though it were as hardy as other varieties, which it is not; for it has been entirely killed with us, while other varieties have stood unscathed by the winter's cold. The multicaulis seems about as tender as the sweet water or chasselas grape, which requires a protection of earth to preserve it during winter. Those, therefore, who mean to cultivate it, among us, for the leaves, are again cautioned to take up the young plants in autumn, and to cut down and cover the stumps of the larger ones. They may survive a mild winter, but they will almost assuredly be seriously injured or destroyed in a severe one.

The Rohan Potato,

Has become, next to the multicaulis, a prominent article of speculation, among the cultivators of the soil. We verily think it a valuable acquisition to American husbandry. But when we sold off our crop in October, at $2 and $3 the bushel, we had not a suspicion that the article would reach the price at which it has since been sold. The price has risen to twenty dollars a bushel, and the retailer, who has bought at this price, has realized a handsome nett profit by the purchase.

The Rohan is capable of yielding almost as rapid an increase as the multicaulis, and has certainly other high qualities to recommend it. And we have this further consideration to console us, that without the high prices which both the Multicaulis and the Rohan have borne, they would never have attracted so great a share of public attention, or have been so widely disseminated. At a low price, few would have regarded them as worthy of notice; as a gift they would have been thanklessly received, and little cared for; but as expensive articles, and of real intrinsic value, they are eagerly sought for, and carefully cultivated.—The spirit of agricultural improvement, which is abroad, will be annually adding to our valuable products; and it will happen as it has already happened, that those who are most forward to profit by the information and improvements of the day, will reap the best reward. And no man can expect to profit by this information and these improvements, except he is a subscriber, and an attentive reader, of some agricultural periodical, which registers and promulgates these improvements. Upon a limited estimate, there are ten millions of men, in Europe and America, who are devoting their time to enlighten the labors of the farmer, by which we mean, to render those labors more profitable. Whatever is most interesting and important, is communicated to the local agricultural journals, and by the interchange of these which takes place, the several editors are enabled to transfer to their columns whatever is likely to benefit their particular readers. Thus we are advised, immediately upon their introduction either in Europe or America, of every new species of plant, breed of farm stock, implement of husbandry, or mode of agricultural practice, which is likely to prove serviceable to our readers; and if we have discrimination and practical knowledge enough to separate the wheat from the chaff, the former is distributed monthly or oftener to our customers; and if they are wise and spirited, they appropriate it to their personal use, and get their twenty and fifty fold recompense.

Thus the readers of agricultural journals are enabled to apply to their personal use, the discoveries and improvements which are daily making in their business; while the farmer who reads nothing, who is content to be guided by instinct, or what is but little better, the light of his individual experience, derives little or no advantage from the discoveries of science, or the march of improvement, which so eminently distinguish the age, and which are daily abridging the fatigues, and increasing the profits of labor, in every department of productive industry.

The March number of the Farmers' Magazine, contains the first notice we have seen in the British agricultural periodicals of the culture of this root in England. G. Kimberly states, that in 1836, he obtained, through a friend at Paris, sixty moderately sized tubers; from which, although planted under trees, and suffering much from drought, he obtained, in 1837, 24 bushels full measure—the vines growing eight feet. These he planted last year, and obtained a most extraordinary yield. This potato is frequently exhibited in the Paris market, of ten pounds weight. They are cut in slices of about two inches thick, boiled well, and are pronounced to be very farinacious, or mealy, and of fine flavor.

The Value of Turnips.

"The introduction and cultivation of green crops," says the London Farmers' Magazine, "constitutes an era in the history of agriculture, not less important, or less valuable, than any of the splendid discoveries which have added so much to the value of other arts, and though some real, or rather supposed causes, have retarded a more extensive and easily practicable cultivation, the progress hitherto made, has doubled our agricultural produce, has afforded a better and more regular supply of food, and has added to the general comforts of every class of society. An extended cultivation of green crops, (roots and clover,) joined with our more modern discoveries, would nearly again double our agricultural produce; and the day is fast approaching, when all restrictions and fetters imposed by ignorance, prejudice and power, must snap before the march of intellect, and our common wants, and allow the cultivation of this art to proceed with other arts, and to take advantage of every known means of improvement, to supply the primary and indispensable requisites of life. Self-interest and individual gratification must ultimately give way to the general good."

Here is an opinion expressed, after a half century's experience, on a broad scale, that green crops, consisting principally of turnips and clover, have doubled the agricultural products of Great Britain; and that an extended cultivation of these crops might be made again to double her products. The turnip culture had all the insect enemies to combat, and all the prejudices to overcome, in Great Britain, which it has now to encounter among us; yet it has triumphed, and the land has been enriched, and the farmers prospered. It is not so much the immediate profit of the crop, as the tendency to improve the fertility of the farm, that gives to green crops their intrinsic merit. They afford a profitable means of increasing the fertility of the soil, which no other class of crops can furnish.

It is true, that in England, the main turnip crop is fed off by stock, or drawn and fed in an adjoining field, the economy of which practice is, however, questioned by many intelligent English farmers. Francis Blaikie, in the Farmers' Magazine, states his practice to be, to draw his Swedes in November, top them and cart them to an orchard, or other old turf, where they are *placed*, as he expresses it—that is, the bulbs are placed so close as to touch each other, tops up, and one tier deep. In severe weather, a slight covering of litter, here it might be earth, is thrown upon them. In such situations, says Mr. Blaikie, we have had them keep good till midsummer—if under a shade, the better. They strike fresh fibres into the ground; they are not liable to rot, nor will they become too dry for use. This hint deserves notice from our farmers. Although kept in pits in winter, they might be thus advantageously placed in early spring, and thus preserved for late feeding—the Swede enduring a considerable degree of frost without injury.

In a subsequent communication, Mr. Blaikie states, that he had preserved several acres of turnips in the manner above described; that they remained the whole winter without any covering, except by occasional falls of snow; that they were very little injured by the weather, while two-thirds of the remainder of the same crop, left in the fields, perished and became rotten; and that at the date of his writing, April 6, he had quantities remaining in fine condition.

Anglo-Merino Sheep.

This is the name given to a new breed of sheep in England, produced by a cross between the Merino and English long-woolled sheep, which has been brought to a state of excellence by Lord Western. Fine samples of this cross attracted admiration at the last Smithfield cattle show, and have been since the subject of frequent comment in the British agricultural periodicals. In the March number of the (London) Farmers' Magazine, we find a letter from Lord Western, accompanied by documentary proof, setting forth the high value of this new breed, as regards both carcass and fleece. The object of his lordship was to implant the Merino wool on the Leicester carcass; and although he admits that his sheep may not fat so early, or come to the size of the improved South-Down, still less to the weight of the Leicester, yet they give a handsome carcass, and carry a heavy fleece of equal to Merino wool; and are, withal, an improvement in hardiness, upon the pure Merinos. The carcasses of some of his shearling wethers weighed 150 lbs. 20 to 25 lbs. of which was gut fat; and his two shears weighed a little more. The wool of the cross-breed averaged over 5½ lbs. in a flock of 201 sheep.

Mildew on Grapes.

A. J. Downing, a good authority, states, in the Horticultural Magazine, that foreign grapes, as the Sweetwater, Chasselas, &c. may be preserved from mildew, by securing an annual succession of new plants, which is effected with very little trouble, by layering a thrifty shoot of the old vine in June, of some five to eight feet in length, which takes root, and produces fruit for one or two seasons, not subject to mildew. The layer is separated the next season, and the old plant dug up and thrown away. It is a common remark, that the foreign grape will be free from mildew one or two seasons after it comes into bearing, but that it is afterwards subject to mildew. The cause has not been satisfactorily explained. The finest vine of a foreign grape which we ever saw, grew in the garden of the late Judge Scott, of Catskill. We saw it in several successive years, when the fruit was at maturity, and it had no appearance of mildew. This exemption from mildew, the Judge ascribed to the circumstance of his having placed a large flat stone in the bottom of the hole before planting his vine—and which prevented the roots from penetrating the subsoil, the conjectural cause of the mildew.

Silk Manuals and Silk Periodicals.

There has been recently published, or republished, Silk Manuals, by Cobb, Kenrick and Whitmarsh, of Massachusetts, by Dennis of Rhode-Island, and by Roberts of Maryland. Of these we have seen Whitmarsh's, of which we have spoken, and Dennis's. Roberts has been complimented, in a substantial manner, by the legislature of Pennsylvania, who have resolved to purchase fifteen hundred copies of the author, E. R. Roberts, editor of the Farmer and Gardener, for distribution among the inhabitants of that State. Every silk grower should possess one of these manuals.

There are also now published, in the Atlantic states, the following periodicals, devoted almost wholly to the silk business, besides several, we believe, in the western states, which will also be found highly useful in the management of the mulberry and the silk-worm, viz. *Journal of the American Silk Society and Rural Economist*, published at Baltimore, Md. at $2 per annum—address G. B. Smith; the *Silk Culturist*, published at Weathersfield, Ct. by Judge Comstock; the American *Silk Grower*, published at Philadelphia, by Ward Cheeney & Brothers, the *Southern Silk Grower*, published at Baltimore, by E. Y. Reese; and another is published at Keene, N. H. the title and publisher of which are unknown to us.

Mr. Dennis's Silk Manual contains more than a hundred pages in small type. From the cursory perusal which we have given it, we are of opinion that it will serve as an excellent guide to beginners, and that it contains much valuable matter, in relation to rearing the mulberry, the management of the worms, and the manufacture of silk, which may be useful to those who may claim to be proficients in the business. We subjoin Mr. Dennis's

"TWENTY-TWO REASONS

"*Why the Farmers of the United States should raise Mulberry Trees and Silk.*

"1. Because it is a very certain crop.

"2. Because silk is as easy raised as wheat, and much less laborious.

"3. Because raw silk, or cocoons, will command cash in the market, and at a handsome profit to the producer

"4. Because a pound of silk can be raised to a much greater profit than a pound of wool.

"5. Because three pounds of silk can be produced from the same land that would produce one pound of wool.

"6. Because one pound of raw silk will sell for six dollars, and one pound of wool for fifty cents.

"7. Because the labor of raising silk is performed in six weeks, while the labor of taking care of sheep, and providing them with food, lasts all the year.

"8. Because the labor may be performed by children, or feeble persons, whose services would be worth very little for any other purpose.

"9. Because there can be considerable quantities raised, without materially diminishing the other products of the farm.

"10. Because the climate and soil are as well, if not better, adapted to the growth of the mulberry and the production of silk, than any part of Europe.

"11. Because there is no probability, and scarcely a possibility, of the business being overdone.

"12. Because mulberry trees are easier raised than almost any other tree.

"13. Because the timber of the mulberry tree is worth as much as locust, for building ships, fences, or any other purpose.

"14. Because large mulberry trees injure the crops growing under them, less than almost any other tree.

"15. Because mulberry leaves, when green, are greedily eaten by cattle, hogs, and sheep; when cured like grass to make hay, are an excellent food for cattle and sheep.

"16. Because land cultivated with mulberry trees, and the litter from the worms spread upon it, would be impoverished less than if cultivated with almost any other crop.

"17. Because it will cost no more to transport a pound of silk to market, that will sell for six dollars, than it would to transport a pound of bread stuff, that would sell for six cents.

"18. Because the small sum of five dollars, or even one, expended in purchasing mulberry seeds and cuttings, with a little care in cultivation for a few years, will enable a farmer to produce considerable quantities of silk.

"19. Because the eggs can be kept in an ice house until the middle or last of the seventh month, (July,) and then the worms can be hatched and fed after the busy season of mowing or harvest is over.

"20. Because the man, with a little land, who has a family, can increase his mulberry trees and keep his family employed at home, without the risk of sending them abroad for employment, where they would be liable to have their morals corrupted.

"21. Because it would relieve the nation from paying millions of dollars annually, to other nations for silk.

"22. Because there are twenty or twenty-five silk manufactories already established; several of which have been stopped, waiting for the importations of raw silk."

Agricultural Periodicals,

Have been multiplied among us till their number exceeds thirty in the United States, and even the family of "Cultivators" has increased to six or seven—in 1819, there was but one—and the correspondents to these journals have become so numerous, that it is impossible for any one editor to copy from others all, or but a small portion, of what he may find in them, interesting and profitable to his readers. Original communications, possessing ordinary merit, are ever entitled to precedence; and every editor feels himself under obligation to labor somewhat personally in his vocation. We have ourselves felt embarrassed for want of room to insert articles of merit which have originated in other agricultural journals; but have been obliged, from the number of our correspondents, with whom we are desirous of maintaining a good understanding, to forego this satisfaction. The truth is, that although every agricultural journal may contain *many* good things, no one of them is capable of publishing *all* the good things which are issued from the agricultural press, and which are calculated to improve the soil and the mind.

Under this situation of things, we submit to the consideration of the independent farmer, whether he will not find it to his interest, and that of his sons, to extend his patronage to more than one of these journals—whether ten dollars, the price of a daily political journal, might not be profitably expended in this way, in the subscription to half a dozen agricultural journals.

The editors of the Farmers' Cabinet, Philadelphia, appreciating these facts, and to meet the requests of their friends, have offered to become local agents for all agricultural works. We meet their offer in a spirit of liberal feeling, and tender a reciprocity of favors. Subscriptions for the Farmers' Cabinet, or any other agricultural periodical, will be received at the office of the Cultivator.

Horticultural Publications.

Robert Buist, of Philadelphia, one of our best practical gardeners, has just published *The American Flower Garden Directory*, containing ample directions for the selection of flowers, and for their management in the garden, green house, parlor, &c.—400 pages.

E. Sayres, formerly of this city, has published at Boston, *The American Fruit Garden Companion*, being a treatise on the propagation and culture of fruits in the middle and northern states—170 pages 12mo.

Although we have been presented with the latter of these works, we have not had time to give it that examination which will justify us in speaking of its merits.

The Season

Has hitherto been very auspicious, and so far the prospect of an abundant harvest is highly encouraging. Our correspondent at Emmettsburgh, Md. writes, "the wheat in this county bids fair to be considerably over an average crop." We have heard the prospects spoken of as flattering from most parts of the country, without any material drawback. The clover has suffered considerably from the want of its accustomed fleecy covering in winter. The weather in April was unusually warm, vegetation shot forth luxuriantly, and the season on the first of May was two weeks earlier than usual.

Since writing the above notice, we have made a tour as far south as Philadelphia. From personal observation, and from the information of travellers, we are fully confirmed in the opinion, that the harvest prospects of the winter grain crop are almost every where propitious.

The Tendency of Rail-Roads

Seems to be, to retard the growth of small cities, or at least to concentrate business more in the large ones, to which they greatly shorten distances. We lately took the rail-road through New-Jersey, in order to see the cities of Newark, New-Brunswick and Trenton, and the villages of Elizabethtown, Princeton, &c. but to our surprise, we did not pass through any of them, and some of them we had hardly a distant view of. Where rail-roads have been constructed, they now engross almost the entire travel; and the traveller seldom stops more than five or ten minutes, at any intermediate points, unless he has special business to detain him. In moving at the rate of one hundred miles in six hours, one has hardly an opportunity of seeing the country, much less of seeing, or doing business, in the towns and villages.

New-York Geological Report.

The Reports communicated to the Legislature at the recent session, of several of the gentlemen belonging to the geological corps, comprises about 350 pages, and contains many matters interesting to the farmer. We shall endeavor to select the most interesting of these for publication, particularly those which develop mineral and vegetable sources of fertility.

The first communication is from Messrs. Emmons and Hall, suggesting the propriety of a suitable building being prepared for the reception and arrangement of the specimens collected by the gentlemen engaged in the geological survey—a suggestion which highly merited, but which we believe did not receive, the efficient consideration of the legislature. These specimens will be of incalculable benefit in future time—they will constitute a museum of the natural productions of our state—animal, vegetable and mineral—of great interest to the naturalist, and of essential use to the farmer and mechanic. And when we consider that the number of minerals, fossils, &c. will probably exceed 4,000, the importance of the state providing a suitable place for their deposite and classification, must be apparent to all.—We pay some 120 to $150,000 for the geological survey; and the money will be well expended, if we profit, as we may, from the labors of the corps. We are afraid, however, that like the labors of agriculture, the valuable services of this corps, will be treated by our legislatures, as of minor importance, when put in competition with party politics and rail-roads. We shall be exceedingly happy to acknowledge ourselves mistaken in this opinion.

The second article in the governor's communication is the report of Dr. L. C. Beck, on the *Mineralogical and Chemical Department of the survey*. The report com prises a general view of what has been done in this department. It commences with a tabular view of the minerals which have hitherto been found in the state, which is followed by concise remarks on each. We shall confine our notice to such as are more immediately interesting to the farmer.

ANTHRACITE AND COAL,

are found in various localities, but not in sufficient quantity for any useful purpose.

PEAT.

"Of this useful, but almost entirely neglected combustible," says Dr. Beck, "we have already discovered numerous important localities; and many others will undoubtedly be added before the completion of the survey. The time cannot be far distant, when the value of this article will be duly appreciated. In many countries it is extensively employed as fuel; and in several manufactures it might be used with great advantage, as, for example, in the burning of bricks, limestone, &c."

As a fertilizing material for the soil, peat offers an almost inexhaustible supply, or at least the muck in our swamps, which more or less partakes of the properties of peat. It is vegetable food; but generally in an insoluble state. To render it available as vegetable food, the admixture with it of gravel or sand sometimes suffices; at other times it is necessary, in order to render it soluble, to bring it in contact with recent manures, lime, or other fermenting or heating matters. At other times, paring and burning the surface is the best mode of improvement—the action of fire, and the salts which the ashes yield, effecting a chemical change in its quality. Sometimes thorough draining of swamps induces great fertility. In all cases, we believe, it is profitably used as a bedding in cattle yards. It absorbs the liquids, is broken down and blended with dung by the tread of the cattle, and is thereby rendered completely soluble, and enriching to the soil.

CARBONATE OF LIME,

in most of its varieties, is found in many of the counties. The term marbles is confined to those varieties which are susceptible of a polish; and these frequently contain carbonate of magnesia, which, according to received opinions, renders them unfit for agricultural purposes, though they are mostly adapted to building purposes. Beds of marble are found in Westchester, Putnam, Dutchess, Columbia, Ulster, Albany, Schoharie, Oneida, Madison, Onondaga, Wayne, Niagara, Washington, Warren, Essex, Clinton, Franklin and St. Lawrence. In some of these localities the stone is white, in others grey, variegated, &c.

A great improvement, in the economy of burning lime, is mentioned in this report, which consists in the use of refuse screenings or dust of anthracite for fuel, instead of wood, and the employment of a perpetual kiln. It is stated on the authority of Dr. Jackson, that the lime burnt at Thomason, Maine, and "which serves to supply nearly all the cities on the Atlantic coast with the lime used in their buildings, and for agriculture," brings to that town alone half a million of dollars.

"Here, then," says the Report, "we have the singular fact, that fuel is transported from the city of New-York to Thomason, and the lime procured by its agency again transported to New-York Now, the lime thus obtained must be greatly superior to that which is produced from our limestones, or else our citizens have been strangely neglectful of their interest in this respect. I have reason to believe that the counties of Westchester, Orange and Dutchess, contain limestones which would yield lime equal to any elsewhere manufactured And with the improvements already introduced into our limekilns, as well as in those of Maine, one would suppose that our lime could be afforded at a much cheaper rate in the city of New-York, than that which is transported from a distant part of the United States. This subject commends itself to the enterprise of our fellow-citizens."

HYDRAULIC OR WATER LIME.

We have quoted the report on this subject, in another column.

GYPSUM, PLASTER OF PARIS, OR SULPHATE OF LIME.

"This important article, for which until within a few years past we were almost entirely indebted to Nova Scotia, may now be ranked among the great mineral products of our state.

"Gypsum, when pure, has a snow white colour, but it is often tinged with red, yellow, blue and grey, in consequence of the admixture of foreign substances. When crystallized, it is foliated, but it also occurs granular and compact. The foliated varieties are called *selenite*, while the compact ones are often known by the name of *alabaster*. It is distinguished from carbonate of lime by its being less hard, as it may be scratched by the finger nail; acids, when applied to the carbonate of lime, cause an effervescence, owing to the escape of carbonic acid—but no such effect is produced by a similar application to the sulphate of lime.

"The variety of sulphate of lime which is most abundant, is composed of sulphuric acid and lime, with about twenty per cent of water. Whenever it is used for architectural purposes, this water is driven off by the application of heat, the operation being commonly known by the name of *boiling*. The calcined or boiled plaster, when made into a paste with water, speedily hardens, and it is employed in this way for walls, for stucco, for taking casts of statues, in stereotyping, &c. Gypsum is moreover largely used in agriculture, and it is considered an invaluable fertilizer.

"Of this useful mineral, we have numerous and very important localities. They are, however, almost exclusively confined to the district bordering on the Erie canal. I am aware that it occurs in the counties of Columbia, Albany and Schoharie, but however interesting the specimens here procured may be for the cabinet of the mineralogist, the quantity is nowhere sufficient to answer any other purpose.

"The west end of the town of Starke, in Herkimer county, is the most eastern point at which gypsum has been found in any great quantity. According to Mr. Vanuxem, it occurs in white sandstone, the grey band of Mr. Eaton, and he represents it as being white and equal to the Nova Scotia both before and after calcination From twenty to thirty tons had been obtained by Mr. Crill, the proprietor, during the summer of 1837.

"In Oneida county, gypsum is found in beds of vast extent. It is sometimes pure, being foliated and transparent; but the largest proportion is dark coloured, and is mixed with carbonate of lime, constituting what is usually called *plaster stone*. This last is used for agricultural purposes, and when deprived of its water by calcination, as a cement.

"Localities of this mineral abound in the county of Madison. It is sometimes foliated and granular, but usually as in the above county, it belongs to the common or impure variety. It occurs imbedded in gypseous marl, every where forming irregular or somewhat rounded or conical masses rarely more than forty or fifty feet in diameter, and usually from ten to twenty feet in height These hillocks seem to be detached, and the conclusion is almost irresistible that they have been formed after the upper strata of rock have been deposited. The masses of gypsum are a foot or more in thickness, and weigh from four to six hundred tons. I can give no details concerning the amount of this mineral annually raised in this county, but in the town of Sullivan alone it is said to be from four to seven thousand tons.

"On the route from Chittenango to Syracuse, in Onondaga county, conical elevations similar to those already noticed, are of frequent occurrence; some of which have already been opened and found to contain deposites of gypsum, while others are left as the reward of future enterprise and labor.

"The interesting region around Onondaga lake, of which I have heretofore attempted to give an account, contains in addition to its other sources of wealth, some important deposites of gypsum. At Liverpool, the fibrous variety, then comparatively rare in this state, was found several years since, about twelve feet below the surface of the earth, associated with marly clay Recently the excavations made for the construction of the rail-road from Syracure to the Split-Rock quarry, have opened an extensive bed of the same valuable mineral. At this locality are to be found several varieties; as the foliated, the fibrous, the snowy, and the common or dark coloured—the whole imbedded in a kind of gypseous marl which effervesces freely in acids, and contains variable proportions of the oxide of iron. Gypseous beds, similar in their general character, also occur in the vicinity of Manlius, from which large quantities have been exported. But probably the most valuable deposites that have yet been opened up are those along the line of the Syracuse and Auburn rail-road, near the village of Camillus. We find here, among other varieties, noble specimens of transparent selenite, and what renders the locality peculiarly interesting, are the associated strata of calcareous tufa, and of the singular hopper form crystals of marly clay. From forty to fifty thousand tons of gypsum have been obtained simply from the excavations which were necessary for the construction of this road. And this may be considered as merely a specimen of what is still hidden in the adjoining hills.

"Beds of gypsum occur in various parts of Monroe county. Specimens of the foliated variety, with a rose colour, have been found below the Genesee Falls, at Rochester, and nodules of snowy gypsum are quite common in the calciferous slate at the same place. Gypsum is also obtained in small quantities in the towns of Pittsford, Riga and Chili; but, according to Mr. Hall, the workable beds of this mineral are almost wholly confined to the southern part of the county.—'Along the valley of Allen's creek and Mill creek, two miles north, most of the plaster of Monroe county is obtained. Both these places are in the town of Wheatland At present about 5,000 tons of plaster per annum are obtained from this town; of this quantity, 4,000 tons are used in Monroe Co.'—*Hall's Report for* 1838.

"In the counties of Cayuga, Wayne, Livingston, Ontario, Seneca and Tompkins, beds of gypsum have been found in various places; but I have no means of determining even the probable quantity which they yield.

"The localities of this mineral in Niagara county are of considerable interest to the mineralogist. At Lockport, beautiful specimens of transparent selenite and snowy gypsum have been found, associated with pearl spar, sulphate of strontian, and the rare anhydrite or anhydrous sulphate of lime. Snow white granular gypsum also occurs near the Falls of Niagara, with occasional specimens of foliated selenite of a fine sky-blue colour. At all these localities, the gypsum is imbedded in the geodiferous lime-rock of Professor Eaton, but it does not, to my knowledge, occur in quantities sufficient for useful purposes.

"A very imperfect idea of the quantity of gypsum which exists in this state, will be obtained from the sketch which has now been given. Even if we had the means of ascertaining exactly the number of tons at present annually raised, which I think cannot be less than 50,000, it should be borne in mind that regular explorations are seldom undertaken, and that the amount, whatever it may be, is mainly the result of accidental discovery, and of occasional labor by the farmer during the intervals of his other avocations. Immense beds still lie unopened, which will at some future day yield their treasures. Perhaps one reason why greater attention has not been paid to the enormous deposites of gypsum and marl which exist in the western part of the state is, that the soil is naturally so fertile as seldom to require the employment of those artificial means of renovation which in most other countries are necessary to the success of the agriculturist. Still it cannot be doubted that in many situations even here, much advantage would be derived from the use of these efficient fertilizers. Lime, marl and gypsum, all of which can be so easily and so abundantly obtained in the region in question, have almost entirely changed the agricultural character of the states of New-Jersey and Pennsylvania; but it appears to me that in no part of our state which I have visited, is the value of these articles duly appreciated."

"MATERIALS FOR THE MANUFACTURE OF PORCELAIN.

"The localities of clays suitable for the manufacture of brick and the common kinds of earthen ware, are too numerous in this state to be at present noticed, and their description belongs rather to the department of geology than to that of Mineralogy. Many of these have already been noticed in the reports of the geologists, and Prof Mather has presented some details which show the importance of the branch of industry included under the art of brickmaking.

"The manufacture of the finer kinds of pottery has not heretofore been carried on with much success in our country. Whether this be owing to the superior facilities which are possessed by the English and French in regard to materials, or to the reduced price of labor, it is not easy to determine. My present object is merely to show that New-York is not destitute of the materials necessary for this branch of art.

"The finer kinds of pottery require for their manufacture the purest clays—such as contain little or no oxide of iron and which consequently do not turn red in burning. To these a portion of pure silica is added, which is prepared for the purpose by heating masses of flints or quartz, quenching them in water and then reducing them to powder in a mill.

"Clays of a good quality occur abundantly in various parts of Staten and Long-Island, and upon proper trial they would no doubt be found to answer the purposes of this manufacture. There are also several localities in Orange county, where similar materials may be obtained.

"Near Southfield furnace, in the latter county, is a bed of decomposed feldspar, known by the name of porcelain earth, which will probably be of great value in the manufacture of pottery. This substance is of a pure white colour when dry, a little unctuous, and is supposed to be abundant.

"As for feldspar, used in glazing and also in the body of the finer kinds of pottery, we have several localities in Orange county, in Warren county, near Caldwell, and also in the counties of Jefferson and St. Lawrence; while quartz, of a good quality and in sufficient abundance for the same purpose, is found in Orange, Columbia, and other counties.

"Those who are at all acquainted with the history of the arts, both in this and in other countries, must be aware that their progress has oftentimes been extremely slow, and it will not be surprising if the manufacture in question, although now of so little value to us, should become an extensive and important one. Previously to about the year 1760, England depended wholly upon other countries for the finer kinds of pottery; the English ware being generally of an inferior quality. But in a few years after the investigations and consequent improvements of Mr. Wedgewood the current of importation of even the finer earthen wares was changed in that country to exportation, and their manufacture has at length become of such vast extent that it is not easy to calculate its value.

"So it has been with many of the arts now successfully prosecuted in our own country. A great number of articles, for which we were but a few years since entirely dependent on foreign nations, are now manufactured by our mechanics and in our own workshops."

THE BUDGET.

☞ A subscriber wishes Mr. Garnet's opinion of the best method of applying manures to land.

☞ Mr. Love's request will be made known to Mr. Pitts as soon as the latter arrives at Albany, which is daily expected.

ROOT SLICER.

We have received from our esteemed Lockport correspondent, J. E. a drawing and description of a root-cutter—the knife to cut both ways, fixed in a frame, which is to be moved by manual power, on a horizontal frame, backward and forward, under the hopper containing the roots. The objection to the machine would seem to be, that it possesses no economy or multiplication of power—but must be propelled by main force, without the aid of any of the mechanical powers, as the lever, wheel, &c. We have seen cutters which we deem preferable.

WILD GARLIC OR WILD ONIONS, &c.

A Staten-Island "Subscriber," asks directions for expelling wild onions, or wild garlic, from his fields, and of removing the taste of them from milk, &c. The wild garlic is a bulbous perennial plant, and is a troublesome pest in many districts of our country. It is as hardy as the Canada thistle, or quack grass, and as tenacious of life; and can only be destroyed, like the thistle and the quack, by preventing the growth and maturing of the top—which is effected by ploughing and hoeing during the spring and summer months—by spring crops. No plant can survive the growing season, without leaves, its elaborating organs.

We find in the Memoirs of the Philadelphia Ag. Society, several communications confirmatory of the above being an effectual mode of destroying the wild garlic.—We will cite the experiment made by Paul Busti. He ploughed his field early in the spring, which was infested with the wild garlic, and prepared it for Indian corn. Garlick came up, but was cut down and overturned by the hoe and plough, in dressing the crop. Few escaped unhurt. "Determined, however, that none should remain, and convinced by the simple reasonings of plain good sense, that the frequent stirring of the ground, [destruction of the leaves or tops,] must prove the best check upon the growth of any vegetable, I converted in the spring," says Mr. B. "the corn into a potato field, adding a good deal of manure. I may with truth boast, to have perfectly succeeded in subduing the garlic; for among the rye harvested this year from that spot, not a single seed of garlic was discoverable."

Algernon Roberts wholly destroyed the garlic in a field, by a succession, for some years, of spring crops, corn, oats and clover, accompanied by gypsum and manure.

To destroy wild garlic, says Cooper, a system of good farming must be adopted, founded on good manuring and fallow crops, (not fallows,) where the crop requires careful horse-hoeing.

Quack grass is destroyed by three or four years of close pasturing—because the cattle destroy the roots by keeping down the tops—but as cattle will eat the tops of neither the thistle nor star of Bethlehem, these can only be eradicated by tillage—by spring, by hoed crops.

To remove the taste of garlic or turnips in milk, it is directed, in the Domestic Encyclopedia, to pour into each gallon of milk, when it is fresh from the cow, one quart of boiling water. The flavor of the garlic and turnip being volatile, is set free and expelled by the heat of the water.

A Rev. Clergyman, who has recently located himself upon a farm in Pennsylvania, has described to us a "*pest*," which abounds in some of his grounds, and which he asks directions for getting rid of. He denominates it "*evergreens*," and his farmer "*ripple-grass.*" It grows in *bunches*, has *matted bulbous roots*, and spreads with great rapidity. He says he has seen this detestable weed cultivated in the east, in gardens, with great care. We suspect this "pest" to be the star of Bethlehem, (*ornithogalum umbellatum.*) Be it this or not, the only means of destroying it is that recommended for destroying the wild garlic, the Canada thistle, quack grass, or other perennial—by preventing, by means of the hoe and plough, the growth of the stem and leaves, the elaborating organs of the plant, and thereby starving the root, so that it will die.

POTATO OATS

Are highly commended by L. B. Nottingham, Eastville, Va. His neighbor, Dr. Kerr, from a shot bag full of seed, less than the twentieth part of a bushel, obtained, with ordinary management, three and a half bushels. Mr. Jaynes, another neighbor, raises them to weigh forty pounds per bushel, and sows this year three hundred bushels of seed.

DUTTON CORN AND ROHAN POTATOES.

A. M. D. Robertson, writes us from Rock River, Wisconsin Territory:—"Last spring, I procured one quart of Dutton corn, and three Rohan potatoes, from friend Thorburn, of Albany. I planted them in the Rock River soil. Both were planted late. The corn suffered much from the cut-worm and prairie squirrel; notwithstanding which the product was from sixty to seventy bushels the acre. Every grain is bespoken for seed. The three potatoes were planted in 18 hills.—They suffered much from the cut-worm. I dug them late in the fall, and I had a barrel larger than a flour barrel full, and three pecks over. It is a hard tale, but it is truth, every word truth. I could hardly have believed it myself, if I had not seen it."

J. E. Ferre, of Agawam, Mass. raised from one tuber, weighing six ounces, 34 lbs. Rohans, being sixty-eight fold.

TIME TO SOW CLOVER.

"When is the best time to sow clover seed, on a piece of loam, to he sown to winter wheat in the latter part of 9th mo. (Sept.) after corn?—*E. Mabbett.*" *Answer*—In April, upon the young wheat.

A DECENT PIG.

Lyman Smith, of Westfield, Mass. slaughtered a pig in March, which weighed when dressed, 791 lbs.

RELATIVE VALUE OF POTATOES.

A Columbia correspondent is puzzled to reconcile the various statements we have published, at different times, as to the relative value of potatoes and Swedish turnips for cattle food. He says ruta baga is stated to contain from seven to eight per cent of nutritive matter, and potatoes twenty-five per cent; that in the sheep report of Mr. Rotch, 200 lbs. of potatoes are deemed equivalent to 350 lbs. of ruta baga for sheep; and that in the conductor's report in our March number, upon the comparative value of roots for neat cattle, we stated, that it would seem there is no great difference in the feeding properties of the three kinds, viz. potatoes, mangold wurzel and ruta baga, so far as measure and weight are concerned. In reply to our correspondent, we can only say, that each of the authorities he refers to, that is, Davy, Wagner, and the Prize Essays of the Highland Society, are all highly respectable, and entitled to credit. Davy states the soluble nutritive matters of 1000 parts

Of the potato, to be.........	200 to 260
" ruta bag,....................	64
" red beet,....................	148
" white beet,..................	136
" parsnip,.....................	99
" carrot,......................	98
" linseed cake,................	151

Now every person who has had experience in feeding the above kinds of food, will know that linseed cake is more than twice the value of potatoes for fattening beef, although its nutrient properties are rated twenty-five to fifty per cent less than those of the potato; that the carrot is better for cows, and particularly for horses, than any of the other roots, or than oil-cake, although it ranks in the scale below most of them; that to the pig, the potato in its raw state is less nutritious than the carrot, the parsnip, the beet, or the ruta baga—indeed, that while a pig will thrive on any of the former, he will but live upon the latter, although the potato outranks them all in nutrient properties, from twenty-five to one hundred per cent; and finally, that what may be meat to one species of farm stock, may be poison, or at least may fail to possess fattening properties, to another species. We do not assume to reconcile the seeming discrepancies which our correspondent has pointed out, and still we are disposed to respect them all as good authority. We believe that animals, like plants, have their specific food; and that what is most beneficial to one species is not equally beneficial to another species. One kind of animal, like one kind of plant, will assimilate and retain some portions of food, which another kind of animal will void. There is still one other consideration which we will offer, and that is, that the potato differs one-half in its nutritive or fattening properties, which ranges, in different varieties, from fourteen to twenty-eight per cent. There is much yet to be learned pertaining to the "art and *mystery*" of agriculture.

Having thus endeavored to answer the queries of our correspondent, we beg, that in his next communication he will send us his name, though he should tax us with postage.

QUERIES.

1. *Is June as good a season to bud peach trees as August?* No—August and September are the best months, and stocks should be budded the first season of their growth from the seed.

2. *Is not budding better than grafting for that fruit?* Budding is decidedly preferable to grafting on the peach.

3. *Does it make any difference whether those of the same species are united, or of different species, i. e. clingstones upon clingstones, or upon freestones?* None at all. The peach may also be worked on the plum, the apricot upon the peach, some pears, (the melting kinds generally,) upon the quince, &c.

"*Studioso Evangeliis,*" is too sensitive. The term *producing* classes is applied, by common consent, to those who virtually create wealth by manual labor; and the term *non-producing*, or consuming classes, is used, in contradistinction to the other, to indicate those who do not live by manual labor. We make not war with the learned professions. They are all useful to a limited extent; but in some departments we have certainly an excess, or an undue proportion of these good folks; and our desire is to bring about an equilibrium in the commonwealth—not by depreciating the one class, but by enlightening and elevating the other, and thereby increasing their numbers, and their moral and political influence upon society.

WATER LIME.

"*What is water lime, and how is it prepared?—J. Chaplain.*"

We give the answer to the inquiry of our correspondent, in the following extracts from the report of Dr. L. C. Beck, from the Geological Report, just published.

"*Hydraulic or Water Limestones.*—It is well-known," says the Report, "that the lime obtained by the calcination or burning of the different kinds of limestone, differs greatly in its properties. When the limestone is pure, the resulting lime is also of uniform purity. Upon the addition of water to such lime, a high degree of heat is produced, its bulk is greatly increased, and it at length falls to powder. This powder, when mixed with water, and a due proportion of sand, and afterwards exposed to the air, gradually acquires a stony hardness; but this result is not produced when the mixture is submitted to the action of water. Now these are designated by the name of *air limes*, and their relative value depends in some measure upon the kind of limestone, and the particular mode of calcination.

"But certain impure limestones, when subjected to calcination, afford limes which, while they do not undergo much change by simple exposure to the air, do not slake when moistened with water, but when reduced to powder, absorb this liquid without producing much increase in volume, and without the evolution of much heat; and they moreover form with it a paste possessing little tenacity, and which when placed under water, hardens after the lapse of a few days —These are now known by the name of *hydraulic or water limes.* They differ much in the rapidity with which they harden under water, and in the degree of solidity which they ultimately attain.

"There are still other limestones which afford limes, possessing the remarkable and very useful property of becoming hard almost instantly, like plaster of Paris, whether exposed to the air or in contact with water. These are sometimes called *Roman Cements.* It should he remarked, however, that the French generally employ the term *ciment*, to designate fine pounded bricks or tiles; while in this country, the term *cement* is most commonly used in a generic sense, and includes the hydraulic constituent of mortars, whatever that may be.

"There is still some difference of opinion, as to which of the ingredients of these impure limestones, the hydraulic property is to be ascribed. Some of those who have examined the subject, have fixed upon the oxide of iron, as the important ingredient; while the claims of the oxide of manganese, silica, alumina, magnesia, and even soda, have each been urged by respectable authority. It is, after all, however, more than probable, that the hydraulic property is not due to a single ingredient, but belongs rather to several substances, or to a class of compounds.

"It appears, from the experiments of Berthier and Vicat, the highest authorities upon this subject;—that no mixture, of which silica does not form a part, acquires hydraulic properties,—that limes containing only silica or alumina, or better those containing silica and magnesia, acquire a much greater degree of hardness than the silicates of pure lime; and that the oxides of iron and manganese contribute nothing to the hardening of these bodies.

"More recently, M. Vicat has asserted, that magnesia alone, when in sufficient quantity, will render pure lime hydraulic. The proportions of magnesia which he recommends, are from thirty to forty per cent of it, weighed after calcination, to every forty of pure anhydrous lime. 'M. Vicat also points out the importance of these observations;—hydraulic lime never having been found in the calcareous formation below the lias, is because the dolomites have never been examined; but it is now probable that it may be found in this formation.'*"

"The mode of preparing the cement is sufficiently simple. The limestone is first reduced to small fragments, which are then thrown into a kiln, with layers of the screenings of anthracite intermixed. At an interval of of twelve hours, the lower layers of the kiln are removed, and fresh portions of the limestone thrown into the upper part. These operations are so managed, that each layer is subjected to heat for about three days.

"The lime thus calcined, is of a light drab colour, and when reduced to powder and mixed with about one-third its bulk of sand and made into paste with water, soon becomes hard. The grinding is performed in a mill, and the powdered cement is put up in barrels, which are lined with paper, to exclude as much as possible, the contact of air. The cement thus prepared, is sold at $2.25 the barrel."

Water limestone is found in the counties of Albany, in the Helderbergh; of Herkimer, Oneida, Madison, in most of the western counties, and particularly in the county of Ulster, in which latter place, upon the Rondout, and Hudson and Delaware canal, 3,000 barrels of this cement are manufactured weekly, a great portion of which is employed in the Croton aqueduct, and in the United States' works, near Boston. Dr. Beck gives the following analyses of the Ulster county hydraulic lime, the first set of figures showing the proportions in its natural, and the second set in its calcined state.

Carbonic acid,.................	34.30	5.00
Lime,..........................	25.50	37.60
Magnesia,......................	12.35	16.65
Silica,........................	15.38	22.75
Alumina,.......................	9.13	13.40
Oxide of iron,.................	2.25	3.30
Bituminous matter, moisture and loss,..........	1.20	1.30
	100.00	100.00

Acknowledgements.

From the Hon. James M. Garnet, of Virginia, a drill-barrow, which sows four rows at a time—of which we shall speak further when we have tried it. From Mr. Fitzhugh, Indiana, seed corn, a cross of the Tuscarora and Sweet or Sugar varieties, which we have planted. From George C. Thorburn, New-York, a bushel of the celebrated Whitington wheat, a plant of the Tobolsk rhubarb, the London Gardener's Gazette, and choice flower seeds. Several samples of Indian corn and other seeds, from different gentlemen. A sample of imported Italian wheat from J. Hathaway, of Rome. Several kinds of seedling potatoes, from John McLean, of Cayuga. Seeds from H. Collamore, Esq. Pembroke, Mass. Sample of premium corn, from W. Ingall, of Oswego. It is of the Dutton variety, beautiful—the ears eleven and twelve inches long, and well filled to the tips—twelve ears giving more than thirteen half pints of shelled corn. From the Rev. Mr. Colman, several valuable agricultural pamphlets. From J. W. Proctor, Essex Agricultural Society Transactions; from T. H. Webb, Dr. Jackson's Geological Reports, and other pamphlets.

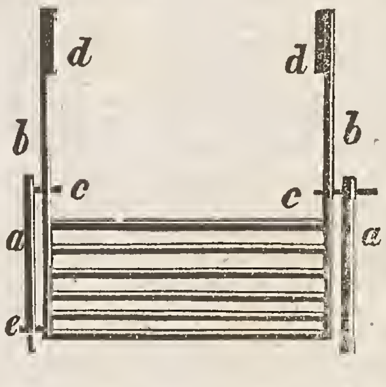
CORRESPONDENCE.

The Revolving Gate.

Norfolk, Litchfield co. Ct. March 5, 1839.

Mr. J. Buel—Sir—I feel a great reluctance to write for an agricultural paper like yours; but feeling it a duty to impart instruction as well as receive it, I herein will attempt to describe a kind of gate that I erected last summer, which I shall term the revolving gate. It is made as follows, viz:—Set two posts, 5 feet 4 inches high from the ground; let the top of the posts incline a little inward, so that the gate will not shut against them; bore a hole in each post 4 inches from the top, and mortise from the hole upwards, to receive the pin or axis of the gate, or the abutments of a stone wall may be substituted for posts. Take scantling say 10 feet long, 3 inches square, for uprights; frame slats, boards or poles into one end of the uprights, to the height of 4 feet; bore a hole in the centre of each upright for the pin or axis, which may be made of wood or iron.

[Fig. No. 13.]



I send you a drawing of this gate, the better to enable you to understand it.

a a Posts. *b b* Uprights. *c c* Pins, or axis of wood or iron, on which the gate revolves. *d d* Weights to balance the lower part. *e* A pin to fasten the gate.

The top of the uprights ought to just balance the bottom or gate part, either by large but ends, or by adding weights. A gate of the above description will swing up 6 feet in the clear. The only objection to this gate is, it will not receive a high load; this may be remedied in two ways—1st, by making them light, so that two men will take them out with ease; or, 2d, the posts may be made higher. If the gate is 4 feet high, and the axis is 8 feet high, the gate when it revolves will be 12 feet in the clear—but I should prefer the former.

The advantages of these over ordinary gates are—

1. They are cheap—they need not cost much if any more than posts and rails, and in the long run are much cheaper.
2. They are very simple, as any farmer can make them without the help of a mechanic.
3. They require no bracing to keep them from dragging.
4. They will not pull over the posts.
5. They are not liable to get out of repair by sagging, or being blown by the wind.
6. When opened they do not form an angle for cattle to run behind.
7. They are not liable to be opened by unruly cattle, and if properly balanced, a child will open them.
8. They will open more handily, when the snow is drifted about them.

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* London & Edinburgh Philosophical Mag. 3d series, VIII. 591.

9. If an awkward teamster drives a cart against one or both sides, (as some will,) if slightly fastened, he merely shuts the gate after him.

This gate may be fastened shut or open, by a pin or catch near the bottom. Respectfully yours,

HORACE HUMPHREY.

Draining.

Although much has been written on this subject, enough, one would suppose, to convince any agriculturist of its utility, and instruct him in the best mode of performing the operation; yet hundreds of dollars are annually thrown away by injudicious draining; and we deprive ourselves of other hundreds, by not draining at all. I have mowed two or three acres of land, (or rather of mud,) some ten or twelve years, and the hay, (if hay it may be called,) has hardly paid the expense of mowing. A line of springs breaks out along the upper side, the waters of which, slowly meander to a neighboring creek. Three or four years ago, I undertook draining, knowing, perhaps, as much about it as some of my neighbors, and practising full as well. I cut ditches from the springs directly to the creek, say eighteen inches deep, and shallowly left the shallow things open for the frosts of winter to fill: but the sequel proved that all was not right; for my meadow was ne'er the better for all my labor. But thanks to the Cultivator for a better system. Last fall I undertook again, with about half an acre for an experiment. I ordered a drain to be cut two and a half feet deep, and two feet wide, from the creek to within a rod of a fine living spring, in the line of my orchard and meadow, (which spring I did not want to injure,) and then branch off to the right and left along the dry land. By digging this depth, we cut through the clay subsoil, into gravel, when we came into which, ever and anon a vein of water would tell us, that all was going on well; and it went well enough till we came to within a little over a rod of the spring, and then it went quite ill; for all at once, the water gushed up from the bottom of the drain, and away went my fine spring; and two others, one two, and the other three rods distant, were dry in fifteen minutes. Whilst we were digging, some of my neighbors, knowing my intention, advised me by all means to leave the drains open; but I was just stubborn enough not to mind them; for I first flagged the bottom of the drains with flat stones, well fitted together. I then placed narrow stones on each side, and flat ones on these; then filled with small stones to within a foot of the top, then inverted the sods on these, and finished with loose earth. I then tore up the hassocks with a plough, dried and burned them, and spread the ashes; sowed the ground with timothy seed, covered it with manure, and scarified it with an iron toothed harrow. What the result will be, time only can show; but this much I know, the ground that, last summer, dry as it was, would mire a team, is now dry enough to plough, and the timothy looks well.

S. HEATON.

Plattekill, Ulster, 4th mo. 8th, 1839.

Theory in Farming.

Near Brownsville, Pa. December, 1838.

Hon. J. Buel—This has been pronounced an age of improvement, and very truly; but while the mechanic arts have been brought to a high degree of perfection, and improvements in them widely and rapidly disseminated, agriculture, though it has made great advancement in some places, in others remains almost stationary. Now, what is the cause of this difference in these two branches? It would seem to be that mechanics have greater advantages for becoming acquainted with, and appreciating the value of distant improvements in their business; while farmers, from their habits and other circumstances, are forced to rely on themselves for improvements, or at most are confined to their own vicinity; consequently, improvements are slowly disseminated. The only remedy for this evil is to establish some channel, by which improvements, made in one section of country, may be communicated to the others. This channel, is books or agricultural papers. But against book farming, exists a long established prejudice; and the mere mention of theory in farming excites in the farmer a perfect abhorrence; but with what justice, let us further inquire, as it is a matter of great importance. A theory is nothing more than the conclusion at which we arrive after examining the laws of nature. If we understand these laws correctly, and form our theory accordingly, our theory will be correct; if not, it will fail. Every man (farmers included) forms a theory, or in other words, a plan, before he commences any operation. Watt, with his steam engine; Arkwright, with his spinning jennies; Davy, with his safety lamp, and Archimedes, with his mirror; each, made himself correctly acquainted with the laws of nature, on which he wished to operate, and on these, based his theory. Now, in these cases, had there been no theories, there would have been no inventions. But, as theory is admissible in the mechanic arts, why not also in agriculture? Nature is as uniform in her operations in one case as in the other. If the chemist tells us that alkalies neutralize acids, and that lime possesses the properties of an alkali, and if we know that some acid exists in the soil, is not the conclusion legitimate, that the soil will be corrected by the application of lime? This now, is mere theory; yet, we would feel justified in relying on it as strongly as though it were demonstrated. If also, as Davy has shewn, certain gases serve as the food of plants, and these same gases are given off during the fermentation of manure, who would not repose perfect confidence in the theory which would bring these gases in contact with the plants rather than permit them to escape into the air? Draining, also, might be cited as a complicated theory; but on that account, none the less certain in its results. In fact, nearly the whole routine of farming is theory. 'Tis true, many errors are committed in theorizing, but these must be laid to the ignorance of the theorist, and not to the system by which he attempts to arrive at that conclusion by his reason which he cannot reach by sight and touch. But our farmers tell us they want something "practical," and if we should hand them the Cultivator, and tell them it contains the experience of its correspondents and contributors, it will be denounced in round terms as mere book-farming, which deserved no credence, because forsooth they had not seen it. As though they would discriminate between what their neighbor told them viva voce, and that which he communicated to them by his goose-quill. This reminds me of the oriental despot, who dismissed from his empire, as a liar, an ambassador, who told his celestial majesty, that in his own country, water became in winter so hard that armies passed over, for the sage reason that he had never seen the like. While this old prejudice, and the ignorance on which it is founded, and which forms its chief support, remain like ramparts, to stop the wave which is making in our favor, how can we expect to be carried forward to that glorious goal to which we seem destined?

G. E. H.

Farm Buildings.

Plattekill, Ulster co. 4th mo. 8th, 1839.

Friend J. Buel—Among the many appendages to a farm, and the means of facilitating the labors of husbandry, I consider convenient buildings as holding a conspicuous place; and notwithstanding many plans, with different degrees of merit, have graced the columns of the Cultivator; yet I offer the plan of a small building I have lately erected, which, to publish or to be thrown aside with other waste papers, is discretionary with thyself.

[Fig. No. 14.]

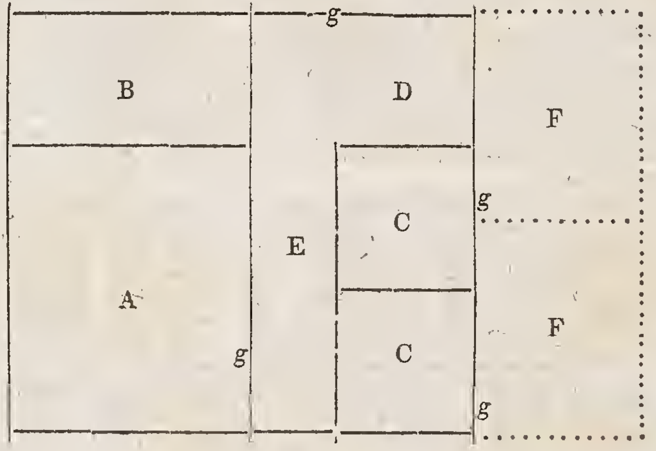

Fig. No. 14, is the ground plan of the building, which is erected on a side hill. A, is a cellar 14 by 16 feet.—B, a space between the cellar wall and the north foundation of the building, filled with earth. C, C, hog-pens, 8 feet square. D, a room for boiling food for hogs, and communicating with the cellar by the alley E. g, g, doors. F, F, yards.

[Fig. No. 15.]

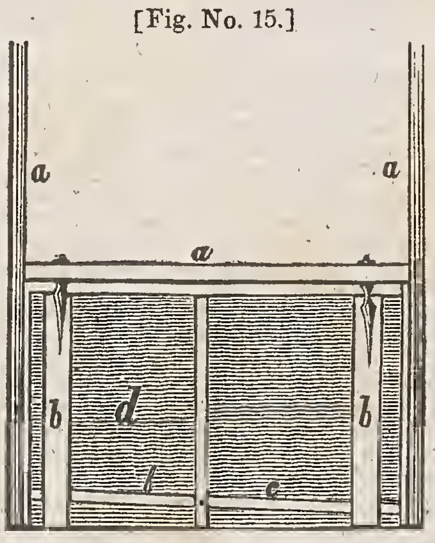

Fig. No. 15, represents the partition between the alley E, and one of the pens. *a, a, a*, the frame; *d*, a door; *b, b*, brackets; *c*, a latch, made fast at *f*, by a bolt; *g, g*, hinges. Under this door, is placed the trough; a piece of board 6 inches wide is nailed to each post, one directly over, the other beneath the latch; in these boards are two notches to receive the latch, so that in two seconds I can shut the hogs from the trough, and have it open to the alley, by lifting one end of the latch out of the notch, and pushing the door back to the opposite side of the trough; when it falls into another notch, the other end fastening in the same way above. This done, I can fill the trough without having to combat the greedy animals, and they have an equal chance after the door is swung back to its place.

Over the cellar, is a building 20 by 24 feet, 14½ feet posts, for a carriage house below and granary above; over the hog-pens, the roof of which is low, is room for housing sleds, tools, &c.

Now the advantages of this building are these—First, I have much room under a small roof;—second, I can draw my potatoes into the carriage-house, and shovel them through a trap-door into the cellar, without having to carry them in a basket, as I always have done, and many still do;—third, the cellar is on a level with the swill-house, or boiling room, so that there is no lugging them up stairs;—fourth, I can, by placing my feed tub in the cellar, boil potatoes for my pigs in cold as well as warm weather.

S. HEATON.

American and British Agriculture Contrasted.

As a large amount of our scientific knowledge of agriculture is derived from British works, let us inquire how far the system adopted there should be modified so as to suit our circumstances; for difference of circumstances renders a difference of system necessary. Many considerations are necessary to be taken into account, in order to determine the relative value of different systems of agriculture; and that one adopted, which suits best the respective circumstances of each. The agriculture of China would not answer for England; nor is that of England, in all respects, suited to the United States. For, first, the rent of land there is exceedingly high; consequently, it becomes necessary that every acre shall produce to the full extent of which it is capable. This high rate of rents is owing to a superabundance of competitors, and but a limited supply of land. There, land is the chief article of value, and hence the chief object of attention; hence a greater outlay would be justified on the same extent there than here. Secondly, on the contrary, in this country, labor is the great article of value. The comparatively low rate of wages in Great Britain, enables the farmer to make improvements which would never compensate in the United States. There, it enables him to bestow more care upon, and work more frequently and thoroughly his soil. We cannot adopt the system of England, for the same reason that she cannot adopt that of China, viz: difference of wages; for best imformed agriculturists are aware that we cannot bestow the same labor on the same object as the English. There is a medium point beyond which the extra profit does not justify the extra labor. This point changes with the change of circumstances. With us it is exceeding low. Thirdly. In England, the superabundance of capital, and low rate of interest, enable the farmer to make those improvements, and farm to that perfection, which would not be justifiable in the American farmer. Many of our farmers can appreciate the value of improvements, but their means are yet too limited to advance with the gigantic strides of the wealthy farmers of England. Grain does not bear the same price here as there. This high price of agricultural produce, and consequent profitablenes of the business, furnish both the inducement and means of improvement. This flourishing state of agriculture arises from legislative encouragement; large proportion of consumers to producers, and great facilities for transportation and exportation; in all which, we are far their inferiors.

All these causes co-operating, suggest that we should adopt a somewhat modified system, until the obstacles which impede our course, shall be removed. Yours respectfully,

G. E. H.

Mode of applying Manure—Antidote to Grubs.

Sing-Sing, April 17th, 1839.

Friend Buel—I frequently notice in the Cultivator, that your advice to farmers respecting the application of manure, to tillable land is, to apply it in the spring for hoed crops, by burying it with the plough to the depth of the soil; and you do not seem to admit of any variation on account of the different kinds of soil. I admit that where the soil under cultivation is dry, it may be best to manure for hoed crops,* and that it should be incorporated with the soil, but not buried very deep. (I write this, under the supposition that farmers, in this country, do not make manure enough, to apply it more than once to the same land, in the course of a rotation of crops.) But there is another description of soil, which, if ploughed at all, should be manured in the fall for the winter grain crop, in preference to any other. I allude to soils naturally moist, and particularly to those underlaid by hardpan; first, because on such soils, without manure near the surface of the ground, winter grain and the young timothy, is apt to freeze out, besides making it very uncertain for clover, the year following.

The rich juices of the manure, in the fall and spring, leach among the roots of the plant, giving it strength and vigor. By being light and spongy, the soil does not settle away from the roots of the young plant after a frost, as does the earth alone. Again, it is all important to most parts of the country, to keep the soil in a state of progressive improvement. If the manure be applied in the spring to a hoed crop, and after that we take two more crops of grain before seeding, we leave heavy land, but little if any better than we find it. And the succeeding grass crops, on which we mainly depend for the means of enriching our land, are sadly deficient in quantity. If we manure in the fall for winter grain, the succeeding crops of grass will be heavy, and when the ground is again turned up for corn, it will bring, I think, as good a crop without, as it would the time previous with manure, and that too, without deteriorating the soil to the condition in which the manure first found it; then our stock of manure on hand may be applied to enrich another piece of ground. If at the commencement the land is too poor for corn without manure, do not plant it, but summer fallow and sow winter grain, and manure at that time, for the reasons above stated. Now for the proof: a few years since I had two pieces of stiff clayey soil broken up, they were both poor and covered with moss, one I summer fallowed and sowed with wheat and grass seed, after spreading about twenty loads of manure to the acre on the furrow and harrowing it in with the wheat; in the spring following, I sowed it with clover seed. On the other I spread about twenty loads to the acre on the soil, ploughed it in about three inches deep,* (the depth of the soil,) and planted it with potatoes, had a tolerable crop, took them off and sowed rye, and seeded as I did the first piece; the result was, that I had from the first, full fifteen bushels wheat to the acre, the next year an abundance of clover, and for two years more, clover, timothy and red top, about two tons to the acre, and is now rich enough to bring good corn without manure. From the second piece I had about four bushels rye to the acre, hardly a spear of clover, and something like three-fourths of a ton of grass to the acre, and is to all appearance as poor as when I broke it up.

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* We contend that no hoed crop, except potatoes, should be planted upon any but a dry soil—and that even potatoes should not be put upon a wet one. Under, or furrow draining, will render any soil dry, where there is a sufficient declivity to drain off the water.

We well know that the enriching properties of unfermented manure will leach away, thus where it is applied to grass grounds before the spring rains, the effect on the grass is surprising. May not its virtue, when buried beneath the soil, leach still farther down, and is it an expensive way of enriching a subsoil without the aid of the sun and atmosphere? Heavy soils are seldom managed as they should be. It would generally be better to plough but little and manure that highly, and top dress the remainder to renovate the grass, rather than plough much and risk getting any thing, besides toil and trouble. I will add, that in summering manure, I make it into a compost.

I have been informed by a friend, on whom I can rely, that to arrest the ravages of the grub in corn, as soon as you find they are troubling it, take tobacco, add water and boil it up until the decoction is strong enough; pour about a wine glass full on each hill; the remedy will be effectual, the cost trifling, and there is the consoling reflection that a filthy weed is applied to some good purpose. Yours, &c. JESSE RYDER.

Transplanting—Protecting Brick and Stone Walls—Culture of Onions.

Stockbridge, April 27th, 1839.

Mr. Buel—Although not a subscriber to your paper, I have received so much pleasure from it, that I feel bound to make a return, if it is in my power.

I fancy I can write upon two or three subjects on which your correspondents are soliciting information. I begin with the letter of Mr. Seitz, in the Cultivator of March. I beg to tell him that I have transplanted roots, such as sugar beet, ruta baga, borecole and mangold wurzel, with the greatest success for ten years past. I prefer it; but I must be candid, and tell you that they consider me here as an enthusiast. I prefer it, because I raise the young plants with the greatest care in my garden, so as to make them a great deal more thrifty than they would be in the lot. They are placed in the very best soil; highly manured; and if a drought comes on, are watered. Young plants, like young animals, require to be taken great care of; if this is well done, half the toils of agriculture are accomplished. Again, I have great time to prepare my soil, to carry out my manure, and to make the necessary arrangements for after culture; if this is well done, there is no danger in transplanting. I place a garden line to mark my rows; I give a scratch with the fingers, joined together, in the loose soil, and the root is deposited in a reclining position; this is the German method where mangold wurzel is cultivated in the highest perfection.

A gentleman from Morristown, in the same paper, inquires as to the best method of protecting brick walls against a driving easterly storm. I came here from India, where we have six feet of rain in four months; it requires some attention, in the art of building, to protect you against such a climate. Many houses have a broad veranda which brings the roof within nine feet of the ground; this makes the body of the house dry; but I had, what is called there, a top sail house; that is, two stories, to protect my walls, which were substantially built of stone, and well stuccoed. I had a projecting roof of near six feet. Nobody can imagine the comfort of allowing your windows to be open during a heavy storm of rain. A long driving storm will make brick walls damp; but this dampness is greatly increased by the sheets of water which perpetually fall from the roof. My house, in Stockbridge, has a roof of four feet projection, and I have received great advantages from it. The greatest expense in building, are sashes, blinds and window frames; these are well protected, and will last much longer.

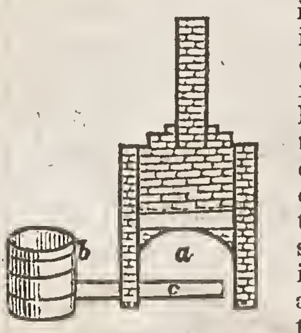
Now, to the third subject. I was amused at some inquiries I saw, from a gentleman from Pennsylvania, on the subject of onions. In Bombay, where I lived the greater part of my life, this root is cultivated in the highest perfection. The mode of cultivation was no doubt carried there by the Portuguese, who, with the Spaniards, produce a fruit that we know nothing of here. It sells in the markets of London, for fourpence and sixpence a piece. The fruiterers keep them in their stores; it is remarkable for its great mildness; the great perfection of the root depends on irrigation and very high manuring, which, by the way, can be used only with irrigation; the seed is sown at the end of our rainy season; when that is over, the ground is prepared by having beds made about six feet square, so as to contain about four inches of water; gutters pass between two rows of these squares. The young onion plants are pricked into the mud, and well manured; during the growth of the plant it is enriched three times, with powdered fish, and in less than three months the crop is brought into market. I have succeeded in this country in producing an onion equal to what I have seen elsewhere; but the climate here is too cold and too uncertain, and the season too short. In Pennsylvania, this would be a branch of industry from which important results might follow. Yours respectfully, L. ASHBURNER.

Boiler for cooking Cattle Food.

Hardeman's Cross Roads, Tenn. April 1st, 1839.

Judge Buel—Sir.—For several years past, I have been much more in the habit of attending to my farm, than writing, but as my paper and pen are before me, I will give you a description of my neighbor Bostick's boiler, which he uses for the purpose of boiling food for his cattle and hogs. It is simply a cast iron pipe, about five inches in diameter and six feet in length, closed at one end and open at the other end. It is fixed in the fire place of the kitchen. By placing it across the fire place, next to the back, on the hearth, and the open end of the pipe extends through the jamb of the chimney about six or eight inches, and passes into a tub or trough, which has a circular hole cut into it near the bottom for the reception of the pipe, which is prevented from leaking, by being corked around with tow. Then by putting water into the tub with corn, or whatever kind of food you wish boiled, and making a fire in the kitchen (which is usually done in this country three times during the day) the pipe becomes very hot and causes the food to be boiled very done.

[Fig. No. 16.]



It surpasses any thing of the kind I have ever seen, on account of its simplicity, convenience and economy of fuel; for we are necessarily compelled to have a fire almost constantly in our kitchen for cooking, and the same fire will serve, with this kind of a boiler, to cook food for hogs or cows, by which plan, they are kept in much better order and at much less expense, during the winter season. Your obdt. servt.

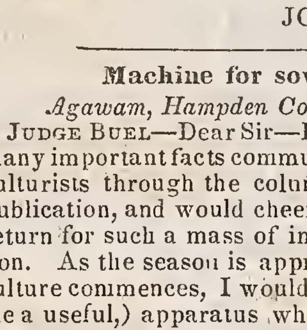
JOHN S. CLAYBROOKE.

Machine for sowing Beet Seed.

Agawam, Hampden Co. Mass. March 30th, 1839.

Judge Buel—Dear Sir—I feel myself indebted for the many important facts communicated by my brother agriculturists through the columns of your very valuable publication, and would cheerfully contribute my mite in return for such a mass of important practical information. As the season is approaching in which the beet culture commences, I would describe a simple (but to me a useful,) apparatus which I have made use of for two seasons past, for sowing all kinds of beet seeds. We sow on drills or ridges, which after they are thrown up with the plough we brush on the top slightly with a hoe, or head of a rake, to obtain a flat surface on the centre of the drill; for forming the drill to receive the seed we use a wheel made of plank 1½ inches thick, and 1 foot 2 in diameter, bevelled on each side of the circumference to nearly an edge in the middle, hung to turn on a pin between 2 handles, about 4 feet in length, which project forward of the wheel four or five inches; near the end a piece is framed in or nailed on to each crosswise in front of the wheel, in which is inserted a small wood or iron coulter or scratch on a line with the track of the wheel. The wheel is run upon the centre of the drills, and makes an impression or furrow 1½ inches deep and about the same width at the top, slightly compressing the earth at the sides and bottom of the drill, causing it to retain moisture, so essential to the germination of seeds. The drills thus prepared, we use the following machine for sowing, and equally distributing the seed.

[Fig. No. 17.]



A, a staff or handle 3 or 3½ feet in length, running through the flat piece B. B. six inches, and terminating at the lower end in an egg-shaped point or pivot; C. a pivot at the opposite end of the piece B. B. 6 inches long and shaped at the lower end like the former; *e e e e* 4 tubes with a half inch hole through the centre 20 inches or more in length, funnel shaped at the top (which may be formed of paste board or leather,) running through and fastened into the piece B. B, to extend about three inches below said piece; *d d*, a strip of lath ½ an inch wide, tacked to the tubes to keep the tops in their places. The tubes are six inches distant from each other, and the 2 outside ones 3 inches from the pivots. The machine we use is made of white pine, tubes and all (tin would be preferable for tubes,) and weighs 2½ lbs. and was made by myself in less than 2½ hours. After the seed is prepared by soaking, or wetting and rolling in plaster, or ashes, to fill their rough surfaces, that the seed may separate more readily, the machine is set up, the pivots in the drill, and a seed is dropt into each tube; it is then turned from the workman towards the right on the front or short pivot into the drill again, and a seed is dropt into each tube as before; it is then turned on the handle pivot, and so on alternately, dropping the seeds at each turn, &c. The workman can stand upright in the space between the drills, and the tubes being so near the ground that the dropping is not affected by the wind; the seed lies regular at 6 inches apart at the bottom of the drill; with a little practice in taking about the requisite number of seeds so as to separate freely, from the planting pocket, a person will drop at a decent walk, without much fatigue. We cover with the head of a rake run along back down nearly lengthwise the drill; if the soil is light and dry, run a hand roller over the rows of about 6 or 8 lbs. weight.

We also make our drills for ruta baga, with the before mentioned wheel, and sow the seed from a small tin box fastened to a staff or handle 3 ft. in length at angle of 45 deg. downward, having 2 holes to let the seed pass out in the lid, which when the handle is held upright is the bottom, filling the box half full of seed and holding it in the left hand over the edge of the seed drill, and rapping the box gently with a light rod in the right hand, a person will sow at a brisk walk with great regularity. Last season I sowed one quarter of an acre in this manner with less than 1½ oz's seed, and they required considerable thinning after they came up.

I obtained from the Albany seed store, last spring 1 Rohan potato, weighing 6 oz. planted it on a dry sandy soil, where it suffered severely from drought for two months; the produce however was 34 lbs. many of them good sized tubers, and a few that grew very late in the season quite small—I have 6 hills in boxes growing in the green house planted about the middle of March, which I design to transplant in the field at the proper season, (the boxes being slightly made for that purpose.) The object is to see if very small tubers of that variety, if sprouted early, by artifical means, will produce large ones. The 2 tubers to make the 6 hills did not weigh one ounce in all. I may give you the result hereafter.

Yours with esteem.

JONA. E. FERRE.

Physiology—Vegetable and Animal.

Dear Sir—In another number of the Cultivator you published my communication relating to the artificial crossing of vegetables, &c. which imitates, partakes of, and has an alliance with, the animal kingdom.

I have frequently met with insects in a dormant state, and at first supposed them to belong to the vegetable kingdom, and the first glance of the elephant only resembled a heap of inanimate matter. If we saw a tree approaching us we should suppose it to be an animal, but if it remains stationary, not possessing any muscular power, it is ranked among the vegetables, though it possess most of the properties of some animals.

The vegetable nor the animal can subsist without food, and upon the quantity and quality depends the health of both; either may be injured by food not adapted to their habits, their appetites or digestive powers.

Animals subsist most entirely upon vegetables; it is through the vegetable kingdom that the different properties of the earth are subtracted, suitable for the support of the animal kingdom; hence the vegetable forms the link between the animal and mineral, or inanimate nature.

I propose to add more respecting the structure of plants, and on the general analogy of vegetable and animal life; and I shall endeavor to notice that which may be useful and interesting to the reader, by referring to Good's Book of Nature for the ground work of the subject.

In the organized bodies and the structure of plants, compared with that of animals, I would first ask, where is the difference between the stone and the plant? If one be removed to another place it will suffer no alteration, by change of place; but as soon as the other is removed it will instantly sicken, and perhaps die. Both have proceeded from a nucleus or germ; both have a tendency to preserve their family configuration; and both have been augmented and perfected from one common soil. It is only by a minute attention to the relative histories, internal structures and modes of growth of the two substances, that we are enabled to offer any thing like a satisfactory answer; and by thus examining we find that the stone was produced by chance, and has grown by external accretion, and can only be destroyed by mechanical or chemical force; while the plant has been produced by generation, and advanced in size in proportion to, and by the nourishment it has received, and destroyed by death; its parts have been mutually dependent and contributory to each other's functions. The consistency of the internal power is unknown; differently modified, we meet with it in both plants and animals; and we denominate it *the principle of life;* and the substance thus produced is called an *organized being.*

The various bodies of nature arrange themselves under the two divisions of organized and unorganized; the origin of the former by generation, the latter a fortuitous origin. The corals, sponges and fuci form the lowest natural order among animals and vegetables; the corals seem to constitute the link that connects the animal and vegetable with the mineral world; it has, in different periods, been ascribed to each.

The difference which consists between the organization of the animals and the vegetables is not very clearly marked out, and we characterize them more by description than by definition. We can readily distinguish the difference between animals and vegetables in their more perfect states; we find the plant confined to a particular spot, its nourishment derived from the same, and presenting no marks of consciousness or sensation; we behold the animal capable of moving at pleasure, exhibiting marks of consciousness and sensation; and a very high degree of intelligence ofttimes. Yet, if we should only lay down consciousness or sensation and locomotion as the two characteristic features of animal life, we should find our definition untenable; for while the Linnean class of worms affords instances, in perhaps every one of its orders, of animals destitute of locomotion, and evincing no marks of consciousness or sensation; there are various species of plants that are strictly locomotive, and that discover a much nearer approach to a sensitive faculty. Therefore the distinction between the animal and vegetable life, in their most striking form, fades away as we approach the extremities of the two kingdoms, where the mutual advances are so close and intimate that it becomes a task of no common difficulty to draw a line of distinction between them, or to determine to which of them an individual may belong.

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* A three inch stratum of soil, especially with a tenacious and wet subsoil, cannot be expected to produce much of any crop, especially of tap-rooted plants, like clover, with or without dung.

Therefore when we give a distinctive character for animals and plants, we are compelled to resort to, and derive it from the more perfect of each kind; and to leave the extreme cases to be determined by the chemical components eliminated on their decomposition.

Yours, S. W. JEWETT.

Weybridge, Vt. May, 1839.

Culture and Profits of Squashes.

Narrows, L. I. April 24th, 1839.

Mr. Buel—There are several varieties of squashes cultivated for the supply of the New-York markets, but the early white scollop-shell bush squash, is the one principally in vogue. This variety, although more profitable to the cultivator than any other, is not, however, the best for the table. We have a small striped squash, shaped like a heart, which is more dry when cooked, and far preferable in flavor. This last variety came originally from the vicinity of Schenectady, (about forty years ago,) and has since been kept pure by a few individuals. They are ripe about a week later than the first named variety, and are not fit to be pulled until they become so hard that the finger nail cannot indent their shells; they will remain on the vines without spoiling until frost appears in the fall. Probably the reason why the striped squashes have not come into more general use, and why the white ones continue to hold the ascendancy, is, our demanding the same or a higher price for them, although much smaller in size, and the fact that many of the citizens of New-York prefer quantity to quality. I have never known the seed of the striped squash to be sold in the seed stores, and have often been disappointed in purchasing what was labelled for the white scollop-shell, for the produce, instead of proving to be white, I have found to be yellow, although the papers had the usual marks of the Shakers on them.

The cocoa nut and the grey and white long neck squashes are excellent for fall and winter use, but not much cultivated in our vicinity.

The reason why many of the squashes sold in the markets are poor, is their being gathered too green, the cupidity of the cultivators inducing them to pull all that are of a good size, without reference to ripeness, so as to have them for sale as early as possible, to command the highest prices.

Squashes, like many other vegetables, will grow on almost any good soil, but a rich sandy loam with a red clover sod, on low ground, is preferable, and in such a situation, with proper management, they seldom fail.

For early squashes, in the beginning of April, (if the frost has disappeared,) we spread over the ground about thirteen two horse loads of street manure to the acre, immediately plough, harrow until mellow, furrow into hills five feet apart, and place three-quarters of a shovel full of the same kind of manure we use for cucumbers and melons into each hill, which is covered with earth about an inch deep: we then drop from fifteen to twenty seeds into the south half of the hills, (scattering them so as not to have the plants crowded,) and cover with fine earth an inch and a quarter in depth. About a fortnight after the first seeds are put in, we plant over, in the north half of the hills. Formerly I was not in the habit of planting over, excepting such hills as were deficient in plants, but experience taught me in 1834, the necessity of it; for on the 26th of April, after the plants were all up, a black frost swept them clean: by planting over, therefore, a greater certainty is insured of an early crop, which in the markets is of great importance.

Squash seed is far more hardy than that of cucumbers and melons, and will remain a long time in the ground without rotting. They require a rotation, and do not prosper two years in succession on the same ground.

The after culture of the plants is the same as that of cucumbers and melons, except ploughing between the rows when planted on sod at the first hoeing, and using the cultivator at the others. The plants are gradually thinned down to three in a hill, and the last hoeing is given a few days after the blossoms open.

The plants, like others of a similar nature, are liable to the depredations of black worms and yellow flies: it is a singular fact, that the latter often select a single plant in a hill and feed upon it in swarms, while the remaining ones remain untouched. I have frequently known single hills, and occasionally a large portion of some patches of squash plants very much injured, and sometimes destroyed, by a species of aphis taking possession and affixing themselves to the roots of the plants; they are about as large as a pin's head, of a green colour, and when the ground is carefully removed they are found adhering to the roots and stem. Plants infested by them in general either remain stationary or else gradually pine away: those that recover never afterwards flourish. I am unable satisfactorily to account for their appearance, but suppose them to be derived from the manure.

Squash plants on good ground continue in bearing until the frost in the fall destroys them.

Cocoa nut and long neck squashes require to be planted in hills eight feet apart, and at planting, a dozen seeds in a hill are sufficient.

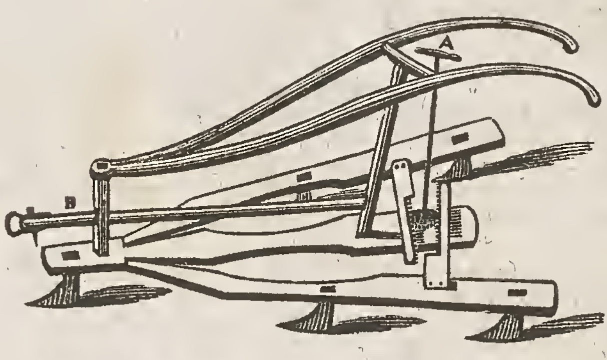
The following is the number of hills planted, produce, (unsaleable ones excepted,) and amount of sales for the preceding four years, viz:—

Year,	Hills planted.	Dozen sold.	Am't rec'd.
Of early white scollop-shell squashes,			
1835,	1,482	851	$179 82
1836,	1,482	1,146	372 00
1837,	1,590	858	167 86
1838,	1,554	780	208 25
Of striped shell squashes,			
1835,	702	268	$80 36
1836,	702	437	122 31¼
1837,	800	215	101 62½
1838,	811	316	76 77½

Yours, TUNIS G. BERGEN.

Improved Expanding Cultivator.

[Fig. No. 18.]



The above is a figure of an improvement on the Cultivator, invented by Jason Smith, Esq. It can be contracted or expanded at pleasure, without stopping the horse, (which is very convenient where the rows are not marked out regular,) by turning the handle A, which is connected by a half inch rod, with a cast iron cog wheel, four inches in diameter, which works in two slides screwed to the slats. The depth can be regulated by raising or lowering the beam B; a mortice is made through the hind end of the centre piece, of sufficient length to receive the wheel and both slats; the side pieces are fastened at the forward end by strong hinges. Yours respectfully. [No patent.] J. S.

Tyre, Seneca county, Jan. 3, 1839.

Dressing Hogs.

Schenectady, 2d April, 1839.

Dear Sir—The following method of dressing large hogs may be useful to your readers; if you think so, publish it. After the hogs are laid on the lumber sleigh, or whatever else is used to dress them on, they are dusted over with finely powdered rosin, from a dredging box; then they are covered with horse blankets, and hot water sufficient to wet them thoroughly, is sprinkled on them with a watering pot. In a short time they will be scalded so that the hair will come off easily, and they will be cleaned as well as in the usual way of scalding in a cask. I received this information from Mr. John Clark, who told me he once had a hog which weighed more than six hundred pounds, dressed in first rate style by this method. Also from Mr. James Rosa, who a few years since, saw in Boston, Mass. several large hogs completely dressed, in the same manner. These are two of our most respectable farmers.

Last year, Mr. Clark raised some sugar beets, and found them so useful in fattening his hogs, that this summer he intends to raise a large supply for the same purpose. Respectfully yours,

CHARLES H. TOMLINSON.

EXTRACTS.

Address, by J. J. Viele, Esq.

Delivered before the N. Y. State Agricultural Society, February 6, 1839.—(*Concluded.*)

I feel as though I am occupying too much of the time of this society, but I cannot conclude this address without again urging the importance of having some system adopted for the diffusion of science, and the improvement of the intellectual character of our yeomanry.—Here, after all that is said on this subject, lies the great secret of improvement in agriculture. Disguise it as we may, there is a lamentable deficiency of knowledge in our agricultural community. We might as well expect a bountiful and luxuriant harvest from a neglected and half cultivated field, as to expect that our system of farming will make rapid progress in improvement, without in the first instance improving the mind. Why is it that we have schools for the professions, the advantages of which are enjoyed by the few, richly endowed by the state, and have none for the many who are engaged in the pursuits of agriculture? Why is it that science is allowed to shed her radiant beams upon every other occupation but that of tilling the soil? It cannot certainly be because she requires not her aid. Every different soil requires a different treatment, and almost every different plant requires different cultivation, different applications, and different ingredients in the soil.

> "Nor every plant on every soil will grow;
> The sallow loves the wat'ry ground and low;
> The marshes alders: Nature seems t' ordain
> The rocky cliff for the wild ash's reign;
> The baleful yew to northern blasts assigns,
> To shores the myrtles, and to mounts the vines."

Every operation of the farmer is a scientific experiment, and unless he understands some of the principles, and is able to reason from cause to effect, he is wholly unable to judge whether he labors for profit or loss.—Without science, he knows as little of the principles which govern the economy of his operations, as does the ox who draws the plough, or the horse who propels machinery. Educate him, then, for his occupation, enlighten and improve his mind, and rest assured that the improvement of the soil will follow. If the science of a Buel, can ameliorate and bring into a high state of cultivation and productiveness, the pine barrens of Albany, and that of a Colman, the worn out, sterile soils of Massachusetts, might we not expect that by its general diffusion, the whole state would soon be devoid of waste places, and with almost the art of magic, be converted into a blooming garden, teeming with fruits and flowers, and the golden harvests of plenty? Will not our state, then, adopt some liberal views on this subject? With a commendable spirit, it has endowed colleges and academies in almost every city and village in the state, but it is well known that comparatively few of the sons of our farmers find their way thither, and if perchance they do, it is for the purpose of preparing themselves for some other pursuit. It is equally obvious that the course of instruction pursued in our colleges is not well adapted to shed light upon rural labor. Let us then have a school, or schools, whose object shall be to qualify young men for the pursuit of agriculture. Let there be an experimenting farm attached, with workshops, where science can be directly applied to the useful arts. There chemistry would direct them in the amelioration and improvement of soils, in the economy and right application of manures, what soils are adapted to particular crops, and whether, to renovate, he should apply compost, lime, gypsum, marl, clay or sand. By mathematics, they would learn the science of computing by numbers, which would enable them to weigh and measure all articles, whether solids or fluids. By mechanics, they would become acquainted with the structure and use of tools, the principles of machinery, and the manner in which the moving power is applied. Botany would teach them the physiology of vegetation, the nature and uses of plants, their powers of generation, the alternation that should be observed for the best development of their powers, so that the the most perfect of its kind should be produced. Geology and mineralogy would inform them of what the earth is composed, and give them a knowledge, not only of its surface, but also what is contained in the strata beneath. From zoology, they would become acquainted with the natural history of domestic animals—also their character and constitutions. Entomology would point out to them the character and habits of the various insects that depredate upon crops, and often destroy the farmer's hopes. Attached might be a department for instruction in veterinary surgery. The constitution and diseases of domestic animals could then be learned, with the appropriate treatment and remedies. Millions might annually be saved to the nation, that is now lost for the want of general knowledge on this subject. In short, all the natural sciences might there be taught, their principles exemplified, and applied to every operation upon the farm and in the workshop. We have colleges, theological, law, medical and military seminaries, richly endowed by the government, furnished with extensive libraries and costly apparatus, for illustrating the sciences, with able teachers liberally supported; but poor agriculture, hitherto a discarded daughter of the state, whose industry sows the seed and gathers the harvest, on whom all depend, and to whom all look for the comforts and blessings of life, she can have no seminary for the education of her sons in the most useful of the arts. The liberality with which all the other seminaries and institutions have been endowed, does credit to the state, and why agriculture should be thus long overlooked and neglected, "is strange, passing strange."

The advantages to be derived from an institution of this kind are incalculable. Hundreds of young men would be annually emanating from its halls, locating in different parts of the state, who by their knowledge and their example, would diffuse light upon the various subjects connected with agriculture, and could not fail to have a most salutary influence upon the moral and intellectual condition of all within their reach. The results of the experiments in all the various branches of agriculture, the mechanic arts and the use of labor saving machinery, would be heralded forth from the agricultural press, thereby reducing to certainty their utility, in the minds of the community, and saving an immense expense that is now incurred in their investigation. Under such an influence, I fondly anticipate, that soon, perhaps within the life-time of the present generation, a very great change would be wrought in the condition of our agriculture. Soon the productions of the state would be doubled—soon would the moral and intellectual condition of her sons be elevated—the entire face of nature would be changed—our rich and fertile valleys would double their increase, the barren plains be covered with verdure, "the desert and solitary place made glad, and the wilderness blossom as the rose."

What a vast field is this for the exercise of fond anticipation! What a delightful view is here presented for the imagination!

> "Oh, knew he but his happiness, of men
> The happiest he; who far from public rage,
> Deep in the vale, with a choice few retir'd,
> Drinks the pure pleasures of the *rural life*."

Nor is this the dream of a visionary, or the vagary of a heated and over sanguine imagination. What is here, by some deemed wild conjecture, or vague speculation, has in Europe, even under their despotic laws, become matters of history and well established fact. Schools of this character have there been established, not only by individual effort but also by the governments. Their beneficial effects are felt and acknowledged, in their increased productions, taxable property and value of the soil.

And has not the time now arrived, when our state, with her ample resources, will aid this noble enterprise? Will she not extend her hand, open and willing, to promote this great object? If she will not be generous, I appeal to her justice; and I ask whether she can longer refuse this pittance to poor, degraded, despised agriculture? Is she, who in war nerves her arm, and sends forth her sons to battle—she who in peace supports the government—pays the taxes—builds our splendid monuments of art—excavates our canals and freights them with the fruits of her toils—who feeds all and clothes all—and supplies all with the necessaries and luxuries of life—is she, I ask, to be denied the meagre pittance of a school to educate her sons? If this be so, I turn, as my only hope, to the public spirited and benevolent individuals in our midst; and I appeal to their generosity, to know if they are willing that this noble project should fall, still-born to the ground? What an opportunity is here presented, by the founding of an institution of this character for posthumous fame—for immortality! Have we not in this great state, some patriotic and benevolent Williams, or Brown, some public spirited Girard, who by doing a great and a good act, will enrol his name upon the scroll of fame, as a benefactor of the public, and confer blessings unnumbered upon the human race?

Farmers' Luxuries.

[*From the Quarterly Journal of Agriculture.*]

It has frequently been matter of surprise to us that small farmers, from generation to generation, pass through life at the same dull pace, going over the same rugged ground, plodding the same apathetic routine, unambitious to vary and increase their innocent recreations, when every facility is within their power to vie with their wealthier brethren in the possession of so styled luxuries. We approve that excellent aphorism, "To enjoy is to obey." Our beneficent Creator has placed innumerable sources of gratification within the reach of all his creatures. His intention evidently is, that the productions of various climes should be consumed by nations "far asunder as the poles;" that Scotland should quaff the vintage of the sunny south, that shoals of her herrings should find their way in savoury heaps to the inland dwellers of wide continents, or He would never have put it into the hearts of men to construct great ships, and to steer their course over the trackless ocean by the guidance of His heavenly sun and moon and stars. If as Lord Bacon says, "Admiration is the superlative of praise," it follows that the more we enlarge our sphere of innocent and rational enjoyment, the greater the number and variety of proofs of His creative power and wisdom we collect around us, the more must our admiration be excited, and the higher ought to be our feeling of gratitude, veneration, and praise. "Use, but do not abuse the good gifts of God," appears to us to be a text worthy of the Creator and His creatures, one that is also, in this restrictive age, cruelly neglected. But to our subject of "Farmers' Luxuries."

Who ever heard of small farmers indulging in those horticultural dainties and delicacies that require the aid of frames and hotbeds to perfect their growth? Yet who would point out a legitimate objection to an enjoyment so entirely innocuous? Why should cucumbers, (in frames of course, we mean) grapes, peaches, melons, and even pine-apples, be reserved for the gratification of patrician palates, any more than that the bloom of delicate tinted flowers should be kept sacred for the solace of the eyesight of the wealthy; or that their grateful odour should refresh exclusively the olfactory nerves of the aristocracy? Employment is the bliss of life: there is not a more unhappy being than the man or woman who is not obliged to exert those mental and bodily functions which have been beneficiently bestowed upon us, to be used for the preservation of our health; nor can there exist a more sickly, silly, pretty sounding, pernicious, little southern phrase than "*Dolce far niente.*" "*Amaro far niente*" would be nearer the truth. Luxuries that may be attained, without unjustifiably employing time and capital, are not only perfectly admissible at the tables of those who can afford them, but the man is to be applauded who seeks to secure them. The extra delicacies which we obtain by our manual dexterity and industry we are fully entitled to enjoy.

A man, however his time may appear to be entirely occupied by his business (we speak not, it is obvious, of our unhappy brethren in squalid lanes and dismal manufactories), say that of a farmer, for example, has always many hours in a week entirely unemployed, which are lolled, or dozed, or smoked, or drunk away, unless he have a love of literature strong upon him. A very few of these wasted hours might be turned to great advantage by devoting them to the cultivation of *luxuries;* and not only luxuries for self-gratification but for the sale of them, whereby many little enjoyments of other kinds might be easily attainable.

Farmers who cultivate their own land possess advantages for the accomplishment of the plan we advocate beyond those who rent their farms, who are bound by the terms of their leases from using the manure for any other purpose than the benefit of the land under tillage. In some parts of the southern portion of our island, we have been informed that the occupant is restricted from the privilege of manuring his garden with any portion of it. This is as arbitrary as it is absurd, since it is an admitted fact that manure is in a better condition for farming crops *after it has undergone that first stage of fermentation, which is precisely the state in which it would effect the desired end in obtaining "farmers' luxuries."* An outlay of a very few pounds in the first instance, would ensure a valuable return, without any increase or renewal of expense for many years. Melon-pits, peach-pits, &c., have a fearful sound; a poor man would as soon think of a service of plate for his table as of such costly and exclusively patrician erections in his garden; but we hope to prove to our farming friends, especially such of them as are industrious themselves, and have one or more sons at home to assist in the labours of the farm, that the erection of a melon-frame, peach-pit,* &c. with their cost and management, is to be as easily and cheaply obtained as any other portion of his stock.

If a man have a mechanical turn, as it is styled, (and how desirable, how valuable, is a talent for carpentering and bricklaying in all situations where the income requires strict attention to meet the demands of a family!) many, many pounds may be annually saved by exerting that talent. We have seen this exemplified in an industrious family, in which the results have been most satisfactory. *Practical* plans are those which we advocate and advise; with vague schemes we would not puzzle ourselves or our readers. The stagnant state of our agricultural brethren is beginning to interest the lords of the soil, and associations are forming to better their condition, by teaching them many elementary principles of subjects on which they are profoundly ignorant. May these institutions prosper! In the mean time, let us, in our humble way urge upon every farming man these simple truths—that active employment is a privilege, a boon bestowed upon the working classes as a compensation for the want of that wealth which the poor erroneously covet through ignorance of its attendant miseries; that industry brings contentment, that blissful feeling which wealth can never bestow; that the fiat which has been called "the curse of the ground," namely, "Thou shalt earn thy bread by the sweat of thy brow," is one of the kindest and wisest of the Creator's commands; that he who best knows how to exert the mental and bodily powers which have been given him for his benefit, is a wise and enviable man; that "knowledge is power," and not only power, but happiness. Hence no one should sit down in the supine consciousness of being a farmer, and merely a farmer, to plough, and sow, and reap and jog to market, and count his gains, and take his pipe and glass, and so to bed the whole year round, and "seek to know no more." As we have said already, there are many hours, nay, whole days, when the routine of a farm moves sluggishly, nay, when it must stand still; these are the opportunities that have been beneficently ordained, and which a mind of energy will gladly employ, in order to better his own condition, and, by the influence of example, that of his children and dependants.

Idleness is mischief, it is seldom mere inaction; and no stronger proof of the truth of this axiom need be adduced than the evident improvement in the morals of our artisans in the thickly populated towns, since the introduction of Mechanics' Institutions. Those hours which they formerly passed in *idleness*, in beer and gin shops, fostering a spirit of fierce discontent and disaffection, are now devoted to peaceful acquisition of science to attain wisdom as well as knowledge, to elevate their minds and to improve their condition.

Parents are little aware of the immense benefit, in every possible way, that results from encouraging industrious habits in their children. Very young lads may be made of essential use in a homestead, and at the same time their enjoyments would be to themselves delightful amusements. A boy who evinces the slightest turn, for mechanics, should always be indulged in his partiality and be encouraged to try his skill. A chest of rough and simple tools might be given as a reward, and opportunities afforded, should his father be unable to instruct him, for the acquirement of the right handling of his hammer and plane. Once set afloat, his own enthusiasm will carry him forward, and his parents will reap the double recompense of adding to their slender income by his pleasant exertions, and of seeing the effects of industrious habits upon his mental and bodily health, which, but for their judicious fosterage, might have been laid waste by idleness with all its train of evils.

Sheep Husbandry.

BREEDING—THE GENERATIVE AND URINARY SYSTEMS.

[*From the Library of Useful Knowledge, Farmers' Series.*]

The object of the sheep-master is to raise and to retain that animal which will pay best for the consumption of its food. With the breeder of cattle, this is a very simple affair—he selects and cultivates that animal which will attain the greatest maturity and weight in the shortest time, and on the least quantity of food. The dairyman wishes to add another quality to the aptitude to fatten, namely, the yielding, and for a considerable time, a large quantity of milk. The sheep-breeder also derives his profit from two sources, the early maturity of the carcass, and the quantity and useful properties of the wool. Both will occupy his attention; the first, in every case, and as his grand object; the second, as valuable, but regarded more as a subsidiary.—How shall he attain his objects? He looks carefully over his flock, and he observes that some of his sheep—the food and general management being the same—fatten more quickly than others. There is the same attention paid to all, but the profit is abundantly more from some than from the majority of their companions. He is anxious to account for this. He compares these sheep with some of their fellows, and he observes that there is an evident difference of conformation, a fineness of bone, a roundness and compactness of form, a condensation of substance, and a beautiful proportion of every part.—He studies this, and he finds that there is more or less of this conformation in every sheep that materially outstrips his fellows. He inquires farther, and if he has employed different rams, the one that possesses most perfectly this peculiarity of form, and its accompanying aptitude to fatten, was the parent of these promising sheep, or their dam had these points in considerable perfection. He now begins to form some notion of the kind of animal that the profitable sheep should be; and he has living proof that these valuable properties may and will descend to the offspring.

His pride and his interest are involved, and he examines these flowers of his flock with still closer attention. He finds that, in the handling, they present as great a difference to the feeling as they do to the eye. There is a softness, a springy elastic softness, in distinction from the hard, harsh, unyielding nature of the skin, and the texture immediately beneath it in others, which once impressed on the mind, can never be forgotten; and he associates this with the certainty of early maturity.

Having satisfied himself with regard to these things, he dismisses the ram that does not exhibit these qualities, or that fails in getting lambs possessing them; and the ewes that do not approach to the beau-ideal which he has formed in his own mind, or whose lambs are inferior in appearance or in thriftiness. He fattens these and sends them to the butcher. He collects together the lambs as soon as their form and qualities begin to develop themselves—a little experience will enable him to judge accurately of this at a very early age—and without hesitation he discards those that are not up to the mark, whether ram or ewe-lambs. He puts by a few of the very best of the males for a second examination at no very distant time, and every faulty one is selected from the ewe-lambs, and prepared for the butcher as quickly as may be. In this way the flock is systematically and rapidly improved, and the breeder is well repaid for the diligent attention which he has given to this important object. *If his flock is large, he will find in this principle of selection, every thing that he can want.*

There is one point more, the importance of which he cannot overrate—*he should never preserve a lamb that has an evident and glaring defect.* In proportion as his flock improves, he should regard this as a rule that admits of no exception; for the principle that "like produces like" extends as powerfully to the defects as to the excellencies of the animal. The progeny infallibly inherits the defects as well as the excellencies of the parent, and no improvement in a good point, already possessed to a considerable extent, can compensate for the introduction of an obvious blemish.

On this principle of selection, the breeder will continue to proceed, if his flock is tolerably large, and he will even be jealous of the introduction of a foreign breed. The good qualities of his sheep, transmitted from one generation to another, are no longer accidental circumstances. They have become a part and portion of the breed, and may be calculated upon with the greatest degree of certainty. They constitute the practical illustration of the term *blood*. It would be long ere the good qualities of a stranger would form an identical portion of the sheep; and no animals will elsewhere thrive so well, or improve so rapidly, as on the pastures on which they and their forefathers have, generation after generation, been accustomed to wander.

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* Our farmers want neither melon-frames nor peach-pits. These fruits generally ripen well in the open ground of our genial soil and climate. The farmers luxuries which a bountiful Providence has placed within their reach, *and for their use,* are the fruits and culinary vegetables, which our climate will mature, and which add as well to the health as to the innocent enjoyments of life—the apple, the pear, the plum, the grape, &c of the best varieties—the beet the onion, the melon, the tomato, the rhubarb, the asparagus, &c. which are the desire of the rich, which the grower alone can enjoy in perfection—and which, we are sorry to say, very few of our farmers do duly appreciate or enjoy. And the ornamental department, which may tend much to improve our minds, and to enlarge the sphere of our innocent enjoyments, is almost wholly neglected, as though the Giver of all Good had prohibited the use, to the tillers of the soil, of what he has placed within their reach, and impliedly for their special benefit.—*Cond. Cult.*

But, after a while, with a considerable degree of certainty in a small flock, and too frequently in a larger one, the sheep will continue to arrive early at maturity, and to fatten as kindly as before, or even more so, but they evidently are decreasing a little, and yet only a little, in size. They do not bear the severity of the weather quite so well, and perhaps they are somewhat more subject to disease. The farmer will do well to take warning. He has been breeding too long from close affinities; and he must introduce a little different and yet congenial blood. He must select a ram from a soil, and kind of food, not dissimilar to his own, although at a distance perhaps as great as convenience will permit—with points as much resembling his own sheep as may be—quite as good as those in his own flock—superior if possible in some points, and inferior in none, and he must dismiss his own ram for one year, and make use of the stranger. His purpose will be completely answered. He will have infused a tone and vigor among his sheep—they keep their propensity to fatten, and they re-acquire that health and hardiness which they used to exhibit, and the farmer is enabled to go on satisfactorily for a certain number of years; when experience will tell him that a stimulus, in the form of a little foreign blood, is again wanted. Thus is illustrated that axiom with regard to all our domesticated animals—"selection with judicious and cautious admixture, is the true secret of forming and improving a breed." The errors to be avoided are, too long continued and obstinate adherence to one breed; and, on the other hand, and even more dangerous, violent crosses, in which there is little similarity between the soil, the pasture or the points and qualities of the animals that are brought together.*

The ewe is sufficiently matured for breeding at fifteen or eighteen months. The old farmers did not employ them for this purpose, until after the second shearing; but the improvement in the breed, which develops so soon a disposition to fatten, and prepares them so much earlier for the market, hastens also the development of the generative powers in the sheep.

The ewes and rams being kept in different pastures, the farmer can select his own time for bringing them together, and consequently, the time for yeaning; and that will depend on various circumstances. Where there is a demand for house-lambs, or the farmer adopts the rearing of such lambs as a part of his system of management, the period of yeaning should commence as early as September or October, in order that in November and December the lambs may be ready for the market, and, at which time they will obtain a good remunerating price.

In the general course of breeding, however, it is desirable that the lambs should not fall until the cold of winter is over, and the pasture begins to afford some food for the little ones. This is peculiarly important in bleak and exposed situations. Thousands of lambs die every year from the cold to which they are exposed as soon as they are yeaned. On the other hand, there may be some inconvenience and danger if the period of lambing is too late. Hot weather is as fatal to the mother as cold is to the offspring. It frequently induces a dangerous state of fever; and both the mother and the lamb may be then injured by the luxuriance of the grass. If the lamb falls late in the season, it will be longer ere the ewe can be got ready for the butcher, and the ground cleared for other stock—and, in addition to this, the early lambs become larger and stronger and better able to resist the cold of the succeeding winter. The yeaning time will, therefore, be regulated by the situation of the farm, the nature of the pasture, and the demand from the neighboring markets. It will seldom, however, commence before the middle of March, or be postponed beyond the middle of April.

The duration of pregnancy is about five months, or 152 days, and that with comparatively trifling deviation.† The time for putting the ram with the ewes will therefore be from the middle of October, to that of November. No preparation is necessary, except, for a few weeks previously, to place the ewes on somewhat better pasture than usual. Before the ram is admitted, the farmer should always fold and examine the ewes, first as to their possessing that form and appearance that are likely to perpetuate the breed which he is desirous to possess, and secondly, to ascertain whether they are in good health, the proof of which will be the whiteness and firmness of their teeth, the sweetness of their breath—the brightness of the eye and of the countenance, the degreee of fat which they carry, and the firmness with which the wool adheres to the pelt. Every inferior or diseased ewe should be separated from the rest, and prepared, as speedily as may be, for the butcher.

In consequence of the new system of breeding and management, the ram will be sufficiently matured at the same age as the ewe; but it will not, perhaps, be prudent to allow him so many ewes as would be placed with one of greater age. The number should be somewhat regulated by the apparent health and strength of the animal, and the pasture from which he comes.—Forty or fifty ewes may be allowed to the sheerling, and seventy or eighty to the older ram.

Native Stock vs. Durham.

[*From the Yankee Farmer.*]

Mr. Editor—I observed in the Farmer of Jan. 5, an article upon the superior value of the Durham breed of cattle. It is there stated that a farmer can afford to give five hundred dollars for a full blood Durham bull, and the calculation is carried out to show how quickly, easily and certainly he will get his pay back.

I affirm that we have no need to go abroad for stock for our farms. The only secret is in managing well the stock that we have. Take the best Durham breed, or any other that can be produced, and let our farmers treat them as they have heretofore treated our native cattle, hogs and sheep, and in a few generations they will be as poor and mean. The whole art in having good stock of any kind, is to select, from year to year, the best for breeders.

The present goodness of our native stock, considering how it has been uniformly treated from year to year, by the owner, is ample proof of its real goodness. The only thing wanted is constant and proper selection and proper keeping, and our stock would soon be equal to any. As long as our farmers will continue to sell off cows that are worth one hundred dollars and keep those that are hardly worth five, we may never expect to see a fine breed of cattle. The farmers may import what breed they please, and pay as high prices as they please, it will be all the same thing in the end, until they learn to manage better. The rules for selecting for good stock are principally these—deep wide shoulders, wide and deep hips, short and straight back bones, round bodies and well ribbed back, short shin bones, short strong necks, small short heads, and small pointed noses. If these rules were observed from generation to generation, by our farmers, the meanest breed of cattle that were ever seen would soon become first rate. Just so with your hogs and sheep. A very large creature, of any kind, is not so profitable to the farmer, as a good, middling size. The main thing is shape. And no farmer should ever sell at any price, his best and finest shaped animals, if he intends to keep up a good and profitable kind. A gentleman told me lately that he began farming about twenty years ago. He then took a good deal of pains to find and purchase a superior kind of sheep. He could find none on an average better than his own, which were mean. He adopted the practice of selecting his best lambs every year, for stock. In a few years he had the first rate sheep. The same course will produce the same effects in every kind of animal.

Instead of paying five hundred dollars for a Durham bull, let any farmer lay out that sum in extra keeping and care of his present stock, and select his best calves every year for stock, at the end of five years he will be better off. I do not deny the notion of purchasing a superior quality of stock, when it can be done, at a fair reasonable price, but only the notion of running into such great extravagance of prices. A little care and patience will serve our farmers a much better purpose, and, in the end give them full as good and profitable a stock. PHILO.

Portland, January 8, 1839.

Animal Nutrition.

[*From the Genesee Farmer*]

Until within a very few years, little attention seems to have been paid to the subject of animal nutrition; the quantity or kind of food most suitable for this purpose was mostly overlooked, and if life was supported, no questions were asked as to the why and the wherefore. So long as the population of the old world remained few in number compared with the acres from which subsistence was to be drawn, there was indeed little use in inquiries of this kind; then, as now in the United States, or this continent generally, a supply of food of some kind was usually certain. Now and then years of famine in particular sections might occur;—for in those times, when the means of intercourse were so limited, the inhabitants of one country might be starving, while those at a distance of a few hundred miles were rioting in abundance; but they were soon forgotten in the succeeding plenty, and led to no valuable investigations as to the nature of food or nutrition. The population fared more nearly alike in former times than at present, so far as food was concerned; it was bulky and hearty, and if it produced disease, it was of a different kind from that which now assails the modern omniverous eater and drinker, and in all cases was decidedly the same. In these days, the differences in mankind made by rank or wealth, are scarcely more deeply marked than those observable between the diseases of the rich and the poor; a difference in the main to be attributed to the nature of their diet, and its effects on the animal system.

Among the inquiries into the effect of different kinds of food or animal nutrition, Dr. Stark, of Vienna, appears to have taken the lead; indeed he seems to have fallen a marter to his zeal in the cause of science, perishing, as he undoubtedly did, from the results of his long continued experiments on *himself*. By confining himself to food of a particular kind for a considerable space of time, he was able to ascertain its actual effect on the organs of digestion, and its value as a source of nourishment. Bread, meat and milk, each in its turn, for a considerable period, was his sole nutriment; and the result showed that these things, certainly among the most nutritive of substances, could not maintain the vigor of the body, or even life itself, but for a limited time. In this respect man differs from the majority of animals; his organization is such as to admit and even require a variety of food, while many animals are by a law of their natures confined to a particular kind of food, as flesh or vegetables.

The French physiologists, Magendie and his coadjutors, followed up the experiments of Stark, not on themselves, but on animals, and found they could not long survive on food, however nutritious in itself, unless they receive a large portion of that on which they naturally subsist. Thus a dog fed on white sugar and water alone, soon became emaciated, lost its appetite and sight and perished. Few substances can be more nutritive than sugar, but it lacked the power of properly distending the stomach, and exciting its digestive energies.—Dogs fed on pure wheat bread and water lived but little longer; and rabbits, which eat a variety of vegetables, such as clover, cabbage, barley, corn and carrots, were unable to live for any time confined to one of these. It was found that animals, when much emaciated and reduced by one kind of food, were not often restored by another, though they frequently partook of it with greediness—the tone of the stomach could not be regained.

To facilitate proper digestion of food by the animal or man, it is necessary that with the nutritive part, substances more bulky, or containing little nutritive power, should at the same time be taken as food. An experiment has been made in England on the feeding of horses, which demonstrates this fact most conclusively.—Some cavalry horses were selected, and while one part of them received sugar and water alone, the other part had a few pounds of cut straw added to their portion of sugar and drink. Those which received the sugar alone fell away rapidly, while those fed with the sugar and straw throve as perceptibly; and a repetition of the experiment on another set of animals, showed the same result. In man the rich and high seasoned food, the fine flour and the fat meat, are to the stomach what pure wheat or sugar would be to the stomach of the horse. There is much nutriment, but little that can facilitate digestion. A man swallows nourishment enough for half a dozen, but instead of its producing a good effect, his stomach becomes disordered, its functions debilitated, and in the midst of plenty he becomes dyspeptic, and incapable of enjoying any thing. The man who lives on common food, sound and sufficiently nutritious, is rarely troubled with the evils that press so heavily on him who, regardless of the law of nature, takes more nutriment and less substance than is consistent with a healthy tone of the digestive powers.

Perhaps the best estimate of the time required for the digestion of the various substances used as food by man, and their general effect on the animal organization, is given in the book of Dr. Beaumont, from experiments made on the living subject, and under circumstances more favorable to correctness than are known to have ever before existed. We give below a table of the results obtained by him, not as a mere matter of curiosity, but as furnishing information of the most valuable kind in connection with animal nutrition. The first column indicates the substances taken into the stomach; the last the time required for its digestion.

	hour.	min.
Boiled rice,.........................	1	00
Sago, tapioca, barley and boiled milk,..	2	15
Tripe and pigs' feet,.................	1	00
Fowls, beef's liver,..................	2	30
Hard eggs,............................	3	30
Soft eggs,............................	3	00
Custard,..............................	2	45
Trout, boiled or fried,...............	1	30
Other fresh fish,.....................	3	00
Beef, rare, roasted,..................	3	00
Beef, dry, roasted,...................	3	30
Salt beef with mustard,...............	2	30
Pickled pork,.........................	4	30
Raw pork,.............................	3	00
Mutton, fresh,........................	3	15
Veal,.................................	4	00
Wheat bread, fresh baked,.............	3	30
Corn bread,...........................	3	15
Sponge cake,..........................	2	30
Succatash,............................	3	45
Apple dumpling,.......................	3	00
Apples, sour and mellow,..............	2	00
Apples, sweet and mellow,.............	1	30
Parsnips, boiled,.....................	2	30
Potatoes, boiled,.....................	3	30
Potatoes, roasted,....................	2	30
Raw cabbage,..........................	2	30
Raw, with vinegar,....................	2	00
Cabbage boiled,.......................	4	30

Dr. Beaumont found that the envelop of the seeds in the apple and the skins of potatoes were scarcely acted upon by the gastric juice, and consequently indigestible. As a whole, it would seem that animal aliments are digested easier than vegetable ones; but his experiments show conclusively, that whatever the kind of food, the ultimate principle of nutrition, or the chyle, is the same in all cases.

Digestion is much facilitated by the particles of food being made fine when taken into the stomach, and the quantity of nutritive matter furnished is greater. Individuals, therefore, in whom the digestive powers are weakened, find a benefit in thoroughly masticating or chewing their food. This principle is of great importance in the feeding or fattening of animals, and shows the necessity of grinding or cooking the materials given them, if we are anxious they should derive the full benefit of the nutritive matter contained in them.

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* See Quarterly Journal of Agriculture, Sept. 1836, p. 250. Low's Elements of Agriculture, p. 492, and Dickson's Practical Agriculture, vol. ii. p. 639.

† M. Tessier presented a valuable memoir to the Royal Academy of Science in Paris, containing his observations on the period of pregnancy of almost every domestic animal — Out of 912 ewes, the shortest period was 146 days, and the longest 161, being a difference of 15 days; but more than three parts of them yeaned between the 150th and 154th day after impregnation; bringing the average as nearly as possible to 152 days, or five calendar months, or twenty-one weeks and five days

The experiments of Dr. Beaumont further proved, that when food of great nutritive powers was taken into the stomach in large quantities, the functions of that organ were evidently clogged, and that usually, in eating, a larger quantity of nutritive matter was received than was beneficial. A certain quantity of solid food, or food of a bulky nature, he found to be essential to digestion with ease, and a proper separation of the nutritive principle. This agrees with the fact, that horses or cattle require cut straw or hay mixed with their grain, both to ensure mastication, and furnish the necessary bulk of solid matter in the stomach. It is a common saying with farmers, that an ox, when feeding on meal, must be furnished with a lock of hay to make him a cud. They require more than this, and the reason, from what has been said above, is perfectly obvious.

Capabilities of Soils—Vegetable Physiology.

[*From Prof. Jackson's 2d Annual Report of the Geology of the Public Lands of Maine and Massachusetts.*]

It is evident that plants are not endowed with creative powers, and consequently are unable to produce any new elementary substances; hence the various substances which enter into their composition, must be derived from the air, water or earth. All the saline and earthy matters which they contain, are readily traced to their origin in the soil; while the carbon, hydrogen, oxygen, and nitrogen that exist in them, are elements which they draw from air, water, and the animal and vegetable substances used as manures.

The atmosphere is composed chiefly of the two gases, nitrogen and oxygen, mixed together in aeriform solution, in the proportion of four-fifths nitrogen and one-fifth oxygen; besides which gases there is always a certain proportion of carbonic acid gas, amounting to $\frac{1}{10,000}$ part, and variable proportions of aqueous vapor.

From the carbonic acid gas of the atmosphere, plants derive a large share of their carbon, which is the basis of all vegetable matter. Some of it is also furnished by the fermentation of vegetable and animal substances, which decompose in the soil, and this gas is either decomposed by the leaves of vegetables, or is carried into their roots by aqueous solution and absorption. All fresh growing plants decompose the carbonic acid of the air, take up its carbon, and exhale oxygen gas, and this operation goes on more rapidly while the sun shines upon them. In darkness, plants give out carbonic acid, but the quantity is relatively small, when compared with that which they absorb during the day. So that if a plant is grown under a bell glass, containing air mixed with this gas, the carbonic acid is soon removed, and replaced by pure oxygen.

Thus vegetation is continually removing a substance deleterious to man and all animals, and replacing it by pure vital air—a gas absolutely necessary for their respiration. This beautiful law of nature should never be lost sight of by the farmer, nor should he ever forget the relation which the green woods and fields bear to the healthfulness of the country.

Seed will not germinate without the joint action of air, water, light* and heat. Without these essential conditions, the germ remains, as it were. asleep for an unknown length of time. Seeds taken from the tombs of ancient Thebes, in Egypt, where they had remained in a dry, dark and sequestered spot, for more than three thousand years, were found still to possess their vital properties, and when planted in a botanical garden in London, sprang forth to flourish in the present age.—How long a seed, thus immured in darkness, shut out from all the causes which would produce germination or decay, would remain alive, is wholly unknown; but from the known facts respecting spontaneous rotation of crops and of forest trees, it would seem that the seeds remain buried in the soil for enormous lengths of time, before the circumstances necessary for their putting forth arrive. Dead leaves of the forest shut out light, and preclude, in some measure, the influence of the atmosphere, while the sombre foliage hangs over the soil, and serves, by its shade, as an additional cause of preventing germination. Thus, I suppose, the seed, buried in the forests, remain dormant until the removal of the shade trees, or the burning of the leaves, gives free access to the causes requisite for germination and growth of the hidden plants; and we consequently perceive a new growth almost invariably follows the removal of the primeval forests. According to Decandole, plants exude from their rootlets certain substances, which have the property of eventually eradicating their own species, while they are not preventive of the growth of other plants; hence he accounts for natural rotation.† It is probable, also, that one kind of vegetables may exhaust their proper nutriment, and thus render the soil incapable of supporting their kind, while there are other principles left suitable for the support of different species. This subject is, however, the most obscure department of vegetable physiology, and one which demands the labor of modern chemists and botanists.—Thus much we know, that the conditions above stated are essential requisites to healthy vegetation, and that the soil must furnish certain substances not attainable alone from air and water. When we analyze a plant, we always find a certain quantity of silex, alumina, lime and potash, forming a large proportion of the ashes which is left on burning the plant. All these matters are contained in the soil, in greater or less proportions, and some of them are essential to the growth of the plants. The coating of wheat, rye and barley straw is silex, and gives the necessary strength and hardness to the stalk.

The analysis of the grain of wheat gives a large proportion of the carbonate and phosphate of lime, and we know that this grain only thrives upon a soil containing calcareous matter. It was long ago observed in Massachusetts, and is also seen in certain districts in Maine, that wheat straw grows very well, but the grain does not fill and present a plump and solid appearance, but looks wilted, and is not heavy. This was formerly supposed to be owing to the climate, but on more careful examination, it is found to arise from the want of lime in the soil. Many animal manures contain a little of this substance. and it accordingly appears, that where a farm is well manured, wheat will grow well upon it, but a large annual expenditure is required for the purpose. It is observed, that all the grain regions of the country have soils more or less calcareous, and we find, that, by adding lime to the soil, we may produce by art the material wanting; and it appears by analyses made in this country, and by the results of certain experiments which have been made in France, and repeated here, that a very minute proportion of lime is amply sufficient for the purpose. Thus one or two per cent of carbonate of lime will answer the purpose, and this small quantity costs so little, that any farmer can well afford to apply it to the soil. Indeed, I do not see how he can afford to do otherwise, since he will be a loser, and his more skilful neighbors will be enabled to supply the market, while he will not be able to recover his seed.

It is a great mistake to suppose, that wheat will grow in any soil; for I know that in many instances, the crop raised the past season, which has certainly been very propitious, did not equal in value the seed sown; and these instances all occurred where the soil was destitute of lime, and was not largely manured.

Unless you wish to waste your labor upon barren and unproductive fields, attend carefully to the nature of your soil, and supply those elements which are wanting, in order to render it fruitful.

When lime is moistened with water, it becomes hot, swells, and falls into a bulky white powder, called by chemists the hydrate of lime, it being composed of water combined with that substance in a solid state.—This powder, if the lime is of good quality, will amount to nearly three times as much as before it was slaked, so that one cask of lime will fill three casks with the hydrate, or water-slaked lime. If, on the other hand, the lime is exposed to the action of the air, it will attract carbonic acid gas, and become air-slaked, which operation re-converts it into its original chemical state. The hydrate also attracts carbonic acid from the air, and is likewise converted into the carbonate, which will weigh nearly twice as much as the quick-lime, from which it is made.

I mention these evident facts, in order to assure the farmer, that when he buys a cask of lime, it will make about three of the article which he uses as a manure, and consequently, that it is not so expensive as he might imagine, since it increases in bulk, and will cover a considerable surface. Moreover, by a skilful management the farmer may, by the use of lime, form a vast number of valuable composts, and may destroy, or not, as he pleases, the seeds and insects in his compost or barn manure. It also has the power of decomposing animal and vegetable substances, the extent of which operations, a skilful hand can regulate at will, and a great variety of valuable saline compounds, the most active of manures, may be formed. There are many cases, also, where the combining power of this substance can be taken advantage of, in the neutralization or removal of deleterious matters, and, by judicious management, those very principles may be converted into valuable manures.

It is a common practice among farmers, to make use of peat, pond mud, or muck, as they call it, and I have observed instances in which it was evident that the soil was greatly injured by its application. In one instance I observed, in Waterford, that a portion of the field on which this substance was placed, presented a dwarfish and sickly yellow crop of Indian corn, while that part of the field not treated by it, was covered with a most luxuriant and healthy growth of the same corn. The operation was tried experimentally, in order to ascertain the value of peat alone as manure.

If it had first been made into a compost, with animal manure and lime, it would have presented very different results. Lime alone on peat renders its acid properties inert, and then it answers pretty well as a manure. But if laid down in layers with barn-yard manure, night soil, dead fish, or any other animal matter, and then each layer strewed with lime, a most powerful fermentation will take place, and a vast quantity of ammonia will be disengaged, which combining with the ulmic acid of peat, will form ulmate of ammonia, a most powerful manure. Carbonate of ammonia, and many other salts, will also result, which convert the whole mass into the very richest kind of manure, forming what may be properly called a universal compost.

If the farmer is desirous of destroying the seeds and insects in barn-yard manure, let him heap it up in alternate layers, with fresh quick-lime, and the heat generated will effectually destroy them.* This operation produces a number of soluble salts, and therefore it should only be done where the manure is soon to be used, for the rain would remove them in solution.

If a soil is charged with sulphate of iron, it is best to use quick-lime in powder, sprinkled on the surface of the soil, for its action is the more rapid and powerful. Generally, however, it is proper to slake the lime with water, and then to expose it freely to the air, in case it is to be sown broad-cast, so that it may become carbonated, which renders it more permanent, it being less soluble in water.

In general, it may be stated, that about four casks of lime are required for each acre of land, and according to the experience of M. Puvis, this quantity, in many cases, was found amply sufficient. If the soil is loose and sandy, without any clay bottom near the surface, it is evident that annual renewals will be required, until the desirable quantity is obtained.

Marl may be used in the same manner as air-slaked lime, and it is found to possess similar properties. Sea-shells may be used when broken to pieces by the action of fire, or by frost, and great benefit is gained by such a dressing. Shells owe their fertilizing properties to the carbonate of lime, of which they are chiefly composed, but their compact texture requires to be broken down in the manner alluded to.

Burnt bones contain a small quantity of carbonate, mixed with a large proportion of the phosphate of lime, and may be advantageously used. Bones ground to powder, have also a very powerful and desirable influence, forming one of the most valuable top-dressings with which we are acquainted. The refuse bone black, from sugar refineries, is also extremely powerful, and is one of the warmest and strongest manures known. It is highly prized in France, and I have formerly mentioned the fact, that orders were even sent to this country for this article. It may be made into a compost with other matters, since it is too strong to be used alone.

Gypsum is said to operate well as a stimulant to vegetation, and acts powerfully where the soils are calcareous. In Pennsylvania, it is is sown broad-cast upon their limestone soils, and operates powerfully, favoring the growth of grain and grasses. In Maine, it is the general opinion of farmers, that this mineral does not succeed upon the sea-coast, while it answers a good purpose in the interior of the state. I am not yet prepared, however, to report upon the subject, since I have not been able to gather the requisite number of facts.

How should Manure be applied?

[*From the Yankee Farmer.*]

Mr. Editor—One of your correspondents has criticised with something of severity on a recommendation of the agricultural committee of Massachusetts to spread compost manure and harrow it in. On what ground Philo calls this an old error, we cannot easily imagine. Having read with some attention treatises on agriculture for nearly forty years, we remember no period when the question has not been in discussion and dispute among theorists, whether manure should be left near the surface, or buried deep under the soil. There has been the manifestations of great zeal and some asperity on the subject. The advocates of surface manuring have generally preferred the charge against their opponents for manurig the antipodes, and they themselves have been as confidently accused of manuring the atmosphere. Each theory has the support of some very respectable names, and the opposition of others of equal weight. Observation and experience should determine the course of the practical farmer. We hope very many will make fair experiments on the recommendations of the committee, notwithstanding what has been written in opposition to it; for we believe after repeated trials, that it is the most perfect cultivation ever practised in this country. Did Philo attend critically to the whole recommendation? Does it not as a whole, approach nearer to a part of his own theory than he has supposed? It is recommended, first to turn the soil carefully over, to such depth as may be indicated by the character of the land, and the plants we propose to place in it. The turf we turn under is never to be disturbed in the subsequent culture. Now we have at the foundation of the soil, such a fermenting mass as your correspondent desires, not perhaps so powerful, but as certain and enduring. A practical objection against turning under all the manure we apply to the land with the turf, is, there will not be action and energy enough in what we make surface soil in ploughing to produce a crop. We want the quick operation of manure that takes place near the surface. We think there may be philosophical objections of great weight against burying manure deep in the earth; we claim not the ability of discussing fully such objections, but beg leave to call the attention of Philo to some remarks of Dr. Jackson, which will at least convince him that all scientific men cannot assent to his doctrines.

"The loss of the saline matters of manures, by solution and infiltration," the Doctor remarks, "is vastly greater than is commonly supposed by farmers. The evaporation, to which so much loss is attributed, is but a drop in the bucket, in comparison with that of solution. Some maintain that manures never penetrate the earth beyond the depth of a few inches; but this is a great error. The most important ingredient, viz: the soluble salts, penetrate the earth to an enormous depth, and we find animal matters in the well waters of Boston, one hundred and fifty feet below the surface. I know also of instances where deep well water, formerly free from saline and animal matter, became charged with them two years after the top soil had been cultivated and dressed with animal manures. Hence it is evident, that since all the fresh water of our wells infiltrates from the top soil, that the soluble salts, whether of animal, vegetable or mineral nature, will be dissolved and carried down by the action of water, and they are as I know, easily detected in the water at great depths. Hence the value of a clay substratum in our fields, where the soils are porous, and the facts coincide with the theory, as I have frequently had occasion to observe."

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* We think *light* not necessary, but prejudicial, in the process of germination.—*Cond.*

† This theory of Decandolle is not tenable.—*Cond.*

* Of very doubtful utility.—*Cond.*

Philo speaks of the philosophy of nature in the fermentation and decomposition of manures; why should not practical men take rules for the application of manure from indications in nature? All the provision that is made in the order of Providence in the decay and consumption of one crop for the nourishment of another—all the droppings of animals and the defoliation of plants and trees, lodge on the surface of the earth. The order established in nature seems to contradict the idea of any immense loss in evaporation.—Apply manure in any manner, no doubt there will be some loss in it. If, in deep burying, we endeavor to retain the ascending gases to the latest possible period, we shall not at any time have enough of their influences to produce the most vigorous vegetation. If we leave the manure on or near the surface, some of it may grow inert by drying, or blow into neighboring fields; still it is only when placed near the surface, that the most direct and greatest effects are produced on plants.

OBSERVATOR.

"On Burying Manure Deep."

We were much gratified in reading the communication of Philo, in your last number, and have long been a believer in his philosophy of manure. On this subject, we have heretofore briefly given our views, and we ask your indulgence at this time, to permit us to say a word more, "in hopes it may be instrumental in producing some good, although compared with the famous contributions of our friend Ben Barleycorn, it may be thought of no great import." It must be obvious to all who till the soil, that even the salts or earthy particles of manure do not sink deep into the earth,—we have abundant evidence of this in the appearance of the soil, even where fields have been heavily manured. At a certain depth, the soil will exhibit its natural colour and texture, and give no indication, by its effects on crops, of having been impregnated with the solutions of animal or vegetable matter. The philosophy of this is, the earth acts as a strainer, and, as Philo says, "this is a wise provision of nature—that the most impure water is made pure by filtration through a few inches of light soil."

It is a fact well understood, that the gases generated by manure, whilst undergoing fermentation, always ascend, because they are lighter than atmospheric air, and unless the manure is buried sufficiently deep, they escape and are lost, or become a fruitful source of disease."

The influence of the sun and atmosphere have a tendency to prevent even the salts or earthy matter from sinking deep into the soil—the fibrous roots of every tribe of the vegetable kingdom are always on the alert, and are attracted to the depositories of their natural aliment, with the precision of the needle to the pole.

In this our own experience compels us to dissent from some of the views of the learned geologist of Maine, in his valuable communications to the agricultural commission of Massachusetts. [See quotation in the preceding article.]

Now it seems to us a more reasonable thing to believe, that the animal matter detected in wells of that depth, [150 feet,] was driven by the wind through the crevices in the platform, or the waters impregnated with these salts immediately round the well, found their way by some subterraneous passage, through the stoning near the surface. Were his theory correct, we should be very unwilling to take up our abode among some of the intelligent farmers near the city, who are in the habit of dressing their land very liberally with night soil, undivested of its noxious effluvia, by the Frenchman's process of converting it into poudrette. For our own comfort, we hope at least the doctor is mistaken; for all the water we make use of is drawn from a well located in our barn-yard; this well has supplied us with water for fifteen years, and we have never been able to detect any saline or soluble salts in it, but occasionally we detect *animal matter* in the shape of *rats*, which find their way there in the same manner that we imagine all *animal matter* must find its way into a well 150 feet deep. With the exception named we were highly gratified with the perusal of the doctor's communication; it contains a fund of valuable information that should be familiar to every farmer. We are, however, strong in the faith, that farmers in general lose ten times the manure by evaporation, that they do by infiltration.—And we think as a general rule, manure judiciously buried with the plough, is as secure to the farmer for future crops, as is his money when placed in the vaults of a solvent bank.

C.

Mattakees, April, 1839.

Culture of Indian Corn.

[*From the Genesee Farmer.*]

GREAT YIELD.

Mr. Tucker—As the time of year is near at hand, for planting *corn*, I propose giving you for publication, my experience in raising corn, and more particularly my success for the last year. I will first say that I think, in this vicinity, farmers have been in the habit of planting too much ground, or in other words, more than they have well tilled and manured. I had lost my whole crop, or nearly so, for two or three years previous to the last season, except some small patches, and in my garden. I have sometimes planted on ground of clay and muck, that would hold the water so long in the spring that the corn would get backward, and thereby get overtaken with the frost, while a little more than fit to roast. Two years ago I sent to the Rochester Seed Store and got a small quantity of the early Dutton corn. I planted about one-fourth of an acre, which gave me more sound corn than I had on three acres adjoining—same quality of land—but taking the whole together, it was still a losing business. I then resolved to take a different course, first, to plant on a different soil; second, to plant no more than I could make as rich as my garden. My garden is of a gravelly, dry soil, of course rich. In it I had every year planted some corn; sometimes near the first of April, and at other times quite late, but ever have failed to get good corn even in our poorest seasons. Adjoining the garden, the natural soil is the same, and I came to the conclusion that I could take some of it and make it produce as well as my garden. Therefore, last season I planted about an acre with the early Dutton, or Buel corn, and the result was one hundred and twelve bushels of shelled corn to the acre. This is a great yield for this country, and in fact is beyond any thing I have ever before seen. There was more sound corn than I had raised for a number of years before. The season was a favorable one, and aside from that I attribute my success to three things, viz: manuring high, planting thick, and a prolific kind of seed corn. The tilling was nothing but ordinary. In the fall of 1837, the ground was in timothy and clover, with a light sward, having been stocked about two years. I then ploughed it late in the fall. In the spring following I covered it over with common coarse manure from the barn-yard, which was composed of a large quantity of straw. My stock is principally sheep, and straw was thrown into the yard plentifully during the winter for bedding. In drawing it out a load was usually dropped in a place, so that after it was spread, it completely covered the ground to quite a thickness. About the middle of May the ground was ploughed very deep, and boys were sent ahead of the plough and raked all the manure into the previous furrow, so that it was completely covered. Some of my neighbors then said that they should rather have that coarse manure off from the ground than on it, for the good of the corn crop, and said it would do no good till the next crop, or until it should be decomposed. I will here remark, that from reason and experience, I must protest against leaving manure in the yard over summer, or even putting it into heaps to decay as some do to heat and drain off the strength all summer. On the contrary in most cases it is most as cheap to haul it into the field, as to heap it up in the yard. We get the use of it one year sooner, and have all the strength on the land where it should be instead of being washed into the streams of water. I think for corn and potatoes, that the benefit the first year will more than pay the expense of carting ordinary distance. To return to my subject, I next harrowed and furrowed my ground, or rather marked it very shallow, three feet apart. It was now the 17th of May, having been hindered a number of days by a heavy rain. I put three kernels in a hill, and sixteen to eighteen inches apart. It being rather cold and wet, the corn did not sprout quick as usual, and on examination I found that a small wire worm that was probably in the manure, had eaten into the chit of the corn, so that only a part of it was coming up. Although now as late as the 4th of June, I commenced planting over by putting in just as much seed as I did the first time, a hill between every two hills, which made them nearly join. As I had only seed enough left of the kind, to plant over 118 rods of the ground, the rest was planted over to beans. I will here state that the 118 rods was all the ground that was manured, and a cast made on an acre from that ratio. The rest was equally as good corn, but the ground not well stocked. When I hoed the first time, I concluded at the second hoeing to pull out some where it was the thickest, but I left them for some time, and forgot to tell my man to do it; therefore it all stood. I told him to hoe it twice more, but he did not hoe it but once, having for an excuse that the corn got so large, he could not, making only two hoeings. The stalks were 8 or 10 feet high, and a complete swamp to appearance.

Now some of my neighbors said it would be all stalks and no corn. On the night of the 2d of September, I think we had a severe frost which killed the stalks, but the corn was all ripe, the last planted as well as the first; making for the last planted just 13 weeks. It needed no sorting to grind, and handsomer corn I never saw. As to its being all stalks and no corn, the result showed. I am strong of the opinion that great improvements can be made in planting by distributing the seed more over the ground and by putting in more of it.

I fear I have wearied your patience about a small field of corn, and will close by saying that if any of the above is worth publishing you can do it, if not, throw it under the table.

L. C.

Darien, Genesee Co., April 19th, 1839.

The new mode of drawing.

It would appear from the following Report of the proceedings of the London Royal Society, at one of their sittings in February, which we copy from the London Literary Gazette, that the invention called the daguerroscope, which has been claimed by the French, is contested by Henry Fox Talbot, Esq. an Englishman.

A highly interesting paper by Henry Fox Talbot, Esq. was read. It detailed the author's discovery upwards of 5 years ago, of the new process of delineating objects.—From the first volume of the journal of the Royal Institution, it apppears that the late Mr. Wedgewood had some idea of the discovery. That ingenious gentleman in conjunction with Sir H. Davy, made many experiments, but they found all their endeavors to obtain success ineffectual, so much so that it discouraged them, and would have discouraged the author of the present memoir, had he not read the remarks of Sir H. Davy, contained in the journal alluded to, prior to the experiments which ultimately led to his invention. At first it consisted of laying the nitrate of silver on paper, and by means of the camera obscura and the solar ray acting on the paper, a perfect impression is obtained of any object in half a second; it was found, however, that the image thus obtained, by exposure to the light, faded, and after a while disappeared. By repeated experiments and the most devoted attention, Mr. Talbot, by what he calls sensitive paper (a great improvement upon that which he originally employed,) has overcome this great drawback; pictures he has had in his possession for years, are now as vivid as they were when first produced. The image obtained is white, but the ground is beautifully colored, and readily obtainable, either sky-blue, yellow, rose-color, or black; green is excluded; these variations of color, Mr. Talbot considers as so many chemical compounds. Objects the most minute are obtained—the delicate hairs on the leaves of plants, the most minute and tiny bivalve calyx, nay, even a shadow, the emblem of all that is most fleeting in this world, is fettered by the spell of the invention, and remains perfect and permanent long after it has been given back to the sunbeam which produced it; in short, to use Mr. Talbot's own words, the picture is "ended as soon as begun." The extent of the value of this invention cannot at present be anticipated; already the author has applied it with perfect success to the copying of sculpture, engravings, handwritings; and in every case so complete has been the image, that it has been mistaken for the original. The value of it even now to naturalists and others travelling abroad, many of whom are ignorant of drawing, must be immense. Lord Brougham was present, and paid profound attention to Mr. Talbot's paper.

An Act respecting School District Libraries.

Passed April 15, 1839.

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. The trustees of every school district shall be trustees of the library of such district, and the property of all books therein, and of the case and other appurtenances thereof, shall be deemed to be vested in such trustees, so as to enable them to maintain any action in relation to the same. It shall be their duty to preserve such books and keep them in repair; and the expenses incurred for that purpose may be included in any tax list to be made out by them as trustees of a district, and added to any tax voted by a district meeting, and shall be collected and paid over in the same manner. The librarian of any district library shall be subject to the directions of the trustees thereof, in all matters relating to the preservation of the books and the appurtenances of the library, and may be removed from office by them for wilful disobedience of such directions, or for any wilful neglect of duty; and whenever they shall have reason to apprehend the loss of any such books, or their injury, or destruction by his misconduct, and whenever a vacancy shall exist in the office of librarian, the same shall be supplied by the trustees until the next annual meeting of the inhabitants of the district.

§ 2. Trustees of school districts shall be liable to their successors for any neglect or omission, in relation to the care and superintendence of district or joint libraries, by which any books therein are lost or injured, to the full amount of such loss or injury, in an action on the case, to be brought by such successors in their name of office.

§ 3. A set of general regulations respecting the preservation of school district libraries, the delivery of them by librarians and trustees to their successors in office, the use of them by the inhabitants of the district, the number of volumes to be taken by any one person at any one time or during any term, the periods of their return, the fines and penalties that may be imposed by the trustees of such libraries for not returning, losing or destroying any of the books therein, or for soiling, defacing or injuring them, may be framed by the superintendent of common schools, and printed copies thereof shall be furnished to each school district of the state, which regulations shall be obligatory upon all persons and officers having charge of such libraries, or using or possessing any of the books thereof. Such fines may be recovered in an action of debt, in the name of the trustees of any such library, of the person on whom they are imposed, except such person be a minor; in which case they may be recovered of the parent or guardian of such minor, unless notice in writing shall be given by such parent or guardian to the trustees of such library, that they will not be responsible for any books delivered such minor. And persons with whom minors reside shall be liable in the same manner, and to the same extent, in cases where the parent of such minor does not reside in the district.

§ 4. Any person conceiving himself aggrieved by any act or decision of any trustees of school districts concerning district school libraries or the books therein, or the use of such books, or of any librarian, or of any district meeting in relation to the school library, may appeal to the superintendent of common schools, in the same manner as provided by law in relation to common schools, and his decisions thereon shall be final.

§ 5. The legal voters in any two or more adjoining districts may in such cases as shall be approved by the superintendent of common schools, unite their library moneys and funds as they shall be received or collected, and purchase a joint library for the use of the inhabitants of such districts, which shall be selected by the trustees thereof, or by such person as they shall designate, and shall be under the charge of a librarian to be appointed by them; and the foregoing provisions of this act shall be applicable to the said joint libraries, except that the property in them shall be deemed to be vested in all the trustees for the time being of the districts so united. And in case any such district shall desire to divide such library, such division shall be made by the trustees of the two districts whose libraries are so united: and in case they cannot agree, then such division shall be made by three disinterested persons, to be appointed by the superintendent of common schools.

§ 6. The moneys directed to be distributed to common schools by the fourth section of chapter two hundred and thirty-seven of the acts of 1838, shall be applied to the purchase of books for a district library for the term of five years; and the said moneys shall be distributed to the school district in the same manner and proportions as the public school money, and upon the like terms and conditions in all respects. And if by reason of non-compliance with such conditions, any library money shall be withheld, from any school district, the same may be distributed among other districts complying with such conditions, or may be retained and paid subsequently to the district from which the same was withheld, as shall be directed by the superintendent of common schools, according to the circumstances of the case.

§ 7. The superintendent of common schools, whenever requested by the trustees of a school district under the directions of the legal voters of such district, may select a library for their use, and cause the same to be delivered to the clerk of the county in which such district is situated, at its expense. He shall transmit a sufficient number of copies of this act, to supply each school district in the state, with forms and instructions for its execution, to the clerks of the respective counties, who shall forward the number directed to each school district in his county to the clerk thereof.

State of New-York, Secretary's Office.—This act having been approved and signed by the governor on the 15th day of April, 1839, I do hereby certify that the same became a law on that day.

JOHN C. SPENCER, *Secretary of State.*

Insectivorous Birds.

[*From the New-England Farmer.*]

Mr. Fessenden.—These are to the farmer and gardener of great value. They were designed by the Creator to check the too great increase of insects; and no farmer ought to suffer them to be wantonly destroyed on his premises. The number of insects destroyed by the robin, swallow, sparrow, mock-bird, and other small birds, is astonishing. One little family will destroy several hundreds in a single day. Some little time since, a pair of these small birds built a nest on a lilac, which grew close to one of my windows. In the time of incubation, there was a long and severe storm and a strong wind. The eggs were in danger of being thrown overboard by the writhing of the bush. Conscious of this, the female kept on the nest to prevent any accident which might follow on her leaving it, to collect food. Her mate, like a good provider, was busily engaged through the day in collecting food (insects) which he carried to his companion, and she received it of him with apparent affection. This circumstance excited particular attention; and of course this little society was closely observed. In a short time the eggs hatched; but from the roughness of the weather, or tenderness of the brood, the female chose not to leave the young. During this time, the male with surprising industry, brought small insects, in the larva state, to the nest, but was not suffered to feed the nestlings. The female received the food, and divided it among her little charge. When the young gained sufficient strength, the male was permitted to feed them; and from this time, both parents were mutually and incessantly, (by day) employed in collecting small insects from every quarter; and, on a moderate calculation, to the number of about 700 in a day.

One great cause of the increase of many insects, so destructive to vegetation is the decrease of those little friends to the agriculturist. Should a few of them innocently trespass on the property of the farmer to the amount of a few cents, let him remember, that he is greatly indebted to them for services rendered; and not wage a war of extermination.

They are not merely useful in destroying insects—for they call the farmer and the gardener to their business—cause the groves to resound with music, and usher in the morning with melodious praise.

R. GREEN.

Mansfield, March 27, 1838.

Cure for Hydrophobia.

[*From the Liverpool Mercury, July* 2.]

As the hydrophobia season has set in, we comply with the request of a correspondent, by giving insertion to the following. What we happen to know of the extraordinary property of the chloride of lime induces us to put great faith in its properties in the cure of the wound inflicted by dogs, or any other means.

We are indebted to M. Coster, a French physician, for the following valuable discovery, as a preventive to hydrophobia. Take two table spoonfuls of fresh chloride of lime in powder, mix it with half a pint of water, and with this wash keep the wound constantly bathed, and frequently renewed. The chlorine gas possesses the power of decomposing this tremendous poison, and renders mild and harmless that venom against whose resistless attack the artillery of medical science has been so long directed in vain. It is necessary to add that this wash should be applied as soon as possible after the infliction of the bite. Another plan which has been extensively tried at Breslau and Zurich, and many other parts of the continent, consists not merely in cutting out the bitten part, (mere incision has been found too often unavailing,) but in combining with the incision some effectual means for keeping open the wound and maintaining it in a state of suppuration during a period of at least six weeks. Other curative means, as the exhibition of mercury, balladonna or lyetoe, were also employed in the cases; but upon these, it is thought, little reliance can be placed. The following are the results of this treatment:—From 1810 to 1824, the number of persons admitted into the Breslau, was 184, of whom two only died of hydrophobia; from 1783 to 1824 inclusive, there were admitted into the hospital at Zurich 233 persons, bitten by different animals, (182 by dogs,) of whom only four died—two on the second day of admission, and in whom the disease had probably become developed before they were submitted to the treatment, and the other two were bitten in parts (inside of the cheek and eyelid,) where the prescribed means could not be employed with the requisite exactness.

Literary Statistics.

[*From the American Almanac.*]

The number of new works which appeared in the United States, in 1834 and 1835, amounted to 1,013, forming 1,300 volumes, and the cost of which may be estimated at $1,220,000. In 1836, the number was considerably increased, and the cost of the books published in that year cannot be computed at less than $1,500,000. Boston, New-York, Philadelphia and Hartford, furnished 19-20ths of the total amount.

Another statement for the years 1833, 1834 and 1835, is as follows:—Originals 1,030, reprints 854; total 1,884;—number of volumes printed, (1,000 for each edition,) 1,884,000.

In most cases the editions of one and the same work are larger and more frequent in the United States than in any other country. Many reprinted English works have here passed through three or four editions, while the publishers of the original in England have but one. In one instance, the sale of a book in America amounted to 100,000 copies, whereas in England only four editions of 1,000 copies each, were disposed of.

The amount of literary productions in America has more than doubled during the last ten years. The sale of five bookselling establishments amounted, in 1836, to $1,350,000. A single publisher paid, in the five years preceding 1834, $135,000 for copyrights, out of which $30,000 were for two works only. Carey, Lea & Blanchard paid last year $30,000 to American writers; and Harper & Brothers have paid about the same sum for several years past.

The following statement will show the relative proportion of native and imported literary productions, in 1834:

	Native.	*Imported.*
Education, ...	73	9
Divinity, ...	37	18
Novels and Tales, ...	19	95
History and Biography, ...	19	17
Jurisprudence, ...	20	3
Poetry, ...	8	3
Travels, ...	8	10
Fine Arts, ...	8	0
Miscellaneous Works, ...	59	43

Thus it appears in American literature the scientific and practically useful predominate, and that works of imagination are chiefly derived from foreign sources. The school-books are almost all written or compiled in the United States; and some idea of the extensive business done in them may be formed from the circumstance, that, of some of the most popular compilations in geography, from 100,000 to 300,000 copies have been sold in ten years; so that, in many instances, works of this kind produce a permanent income, as well to the author as the publisher. During the last five years, the number of American orignal works, in proportion to reprints, has nearly doubled.

The Pickman Farm.

The famous Pickman farm, in Salem, the best in the county, is lined round the borders of the fields, with engrafted apple trees. These trees are very thrifty, deriving most of their nourishment from the ground under the walls, which keep the soil loose, warm and moist, and preserve the roots of the trees from external injury. The trees in this situation are an ornament to the farm, while they are no hindrance to the farmer in cultivating his field, nor injury to the crops, by withdrawing nourishment, like those in the interior of the field. Yet those trees round the field are believed to yield a greater profit than the annual crop within, with all the labor necessarily bestowed upon it—and the annual sales of the apples and fruit on this farm are said to be enough to purchase a farm of moderate dimensions in the interior of the state.—*Newburyport, Mass. Herald.*

New Motive Power.

The Worcestershire Chronicle says—"We have been favored by a correspondent with the following account of an invention which, if what is said of it be correct, promises to make some stir in the world.

"'Her Majesty's letters patent have been granted to Mr. Byron l'Anson Bromwick, of Clifton-on-Teme, in this country, for an improved method of propelling all kinds of machinery, both stationary and locomotive.—The power is of equal magnitude to that of steam; it can be obtained at one-sixteenth part of the cost of that power, without the incumbrance of a boiler and its ponderous and objectionable appendages;—consequently carriages constructed almost as light and elegant as those now drawn by horses, can be propelled by this power, along the common roads or rail-ways, at any speed consistent with safety. As a motive power applied to ships and boats, it will be invaluable, there being do danger from explosion, nor any annoyance from smoke, steam, or noise; and the space now devoted to the boiler, fuel, &c. will be at liberty to be more profitably employed. The invention will be submitted to the ordeal of public opinion, as soon as the patent rights for France, Belgium and Holland have been disposed of."

Young Men's Department.

Self-Culture.

BY W. E. CHANNING, D.D.

We were so highly pleased with the perusal of the following lecture upon Self-Culture, by the Rev. Dr. Channing, that we asked permission of the Executive Committee of the Franklin Lectures, Boston, to whom the copy-right belonged, to publish it in the Cultivator. Our readers will no doubt unite with us in the expression of thanks to the committee, for their cheerful compliance with our request. The lecture will occupy a portion of two or three of our numbers.

ADDRESS.

My Respected Friends—By the invitation of the committee of arrangements for the Franklin lectures, I now appear before you to offer some remarks introductory to this course. My principal inducement for so doing, is my deep interest in those of my fellow-citizens for whom these lectures are principally designed. I was informed, that they were to be attended chiefly by those, who are occupied by manual labor; and, hearing this, I did not feel myself at liberty to decline the service, to which I had been invited. I wished by compliance to express my sympathy with this large portion of my race. I wished to express my sense of obligation to these, from whose industry and skill I derive almost all the comforts of life. I wished still more to express my joy in the efforts they are making for their own improvement, and my firm faith in their success. These motives will give a particular character and bearing to some of my remarks. I shall speak occasionally as among those who live by the labor of their hands. But I shall not speak as one separated from them. I belong rightfully to the great fraternity of working-men. Happily in this community we all are born and bred to work; and this honorable mark, set on us all, should bind together the various portions of the community.

I have expressed my strong interest in the mass of the people; and this is founded, not on their usefulness to the community, so much as on what they are in themselves. Their condition is indeed obscure; but their importance is not on this account a whit the less. The multitude of men cannot from the nature of the case be distinguished; for the very idea of distinction is, that a man stands out from the multitude. They make little noise and draw little notice in their narrow spheres of action; but still they have their full proportion of personal worth and even of greatness. Indeed every man, in every condition, is great. It is only our own diseased sight which makes him little. A man is great as a man, be he where or what he may. The grandeur of his nature turns to insignificance all outward distinctions. His powers of intellect, of conscience, of love, of knowing God, of perceiving the beautiful, of acting on his own mind, on outward nature, and on his fellow-creatures, these are glorious prerogatives. Through the vulgar error of undervaluing what is common, we are apt indeed to pass these by as of little worth. But as in the outward creation, so in the soul, the common is the most precious. Science and art may invent splendid modes of illuminating the apartment of the opulent; but these are all poor and worthless, compared with the common light which the sun sends into all our windows, which he pours freely, impartially over hill and valley, which kindles daily the eastern and western sky; and so the common lights of reason, and conscience, and love are of more worth and dignity than the rare endowments which give celebrity to a few. Let us not disparage that nature which is common to all men; for no thought can measure its grandeur. It is the image of God, the image even of his infinity, for no limits can be set to its unfolding. He who possesses the divine powers of the soul is a great being, be his place what it may. You may clothe him with rags, may immure him in a dungeon, may chain him to slavish tasks. But he is still great. You may shut him out of your houses, but God opens to him heavenly mansions. He makes no show indeed in the streets of a splendid city; but a clear thought, a pure affection, a resolute act of a virtuous will, have a dignity of quite another kind and far higher than accumulations of brick, and granite, and plaster, and stucco, however cunningly put together, or though stretching far beyond our sight. Nor is this all. If we pass over this grandeur of our common nature, and turn our thoughts to that comparative greatness, which draws chief attention, and which consists in the decided superiority of the individual to the general standard of power and character, we shall find this as free and frequent a growth among the obscure and unnoticed as in more conspicuous walks of life. The truly great are to be found every where, nor is it easy to say, in what condition they spring up most plentifully. Real greatness has nothing to do with a man's sphere. It does not lie in the magnitude of his outward agency, in the extent of the effects which he produces. The greatest men may do comparatively little abroad. Perhaps the greatest in our city at this moment are buried in obscurity. Grandeur of character lies wholly in force of soul, that is, in the force of thought, moral principle and love, and this may be found in the humblest condition of life. A man brought up to an obscure trade, and hemmed in by the wants of a growing family, may, in his narrow sphere, perceive more clearly, discriminate more keenly, weigh evidence more wisely, seize on the right means more decisively, and have more presence of mind in difficulty, than another who has accumulated vast stores of knowledge by laborious study; and he has more of intellectual greatness. Many a man, who has gone but a few miles from home, understands human nature better, detects motives and weighs character more sagaciously, than another, who has travelled over the known world, and made a name by his reports of different countries. It is the force of thought which measures intellectual, and so it is force of principle which measures moral greatness, that highest of human endowments, that brightest manifestation of the Divinity. The greatest man is he who chooses the right with invincible resolution, who resists the sorest temptations from within and without, who bears the heaviest burdens cheerfully, who is calmest in storms and most fearless under menace and frowns, whose reliance on truth, on virtue, on God is most unfaltering; and is this a greatness, which is apt to make a show, or which is most likely to abound in conspicuous station? The solemn conflicts of reason with passion—the victories of moral and religious principle over urgent and almost irresistible solicitations to self-indulgence—the hardest sacrifices of duty, those of deep-seated affection and of the heart's fondest hopes—the consolations, hopes, joys, and peace of disappointed, persecuted, scorned, deserted virtue; these are of course unseen; so that the true greatness of human life is almost wholly out of sight. Perhaps in our presence, the most heroic deed on earth is done in some silent spirit, the loftiest purpose cherished, the most generous sacrifice made, and we do not suspect it. I believe this greatness to be most common among the multitude, whose names are never heard. Among common people will be found more of hardship borne manfully, more of unvarnished truth, more of religious trust, more of that generosity which gives what the giver needs himself, and more of a wise estimate of life and death, than among the more prosperous.—And even in regard to influence over other beings, which is thought the peculiar prerogative of distinguished station, I believe, that the difference between the conspicuous and the obscure does not amount to much. Influence is to be measured, not by the extent of surface it covers, but by its *kind*. A man may spread his mind, his feelings and opinions through a great extent; but if his mind be a low one, he manifests no greatness. A wretched artist may fill a city with daubs, and by a false showy style achieve a reputation; but the man of genius, who leaves behind him one grand picture, in which immortal beauty is embodied, and which is silently to spread a true taste in his art, exerts an incomparably higher influence.—Now the noblest influence on earth is that exerted on character; and he, who puts forth this, does a great work, no matter how narrow or obscure his sphere. The father and mother of an unnoticed family, who, in their seclusion, awaken the mind of one child to the idea and love of perfect goodness, who awaken in him a strength of will to repel all temptation, and who send him out prepared to profit by the conflicts of life, surpass in influence a Napoleon breaking the world to his sway. And not only is their work higher in kind; who knows but that they are doing a greater work even as to extent or surface than the conqueror? Who knows, but that the being, whom they inspire with holy and disinterested principles, may communicate himself to others; and that by a spreading agency, of which they were the silent origin, improvements may spread through a nation, through the world? In these remarks you will see why I feel and express a deep interest in the obscure, in the mass of men. The distinctions of society vanish before the light of these truths. I attach myself to the multitude, not because they are voters and have political power, but because they are men, and have within their reach the most glorious prizes of humanity.

In this country, the mass of the people are distinguished by possessing means of improvement, of self-culture, possessed no where else. To incite them to the use of these, is to render them the best service they can receive. Accordingly I have chosen for the subject of this lecture, *Self-culture*, or the care which every man owes to himself, to the unfolding and perfecting of his nature. I consider this topic as particularly appropriate to the introduction of a course of lectures, in consequence of a common disposition to regard these and other like means of instruction, as able of themselves to carry forward the hearer. Lectures have their use.—They stir up many, who, but for such outward appeals, might have slumbered to the end of life. But let it be remembered, that little is to be gained simply by coming to this place once a week, and giving up the mind for an hour to be wrought upon by a teacher. Unless we are roused to act upon ourselves, unless we engage in the work of self-improvement, unless we purpose strenuously to form and elevate our own minds, unless what we hear is made a part of ourselves by conscientious reflection, very little permanent good is received.

Self-culture, I am aware, is a topic too extensive for a single discourse, and I shall be able to present but a few views which seem to me most important. My aim will be, to give first the idea of self-culture, next its means, and then to consider some objections to the leading views which I am now to lay before you.

Before entering on the discussion, let me offer one remark. Self-culture is something possible. It is not a dream. It has foundations in our nature. Without this conviction, the speaker will but declaim, and the hearer listen without profit. There are two powers of the human soul which make self-culture possible, the self-searching and the self-forming power. We have first the faculty of turning the mind on itself; of recalling its past, and watching its present operations; of learning its various capacities and susceptibilities, what it can do and bear, what it can enjoy and suffer; and of thus learning in general what our nature is, and what it was made for. It is worthy of observation, that we are able to discern not only what we already are, but what we may become, to see in ourselves germs and promises of a growth to which no bounds can be set, to dart beyond what we have actually gained to the idea of perfection as the end of our being. It is by this self-comprehending power that we are distinguished from the brutes, which give no signs of looking into themselves. Without this there could be no self-culture, for we should not know the work to be done; and one reason why self-culture is so little proposed is, that so few penetrate into their own nature. To most men, their own spirits are shadowy, unreal, compared with what is outward. When they happen to cast a glance inward, they see there only a dark, vague chaos. They distinguish, perhaps, some violent passion, which had driven them to injurious excess, but their highest powers hardly attract a thought; and thus multitudes live and die as truly strangers to themselves, as to countries, of which they have heard the name, but which human foot has never trodden.

But self-culture is possible, not only because we can enter into and search ourselves. We have a still nobler power, that of acting on, determining and forming ourselves. This is a fearful as well as glorious endowment, for it is the ground of human responsibility.—We have the power not only of tracing our powers, but of guiding and impelling them, not only of watching our passions, but of controlling them, not only of seeing our faculties grow, but of applying to them means and influences to aid their growth. We can stay or change the current of thought. We can concentrate the intellect on objects which we wish to comprehend.—We can fix our eyes on perfection and make almost every thing speed us towards it. This is indeed a noble prerogative of our nature. Possessing this, it matters little what or where we are now, for we can conquer a better lot, and even be happier for starting from the lowest point. Of all the discoveries which men need to make, the most important at the present moment, is that of the self-forming power treasured up in themselves. They little suspect its extent, as little as the savage apprehends the energy which the mind is created to exert on the material world. It transcends in importance all our power over outward nature. There is more of divinity in it, than in the force which impels the outward universe; and yet how little we comprehend it! How it slumbers in most men unsuspected, unused! This makes self-culture possible, and binds it on us as a solemn duty.

I. I am first to unfold the idea of self-culture; and this, in its most general form, may easily be seized. To cultivate any thing, be it a plant, an animal, a mind, is to make grow. Growth, expansion is the end. Nothing admits culture, but that which has a principle of life, capable of being expanded. He, therefore, who does what he can to unfold all his powers and capacities, especially his nobler ones, so as to become a well proportioned, vigorous, excellent, happy being, practises self-culture.

This culture of course has various branches corresponding to the different capacities of human nature; but though various, they are intimately united and make progress together. The soul, which our philosophy divides into various capacities, is still one essence, one life; and it exerts at the same moment, and blends in the same act its various energies of thought, feeling and volition. Accordingly, in a wise self-culture, all the principles of our nature grow at once by joint harmonious action, just as all parts of the plant are unfolded together. When therefore you hear of different branches of self-improvement, you will not think of them as distinct processes going on independently on each other, and requiring each its own separate means: Still a distinct consideration of these is needed to a full comprehension of the subject, and these I shall proceed to unfold.

First, self-culture is Moral, a branch of singular importance. When a man looks into himself he discovers two distinct orders or kinds of principles, which it behooves him especially to comprehend. He discovers desires, appetites, passions which terminate in himself, which crave and seek his own interest, gratification, distinction; and he discovers another principle, an antagonist to these, which is impartial, disinterested, universal, enjoining on him a regard to the rights and happiness of other beings, and laying on him obligations which *must* be discharged, cost what they may, or however they may clash with his particular pleasure or gain. No man, however narrowed to his own interest, however hardened by selfishness, can deny, that there springs up within him a great idea in opposition to interest, the idea of duty, that an inward voice calls him more or less distinctly to revere and exercise impartial justice, and universal good will. This disinterested principle in human nature we call sometimes reason, sometimes conscience, sometimes the moral sense or faculty. But, be its name what it may, it is a real principle in each of us, and it is the supreme power within us, to be cultivated above all others, for on its culture the right development of all others depends. The passions indeed may be stronger than the conscience, may lift up a louder voice; but their clamour differs wholly from the tone of command in which the conscience speaks.—They are not clothed with its authority, its binding power. In their very triumphs they are rebuked by the moral principle, and often cower before its still, deep, menacing voice. No part of self-knowledge is more important, than to discern clearly these two great principles, the self-seeking and the disinterested; and the most important part of self-culture is to depress the former, and to exalt the latter, or to enthrone the sense of duty within us. There are no limits to the growth of this moral force in man, if he will cherish it faithfully. There have been men, whom no power in the universe could turn from the right, by whom death in its most dreadful forms has been less dreaded, than transgression of the inward law of universal justice and love.

In the next place, self-culture is Religious. When we look into ourselves we discover powers, which link us with this outward, visible, finite, ever changing world. We have sight and other senses to discern, and limbs and various faculties to secure and appropriate the material creation. And we have too a power, which cannot stop at what we see and handle, at what exists within the bounds of space and time, which seeks for the infinite, uncreated cause, which cannot rest till it ascend to the eternal, all-comprehending mind. This we call the religious principle, and its grandeur cannot be exaggerated by human language; for it marks out a being destined for higher communion than with the visible universe. To develop this, is eminently to educate ourselves. The true idea of God, unfolded clearly and livingly within us, and moving us to adore and obey him, and to aspire after likeness to him, is the noblest growth in human, and I may add, in celestial natures. The religious principle, and the moral, are intimately connected, and grow together. The former is indeed the perfection and highest manifestation of the latter. They are both disinterested. It is the essence of true religion to recognise and adore in God the attributes of impartial justice and universal love, and to hear him commanding us in the conscience to become what we adore.

Again. Self-culture is Intellectual. We cannot look into ourselves without discovering the intellectual principle, the power which thinks, reasons, and judges, the power of seeking and acquiring truth This indeed we are in no danger of overlooking. The intellect being the great instrument by which men compass their wishes, it draws more attention than any of our other powers. When we speak to men of improving themselves, the first thought which occurs to them is, that they must cultivate the understanding, and get knowledge and skill. By education, men mean almost exclusively intellectual training. For this, schools and colleges are instituted, and to this the moral and religious discipline of the young is sacrificed. Now I reverence, as much as any man, the intellect; but let us never exalt it above the moral principle. With this it is most intimately connected. In this its culture is founded, and to exalt this is its highest aim. Whoever desires that his intellect may grow up to soundness, to healthy vigour, must begin with moral discipline. Reading and study are not enough to perfect the power of thought. One thing above all is needful, and that is, the disinterestedness which is the very soul of virtue. To gain truth, which is the great object of the understanding, I must seek it disinterestedly. Here is the first and grand condition of intellectual progress. I must choose to receive the truth, no matter how it bears on myself. I must follow it, no matter where it leads, what interests it opposes, to what persecution or loss it lays me open, from what party it severs me, or to what party it allies. Without this fairness of mind, which is only another phrase for disinterested love of truth, great native powers of understanding are perverted and lead astray; genius runs wild; "the light within us becomes darkness." The subtlest reasoners, for want of this, cheat themselves as well as others, and become entangled in the web of their own sophistry. It is a fact well known in the history of science and philosophy, that men, gifted by nature with singular intelligence, have broached the grossest errors, and even sought to undermine the grand primitive truths on which human virtue, dignity and hope depend. And on the other hand, I have known instances of men of naturally moderate powers of mind, who by a disinterested love of truth and their fellow creatures, have gradually risen to no small force and enlargement of thought. Some of the most useful teachers in the pulpit and in schools, have owed their power of enlightening others not so much to any natural superiority, as to the simplicity, impartiality and disinterestedness of their minds, to their readiness to live and die for the truth. A man who rises above himself, looks from an eminence on nature and providence, on society and life. Thought expands as by a natural elasticity, when the pressure of selfishness is removed. The moral and religious principles of the soul, generously cultivated, fertilize the intellect. Duty, faithfully performed, opens the mind to truth, both being of one family, alike immutable, universal and everlasting.

I have enlarged on this subject, because the connexion between moral and intellectual culture is often overlooked, and because the former is often sacrificed to the latter. The exaltation of talent as it is called, above virtue and religion, is the curse of the age. Education is now chiefly a stimulus to learning, and thus men acquire power without the principles which alone make it a good. Talent is worshipped; but, if divorced from rectitude, it will prove more of a demon than a god.

Intellectual culture consists, not chiefly, as many are apt to think, in accumulating information, though this is important, but in building up a force of thought which may be turned at will on any subjects, on which we are called to pass judgment. This force is manifested in the concentration of the attention, in accurate penetrating observation, in reducing complex subjects to their elements, in diving beneath the effect to the cause, in detecting the more subtle differences and resemblances of things, in reading the future in the present, and especially in rising from particular facts to general laws or universal truths. This last exertion of the intellect, its rising to broad views and great principles, constitutes what is called the philosophical mind, and is especially worthy of culture. What it means, your own observation must have taught you. You must have taken note of two classes of men, the one always employed on details, on particular facts, and the other using these facts, as foundations of higher, wider truths. The latter are philosophers. For example, men had for ages seen pieces of wood, stones, metals falling to the ground. Newton seized on these particular facts, and rose to the idea, that all matter tends, or is attracted, towards all matter, and then defined the law according to which this attraction or force acts at different distances, thus giving us a grand principle which, we have reason to think, extends to and controls the whole outward creation. One man reads a history and can tell its events, and there stops. Another combines these events, brings them under one view, and learns the great causes which are at work on this or another nation, and what are its great tendencies whether to freedom or despotism, to one or another form of civilization. So one man talks continually about the particular actions of this or another neighbor; whilst another looks beyond the acts to the inward principle from which they spring, and gathers from them larger views of human nature. In a word, one man sees all things apart and in fragments, whilst another strives to discover the harmony, connexion, unity of all. One of the great evils of society is, that men occupied perpetually with petty details, want general truths, want broad and fixed principles. Hence many, not wicked, are unstable, habitually inconsistent, as if they were overgrown children rather than men. To build up that strength of mind, which apprehends and cleaves to great universal truths, is the highest intellectual self-culture; and here I wish you to observe how entirely this culture agrees with that of the moral and the religious principles of our nature, of which I have previously spoken. In each of these, the improvement of the soul consists in raising it above what is narrow, particular, individual, selfish, to the universal and unconfined. To improve a man, is to liberalize, enlarge him in thought, feeling and purpose. Narrowness of intellect and heart, this is the degradation from which all culture aims to rescue the human being.

Again. Self-culture is Social, or one of its great offices is to unfold and purify the affections, which spring up instinctively in the human breast, which bind together husband and wife, parent and child, brother and sister; which bind a man to friends and neighbors, to his country, and to the suffering who fall under his eye, wherever they belong. The culture of these is an important part of our work, and it consists in converting them from instincts into principles, from natural into spiritual attachments, in giving them a rational, moral, and holy character. For example, our affection for our children is at first instinctive; and if it continue such, it rises little above the brute's attachment to its young. But when a parent infuses into his natural love for his offspring moral and religious principle, when he comes to regard his child as an intelligent, spiritual, immortal being, and honors him as such, and desires first of all to make him disinterested, noble, a worthy child of God and the friend of his race, then the instinct rises into a generous and holy sentiment. It resembles God's paternal love for his spiritual family. A like purity and dignity we must aim to give to all our affections.

Again. Self-culture is practical, or it proposes as one of its chief ends to fit us for action, to make us efficient in whatever we undertake, to train us to firmness of purpose and to fruitfulness of resource in common life, and especially in emergencies, in times of difficulty, danger and trial. But passing over this and other topics for which I have no time, I shall confine myself to two branches of self-culture which have been almost wholly overlooked in the education of the people, and which ought not to be so slighted.

In looking at our nature, we discover, among its admirable endowments, the sense or perception of Beauty. We see the germ of this in every human being, and there is no power which admits greater cultivation; and why should it not be cherished in all? It deserves remark, that the provision for this principle is infinite in the universe. There is but a very minute portion of the creation, which we can turn into food and clothes, or gratification for the body; but the whole creation may be used to minister to the sense of beauty. Beauty is an all-pervading presence. It unfolds in the numberless flowers of the spring. It waves in the branches of the trees and the green blades of grass. It haunts the depths of the earth and sea, and gleams out in the hues of the shell and the precious stone. And not only these minute objects, but the ocean, the mountains, the clouds, the heavens, the stars, the rising and setting sun, all overflow with beauty. The universe is its temple; and those men, who are alive to it cannot lift their eyes without feeling themselves encompassed with it on every side. Now this beauty is so precious, the enjoyments it gives are so refined and pure, so congenial with our tenderest and noble feelings, and so akin to worship, that it is painful to think of the multitude of men as living in the midst of it, and living almost as blind to it, as if, instead of this fair earth and glorious sky, they were tenants of a dungeon. An infinite joy is lost to the world by the want of culture of this spiritual endowment. Suppose that I were to visit a cottage, and to see its walls lined with the choicest pictures of Raphael, and every spare nook filled with statues of the most exquisite workmanship, and that I were to learn, that neither man, woman nor child ever cast an eye at these miracles of art, how should I feel their privation; how should I want to open their eyes, and to help them to comprehend and feel the loveliness and grandeur which in vain courted their notice. But every husbandman is living in sight of the works of a diviner artist; and how much would his existence be elevated, could he see the glory which shines forth in their forms, hues, proportions and moral expression! I have spoken only of the beauty of nature, but how much of this mysterious charm is found in the elegant arts and especially in literature? The best books have most beauty. The greatest truths are wronged if not linked with beauty, and they win their way most surely and deeply into the soul when arrayed in this their natural and fit attire. Now no man receives the true culture of a man, in whom the sensibility to the beautiful is not cherished; and I know of no condition in life from which it should be excluded. Of all luxuries this is the cheapest and most at hand; and it seems to me to be most important to those conditions, where coarse labor tends to give a grossness to the mind. From the diffusion of the sense of beauty in ancient Greece, and of the taste for music in modern Germany, we learn that the people at large, may partake of refined gratifications which have hitherto been thought to be necessarily restricted to a few.

What Beauty is, is a question which the most penetrating minds have not satisfactorily answered; nor, were I able, is this the place for discussing it. But one thing I would say; the beauty of the outward creation is intimately related to the lovely, grand, interesting attributes of the soul. It is the emblem or expression of these. Matter becomes beautiful to us, when it seems to lose its material aspect, its inertness, finiteness and grossness, and by the ethereal lightness of its forms and motions, seems to approach spirit; when it images to us pure and gentle affections; when it spreads out into a vastness which is a shadow of the Infinite; or when in more awful shapes and movements it speaks of the Omnipotent. Thus outward beauty is akin to something deeper and unseen, is the reflection of spiritual attributes; and of consequence the way to see and feel it more and more keenly, is to cultivate those moral, religious, intellectual and social principles of which I have already spoken, and which are the glory of the spiritual nature; and I name this that you may see, what I am anxious to show, the harmony which subsists among all branches of human culture, or how each forwards and is aided by all.

There is another power, which each man should cultivate according to his ability, but which is very much neglected in the mass of the people, and that is the power of Utterance. A man was not made to shut up his mind in itself; but to give it voice and to exchange it for other minds. Speech is one of our grand distinctions from the brute. Our power over others lies not so much in the amount of thought within us, as in the power of bringing it out. A man of more than ordinary intellectual vigor, may for want of expression, be a cypher, without significance, in society. And not only does a man influence others, but he greatly aids his own intellect, by giving distinct and forcible utterance to his thoughts. We understand ourselves better, our conceptions grow clearer, by the very effort to make them clear to another. Our social rank too depends a good deal on our power of utterance. The principal distinction between what are called gentlemen and the vulgar lies in this, that the latter are awkward in manners, and are especially wanting in propriety, clearness, grace, and force of utterance. A man who cannot open his lips without breaking a rule of grammar, without showing in his dialect or brogue or uncouth tones his want of cultivation, or without darkening his meaning by a confused, unskilful mode of communication, cannot take the place to which perhaps his native good sense entitles him. To have intercourse with respectable people, we must speak their language. On this account, I am glad that grammar and a correct pronunciation are taught in the common schools of this city. These are not trifles; nor are they superfluous to any class of people. They give a man access to social advantages, on which his improvement very much depends. The power of utterance should be included by all in their plans of self-culture.

I have now given a few views of the culture, the improvement, which every man should propose to himself. I have all along gone on the principle, that a man has within him capacities of growth, which deserve, and will reward, intense, unrelaxing toil. I do not look on a human being as a machine, made to be kept in action by a foreign force, to accomplish an unvarying succession of motions, to do a fixed amount of work, and then to fall to pieces at death, but as a being of free spiritual powers; and I place little value on any culture, but that which aims to bring out these, and to give them perpetual impulse and expansion. I am aware, that this view is far from being universal. The common notion has been, that the mass of the people need no other culture than is necessary to fit them for their various trades; and though this error is passing away, it is far from being exploded. But the ground of a man's culture lies in his nature, not in his calling. His powers are to be unfolded on account of their inherent dignity, not their outward direction. He is to be educated, because he is a man, not because he is to make shoes, nails, or pins. A trade is plainly not the great end of his being, for his mind cannot be shut up in it; his force of thought cannot be exhausted on it. He has faculties to which it gives no action, and deep wants it cannot answer. Poems, and systems of theology and philosophy, which have made some noise in the world, have been wrought at the work-bench and amidst the toils of the field. How often, when the arms are mechanically plying a trade, does the mind, lost in reverie or day dreams, escape to the ends of the earth! How often does the pious heart of woman mingle the greatest of all thoughts, that of God, with household drudgery! Undoubtedly a man is to perfect himself in his trade, for by it he is to earn his bread and to serve the community. But bread or subsistence is not his highest good; for if it were, his lot would be harder than that of the inferior animals, for whom nature spreads a table and weaves a wardrobe, without a care of their own. Nor was he made chiefly to minister to the wants of the community. A rational moral being cannot, without infinite wrong, be converted into a mere instrument of others' gratification. He is necessarily an end, not a means. A mind, in which are sown the seeds of wisdom, disinterestedness, firmness of purpose and piety, is worth more than all the outward material interests of a world. It exists for itself, for its own perfection, and must not be enslaved to its own or others' animal wants. You tell me, that a liberal culture is needed for men who are to fill high stations, but not for such as are doomed to vulgar labor. I answer, that man is a greater name than president or king. Truth and goodness are equally precious, in whatever sphere they are found. Besides, men of all conditions sustain equally the relations, which give birth to the highest virtues and demand the highest powers. The laborer is not a mere laborer. He has close, tender, responsible connections with God and his fellow-creatures. He is a son, husband, father, friend and christian. He belongs to a home, a country, a church, a race; and is such a man to be cultivated only for a trade? Was he not sent into the world for a great work? To educate a child perfectly, requires profounder thought, greater wisdom than to govern a state; and for this plain reason, that the interests and wants of the latter are more superficial, coarser and more obvious, than the spiritual capacities, the growth of thought and feeling, and the subtle laws of the mind, which must all be studied and comprehended, before the work of education can be thoroughly performed; and yet to all conditions this greatest work on earth is equally committed by God. What plainer proof do we need that a higher culture, than has yet been dreamt of, is needed by our whole race.

II. I now proceed to inquire into the means by which the self-culture just described, may be promoted; and here I know not where to begin. The subject is so extensive, as well as important, that I feel myself unable to do any justice to it, especially in the limits to which I am confined. I beg you to consider me as presenting but hints, and such as have offered themselves with very little research to my own mind.

And, first, the great means of self-culture, that which includes all the rest, is to fasten on this culture as our great end, to determine deliberately and solemnly, that we will make the most and the best of the powers which God has given us. Without this resolute purpose, the best means are worth little, and with it the poorest become mighty. You may see thousands, with every opportunity of improvement which wealth can gather, with teachers, libraries and apparatus, bringing nothing to pass, and others, with few helps, doing wonders; and simply because the latter are in earnest, and the former not. A man in earnest finds means, or, if he cannot find, creates them. A vigorous purpose makes much out of little, breathes power into weak instruments, disarms difficulties, and even turns them into assistances. Every condition has means of progress, if we have spirit enough to use them. Some volumes have recently been published, giving examples or histories of "knowledge acquired under difficulties;" and it is most animating to see in these, what a resolute man can do for himself.—A great idea, like this of self culture, if seized on clearly and vigorously, burns like a living coal in the soul. He who deliberately adopts a great end, has, by this act, half accomplished it, has scaled the chief barrier to success.

One thing is essential to the strong purpose of self-culture now insisted on, namely, faith in the practicableness of this culture. A great object, to awaken resolute choice, must be seen to be within our reach.—The truth, that progress is the very end of our being, must not be received as a tradition, but comprehended and felt as a reality. Our minds are apt to pine and starve, by being imprisoned within what we have already attained A true faith, looking up to something better, catching glimpses of a distant perfection, prophesying to ourselves improvements proportioned to our conscientious labors, gives energy of purpose, gives wings to the soul; and this faith will continually grow, by acquainting ourselves with our own nature, and with the promises of divine help and immortal life which abound in revelation.

Some are discouraged from proposing to themselves improvement, by the false notion, that the study of books, which their situation denies them, is the all important, and only sufficient means. Let such consider, that the grand volumes, of which all our books are transcripts, I mean, nature, revelation, the human soul, and human life, are freely unfolded to every eye. The great sources of wisdom are experience and observation; and these are denied to none. To open and fix our eyes upon what passes without and within us, is the most fruitful study. Books are chiefly useful, as they help us to interpret what we see and experience. When they absorb men, as they sometimes do, and turn them from observation of nature and life, they generate a learned folly, for which the plain sense of the laborer could not be exchanged but at great loss. It deserves attention that the greatest men have been formed without the studies, which at present are thought by many most needful to improvement. Homer, Plato, Demosthenes, never heard the name of chemistry, and knew less of the solar system, than a boy in our common schools. Not that these sciences are unimportant; but the lesson is, that human improvement never wants the means, where the purpose of it is deep and earnest in the soul.

The purpose of self-culture: this is the life and strength of all the methods we use for our own elevation. I reiterate this principle on account of its great importance; and I would add a remark to prevent its misapprehension. When I speak of the purpose of self-culture, I mean, that it should be sincere. In other words, we must make self-culture really and truly our end, or choose it for its own sake, and not merely as a means or instrument of something else. And here I touch a common and very pernicious error. Not a few persons desire to improve themselves only to get property and to rise in the world; but such do not properly choose improvement, but something outward and foreign to themselves; and so low an impulse can produce only a stinted, partial, uncertain growth. A man, as I have said, is to cultivate himself, because he is a man. He is to start with the conviction, that there is something greater within him than in the whole material creation, than in all the worlds which press on the eye and ear; and that inward improvements have a worth and dignity in themselves, quite distinct from the power they give over outward things. Undoubtedly a man is to labor to better his condition, but first to better himself. If he knows no higher use of his mind than to invent and drudge for his body, his case is desperate as far as culture is concerned.

In these remarks, I do not mean to recommend to the laborer indifference to his outward lot. I hold it important, that every man in every class should possess the means of comfort, of health, of neatness in food and apparel, and of occasional retirement and leisure.—These are good in themselves, to be sought for their own sakes, and still more, they are important means of the self-culture for which I am pleading. A clean, comfortable dwelling, with wholesome meals, is no small aid to intellectual and moral progress. A man living in a damp cellar or a garret open to rain and snow, breathing the foul air of a filthy room, and striving without success to appease hunger on scanty and unsavory food, is in danger of abandoning himself to a desperate, selfish recklessness. Improve, then, your lot. Multiply comforts, and still more, get wealth if you can by honorable means, and if it do not cost too much. A true cultivation of the mind is fitted to forward you in your worldly concerns, and you ought to use it for this end. Only, beware, lest this end master you; lest your motives sink as your condition improves; lest you fall victims to the miserable passion of vying with those around you in show, luxury and expense. Cherish a true respect for yourselves. Feel that your nature is worth more than every thing which is foreign to you. He who has not caught a glimpse of his own rational and spiritual being, of something within himself superior to the world and allied to the divinity, wants the true spring of that purpose of self-culture, on which I have insisted as the first of all the means of improvement.

(*To be continued.*)

☞ **Price of advertising, $1 for three insertions of ten lines or less.**

HORTICULTURAL EXHIBITION.—The Horticultural Association of the valley of the Hudson, will hold its second semi-annual meeting in the city of Albany, at the City-Hall, on the 25th day of June inst. Specimens of early fruits, vegetables, flowers and farm and garden productions of every description, will be received by the committee on the spot the day previous, or before 9 o'clock A. M. on the day of exhibition.

This association, composed of practical men, amateurs and gentlemen resident in all the various counties bordering the Hudson, was established in 1838, and aims at the promotion of horticultural improvement, and the taste for rural affairs generally throughout this portion of the country. At the semi-annual meeting, it is desirable that specimens of the fruits and plants of all the various districts and soils of the Hudson valley should be brought together for comparative exhibition; and the association indulges the hope that all persons friendly to the objects in view, will contribute something for this purpose.

The annual election of officers of the association will also be held at Albany, on the 25th of June. The autumnal exhibition of the association will take place in New-York, about the middle of September next.

j1t A. J. DOWNING, *Cor. Sec'y*, Newburgh.

THOROUGH-BRED IMPROVED SHORT-HORN CATTLE.—The subscriber has recently taken charge of the superior stock of Short-Horn Cattle, bred by L. F. Allen, Esq. on his farm at Grand-Island, in the Niagara river. The original stock from which these have been produced, were selected from among the best animals in the country, and several of them were imported direct from England. As a milking stock, the cows of this herd will challenge competition with those of any other in the United States; several of them being extraordinary milkers, and all of them good. For the making of butter, they have been thoroughly tested, and their dairy excellence is remarkable. Their value in this particular, is fully sustained in the grade animals descended from the bulls of this herd, which have, thus far, without exception, proved the best of milkers. This excellence, possessed in reality by no cow so much as in the pure Short-Horn, has been too much neglected by both English and American breeders, and their value as a dairy stock thus underrated.

In addition to the above, are a select herd of DEVON SHORT-HORNS, bred from two choice pure Devon cows, directly descended from the celebrated herd of Mr. Coke, of Holkham, Eng. These beautiful animals are a cross of different degrees with the pure "Improved Short-Horns," without any admixture of common blood; and are as perfect combinations of excellence in color, hardihood, symmetry and size as can be found.

As the present herd, of all ages, has now attained the number desirable to be kept on the farm, (upwards of forty,) a part of them are offered for sale. Application may be made either personally or by letter, (post-paid,) to SAMUEL ALLEN, Esq. at Black-Rock, N. Y. or to the subscriber on the farm, five miles below, at which a ferry connects with the main shore, on the Erie canal. LEWIS G. COLLINS.

Grand-Island, May 15, 1839.

P. S. A few fine grade animals also for sale. jtf.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land; about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

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Beans, white, ... per bush.	2 00.. 2 25	2 00.. 3 00	1 50.. 1 75	1 75
Beef, ...cwt..	8 00.. 8 25	9 25.. 9 50	9 00.. 9 50	10 00..11 50
Bacon, western, ...lb....	10.. 12	12.. 14	10.. 11	11.. 12
Butter, fresh, ...lb....	16.. 20	16.. 25	14.. 16	25.. 50
Cheese, ...lb....	9.. 11	10.. 12	10.. 11	8.. 9
Cotton, best, ...lb....	14.. 18	14.. 20	14.. 19	15.. 17
Flour, best, ...bbl..	7 12.. 8 25	7 50.. 8 62	6 37.. 7 00	6 00.. 7 50
GRAIN—Wheat, ...bush.	1 62.. 1 65	....	1 50.. 1 60	1 55.. 1 60
Rye, ...bush.	98.. 1 00	98.. 1 00	90.. 94	95.. 1 00
Oats, ...bush.	48.. 58	58.. 60	51.. 57	47.. 49
Corn, ...bush.	1 20.. 1 25	1 15.. 1 25	1 06.. 1 07	95.. 1 00
Hams, pork, ...lb....	11.. 12	13.. 15	12.. 13	12.. 13
Pork, in hog, ...cwt..	....	10 00..11 00	7 25.. 8 00	9 00.. 9 50
SEEDS—Red Clover, ...bush.	12 00..13 00	12 00..14 00	13 00..13 50	12 50..13 00
Timothy, ...bush.	2 60.. 2 75	2 50.. 2 75	2 25.. 3 25	.. 3 00
WOOL—Saxony, fleece, ...lb....	55.. 65	57.. 62	58.. 6[illegible]	50.. 55
Merino, ...lb....	45 . 55	52.. 55	52.. 57	45.. 50
1-4 and com. ......lb....	40.. 45	37.. 40	38.. 40	35.. 40
Sheep, ... head,	4 25.. 5 50	5 00.. 6 50	1 00.. 2 87	....
Cows and Calves, ...	33 00..55 00	30 00..62 00	18 00..40 00	35 00..46 00

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

The GREAT Business of our Country is Agriculture,—

1. Because it feeds us, and furnishes the materials for our clothing:
2. Because it gives useful employment to five-sixths of our population:
3. Because it is the primary source of our individual and national wealth:
4. Because it is the nursing mother of our manufactures and commerce—neither could prosper or long exist, without it:
5. Because it is essential to national independence.

And hence it follows, as a corollary, and an implied duty, that we should give to this great branch of national industry, all the light, stimulus and reward which its importance demands.

We possess no statistical data of sufficient extent and accuracy to determine the amount of capital invested in our agriculture, the value of its products, the aggregate of its profits, and its consequent relative importance; yet we can form a tolerable estimate in these matters, by an examination of the agricultural statistics of great Britain, which are furnished to our hand, and by then comparing her condition with our own. The following facts are gathered from a letter of James M'Queen addressed to Lord Melbourne, on the subject of the corn laws.

AGRICULTURAL PROPERTY.

Great-Britain and Ireland.	Rental.	Valne at 30 years purchase.
Land,.....................	£63,395,684	£1,901,870,520
Residencies, proprietors, &c.	5,000,000	150,000,000
Timber, produce yearly, ...	3,000,000	90,000,000
Land tax, 1834, ...	1,203,578	34,107,340
Yearly value of tithes......	4,841,053	145,231,590
Poor rates, perpetual charge, exclusive of rent,........	5,434,890	163,046,700
Mines, minerals & fisheries,	3,994,031	119,820,930
Property of proprietors,....	£85,665,658	£2,604,077,080

PRODUCE OF BRITISH AGRICULTURE.

Grain of all sorts,........................	£134,000,000
Potatoes, ...	20,000,000
Hay, grasses, turnips, straw,............	120,300,000
Natural pasture,........................	63,502,000
Butchers' meat, pigs, poultry, game, rabbits, &c................................	82,283,759
Fisheries, food from,....................	12,000,000
Products of the dairy, vegetables & fruits,	48,500,000
Allowed for consumption by farmers, in some articles not enumerated,.........	2,500,000
Wool, hops, seeds, flax, hemp and timber,	21,479,166
Mines, minerals, coals, &c..............	33,970,276
Total produce of agricultnre,............	£539,036,201
Equal to about $2,000,000,000.	

There are employed in these branches of productive labor, which the writer has classed all under agriculture, eighteen thousand families, which, at five and a half persons to each family, gives about ten millions of persons, or five million five hundred thousand effective men and women.

SUMMARY OF POWER EMPLOYED IN AGRICULTURE.

Direct human power, men and women,..	5,500,000
Horses, 1,609,176, each equal to 6 men,..	9,655,068
Oxen, 500,000, each equal to 5 men,.....	2,500,000
Total effective power direct,......	17,655,000

CHARGES ON AGRICULTURE.

On fixed capital, lands, tithes, land tax, mines, fisheries, farm stock, &c........................	£108,993,468
Farm wages, cattle feed, &c.	280,838,628
Tithes, church and highway rates, and labors in mines and fisheries,............	42,228,748
Carried forward,.................	£432,060,844
Brought forward,.................	£432,060,844
Manures, bone dust, lime, wastage and replacing live stock, dead stock, &c......	116,915,280
Charges on agriculture, ...	£548,976,104
Deduct dead stock,.................	21,560,000
Total charges on agriculture, ...	£527,416,104

SUMMARY—AGRICULTURE.

Total produce, ...	£539,036,201
Total charges, rent at 3 per cent,......	527,416,104
Farmers apparent profit,.......	£11,620,097

The poor rates are paid as follows:

Property in land, and tax on houses and occupiers,.........................	£8,099,414
All other classes of property,............	7,226,406
Total,.........................	£15,325,720
Deduct charges and allowances,...	780,000
Nett produce, ...	£14,545,580

MANUFACTURES.

The capital vested in, and charges on, the manufactures of the United Kingdom, are stated to amount, in the aggregate, to......................	£205,773,872
And their total produce per annum, to....	259,412,709

The total number of persons engaged in manufactures is stated at 8,200,000, one-half of which are effective men. These added to the steam power employed, give an aggregate power equal to 4,500,000 effective men.—With the addition that has recently been made to manufactures, the writer states the comparison as below.

	Capital.	*Produce.*
Agriculture,.........	£3,258,910,810	£539,036,201
Manufactures,.......	217,773,872	271,416,709

or 15 to 1 in capital, and double in produce, with this further superiority, that in the agricultural capital it is all fixed and real. Agriculture expends nothing abroad, while manufactures pay to foreigners £20,000,000 annually for raw materials.

COMMERCE.

The total exports for 1836, amounted,

To foreign countries, to	£37,833,000
To her colonies, to..........	15,532,566
	£53,368,566

Of these £12,425,605 (about $54,000,000,) were to the United States, for which she received principally our public stocks in payment.

It appears from the preceding data, that the capital invested in British agriculture is fifteen times as great as that which is invested in British manufactures, although the latter excel in magnitude the manufactures of any other nation; that British agriculture pays most of the burthens of the government, supports a privileged clergy, and contributes more than thirty millions of dollars annually to her poor rates;—that its products exceed in value, *more than fourteen times* the whole amount of her exports to foreign countries, although her commerce exceeds in that of any other nation;—and that her agricultural capital is fixed, and abiding as her islands, while the capital vested in her commerce and manufactures is subject to many contingencies, which may impair or destroy it.

Now let us apply these facts to our own condition.—We will assume the population of both countries to be the same. Ten millions or one-half of her population are assigned to agriculture. With the collateral branches, as mines, fisheries, &c. which are classed under agriculture by Mr. McQueen, fifteen millions of our population may be assigned to this class. And the presumption is, that our agricultural capital and agricultural products, overbalance the capital and products of manufactures and commerce, as much, nay more, than they do in Great-Britain. From this view of the subject, it will be seen, that agriculture is really the GREAT business of this nation; that it is worthy of the most liberal patronage of our governments, state and national; that it ought to be enlightened, by a better education to the agricultural class; that it ought to be encouraged and patronized, by public bounties and rewards; that it ought to be respected, for its highly salutary influence upon our republican institutions, and upon the good order of society; and finally, that it ought to be honored, at least according to its intrinsic merits, that it may be more followed, by men who have minds, as well as hands, to accelerate its improvement.

We mean no disrespect, by these remarks, to the merchant or the manufacturer. We are not in the way of believing, that by attempting to raise one class, we sink the other classes. Manufactures and commerce are the hands and the legs, while agriculture is the body. They are reciprocally useful to each other. The body may sustain life without the limbs, but the limbs will perish without the aliment which they derive from the body. But we believe the other classes have numerous and efficient advocates, who are able to take care, and who do take care of their interests; and that agriculture demeans herself, and compromits the best interests of the state, by her modest, passive, degrading acquiescense in total neglect. We wish to raise the agriculturists of our country to the condition which belongs to them—to that of intelligent, prosperous, high principled men—who know their rights and their duties, and will fearlessly assert the one and faithfully perform the other. Then will our agriculture be made to double and treble its products—to compete with the agriculture of other countries, and to supply all our wants; then will party interest be made to bend to the public good, and riot and outrage be made to give place to law and good order; then shall we truly become an independent nation, rich in all the elements of human happiness.—Even if we fail in all these fond anticipations, we can lose nothing by making the effort. We must be gainers in a less or greater degree.

Lawyers and Farmers.

We perceive by the news journals, that there were about one hundred attorneys and counsellors graduated or licensed, at the May term of the Supreme Court.—Assuming this to be the average number graduated at each term, the terms being four in a year, and counting only the number of attorneys, the annual accession to this corps must be two hundred! And these two hundred lawyers are to live and grow rich—how? By any branch of productive industry? by adding to the wealth, the quiet and the substantial enjoyments of society? We fear not. They must live by their profession, honestly if they can—but they *must* live; and with the law-making, law-dispensing, and fee-regulating powers virtually in their own hands, is it to be wondered, that litigation increases, that the delays of the law are multiplied, and the expenses of justice augmented? If one lawyer drains from the earnings of labor, two or three thousand dollars a year, what amount of these earnings will it require to support, in legal style, ten thousand lawyers? The answer, by the rule of three, would be twenty to thirty millions of dollars. Verily we may have too much of a good thing. Geo. Stevens, in his ingenious lecture upon heads, compares the law to fire or water,—a very good servant, but a very hard master; very useful and pleasant in moderate quantities, but extremely inconvenient and mischievous when in excess. We have seen in the print shops, a carricature, very illustrative of George Stevens' comparison—a portly, well dressed gentleman *going to law*—and a meagre, ragged skeleton of a man who *had been to law.*

We are by no means disposed to fault the young gentlemen who are thus crowding to the temple of the law, for fame and fortune, however we may lament the fatuity which impels them on. Law is the great avenue to office, to wealth, to distinction, to fashion—by common consent—and the fond mistaken parents are generally as sanguine in their anticipations of honor and distinction as the sons. There are many distinguished and eminent lawyers, useful and worthy members of society, and there are a great many who are quite otherwise, whose *wants*, rather than their *wishes*, lead very much to the increase of litigation—but who might have been useful members of the commonwealth, had they chosen a different and more suitable sphere of action.

Now, if agriculture held the rank which legitimately belongs to it in the social scale—if it had schools of instruction combining the useful with the agreeable, it is not improbable, that one-half of those who are annually crowding and burthening the legal profession, would become useful cultivators of the soil. What a vast improvement would this effect, in a few years, in the condition of our state—in its agriculture, the basis of its wealth, in the intellectual condition of its inhabitants, and in their moral and economical habits. Such schools, should they ever be established among us, either by the wisdom of the legislature, or the well directed efforts of individual patriotism, would soon annually scatter over the state, hundreds of young men, distinguished alike for strength of mind, vigor of constitution, and exemplary habits. These would carry with them a practical knowledge of the best modes of farming, the best implements, the best seeds, the best fruits, and the best breeds of animals; and each in his future sphere of action, would become a living proof, to those around him, of the practicability of improving our agriculture, and an example to them of good habits and good management. Wherever we find a good farmer, we see the benefits of his example in most of those around him, which diminishes as we recede. Were the good farmers multiplied at the rate of four or eight hundred a year, as they might be through the influence of schools of practical and scientific agriculture, the advantages to the state would be incalculably great.

We take this occasion to apologize for the caption—"*Privileged Classes*"—which was inadvertently placed over an editorial article in our May number, as liable to a construction which we did not intend to give it.—We are not agrarian in our opinions. We consider all professions open to free competition, and as useful, when limited in their sphere and numbers. If there is a privileged class in our community, it is the intelligent, independent tillers of the soil; not that they are privileged by law, or by popular favor—but that they are privileged by their Creator, in the enjoyment of a greater share of temporal blessings, the natural result of sober, industrious and contented habits—than perhaps any other class in the community. Our wish is to see them intelligent and independent, that they may enjoy the reward, and the state the benefit. We ask for them no exclusive public encouragement or bounty; but merely some of the crumbs which fall from the public table, and which have heretofore, at least in some instances, been lavishly, if not wickedly, squandered upon far less worthy objects. We wish to see agriculture brought forward from the shade, from the back ground, where it has been too long obscured and degraded by ignorance and servile apathy—and to see the public bounty, like the sun and the rains, which fructify the earth and cause it to bring forth food for man, dispensed alike to all lasses of the community.

Geological Report.

We resume our notice of this report, and of Dr. Beck's communication.

Iron—The northern and southern sections of the state abound in this metal.

> "While at the north we have the immense beds of the magnetic oxide, at Newcomb, in Essex county, one of which is described by Mr. Hall, as being more than a mile in length, and more than five hundred feet in breadth, besides others of less magnitude in various parts of the same county, and in those of Clinton and Franklin, and the beds of specular iron ore in St. Lawrence; we have at the south the vast deposites of magnetic oxide in Orange county, and of hematite in the county of Dutchess."

Iron ores also occur in Columbia, Rockland, Richmond and Washington.

Manganese is found in Lewis, Essex, Westchester, Columbia and Dutchess, and especially in the two latter counties, the quantities that could be obtained, at very little expense, are estimated by Prof. Mather, at 50,000 tons, worth, if carefully prepared, $20 per ton, or $1,000,000. The oxide of manganese is extensively used in the preparation of chlorine for bleaching, and in the manufacture of glass.

Lead is found in Columbia, Lewis, St. Lawrence, Ulster and Sullivan.

The next communication in the report, is from T. A. Conrad, on the Palæontological Department of the survey. As this would interest but few of our readers, we pass to

PROF. MATHER'S REPORT,

On the economical geology of New-York, Westchester, Putnam, Rockland and Orange, comprising the first district, with two supplemental reports, from Drs. Horton and Gale, on the descriptive geology of Orange and New-York. The counties lying east of the Hudson, and those on the west border, are considered separately.

The sources of mineral riches in this district are very great, and are being made subservient to profit, and their advantages are susceptible of very great extension.

The counties of Rockland and Orange are classed under four divisions, in regard to aspect and agricultural features, and mineral products. "They are the mountainous region called the Highlands, and composed of primitive rocks; the slate and graywacke regions of Orange county, the red sandstone and the trap of Rockland county." On the eastern shore of the Hudson, the soil is more similar, being "derived from the disintegration of the contiguous rocks, and of the pebbles and boulders of materials transported from a greater or less distance from the N. N. W. by some natural causes." They contain all the *mineral* elements of fertility; while the extensive salt marshes and mud flats, on the coast, and the bog meadows of the interior, furnish abundance of the *vegetable* elements—so that it would seem, that if those elements were duly mixed and managed, the soil might be rendered highly productive. The same remark will apply to many districts of our country.—The admixture of earthy matters, which, where wanted, are generally found in contiguity with each other; the vegetable matters which abound in our swamps and marshes; the marl, lime and gypsum which are scattered over our state, for the transporting of which we have every facility; and the animal manures of our farm stock, afford abundant materials for increasing and perpetuating the fertility and productiveness of the soil, and of multiplying the comforts and enjoyments of our population. We lack only the knowledge and the industry necessary properly to combine and to develop the elements of wealth and happiness which are scattered around us, designed for our use.

Independent of the great means which these counties afford, of increasing and perpetuating the fertility of the soil, their other mineral sources of wealth are far greater, we believe, than our readers are aware of.—We will briefly notice some of the most prominent. And first,

Peat—Great tracts of this are found in the eastern counties, which are coming into use, and may be mostly employed as fuel—that on the borders of the river being more fibrous and inferior to that which occurs in the interior. The Professor estimates the quantity in the three eastern counties, New-York, Westchester and Putnam, at 2,000,000 of cords on the border of the river, and 1,160,000 cords in the interior. Considered in reference to its fertilizing properties in the soil, the value of this vegetable material will be immense. The drowned land tract, in Orange, which comprises some thousand acres, is a bed of peat from three feet to several yards in depth, the number of cords not estimated.—This has proved, on trial, a good fuel. The total cords of peat, however, in Orange and Rockland, is put down at 26,140,000 cords, or 72,000,000 chaldrons. It costs, for digging, curing and marketing, $1.25 per chaldron, and sells in New-York, at $3, leaving $1.75 profit to the proprietor.

Clay is extensively employed as a means of creating wealth, in the manufacture of brick. The extent of this business will appear from the following estimate of the number annually made in each county.

In Westchester,	38,700,000
In Putnam,	3,200,000
In Rockland,	12,000,000
In Orange,	9,760,000
	63,660,000

There is employed in this business a vast capital, and a great number of laborers, both in the manufacture and transportation. At $5 per thousand, the income from this manufacture would amount to $318,300 per annum. And if we add to this estimate, the bricks manufactured in Dutchess, Columbia, Rensselaer, Albany, Greene and Ulster, the amount earned in this branch of industry will exceed a million of dollars per annum.

The clays of these counties are also used in coarse pottery. They are used, too, to a limited extent, to improve the texture and quality of light lands; a use to which they are admirably adapted as we have found by experience, when they contain, as the blue and gray kinds generally do, a portion of carbonate of lime.

Marl has not yet been found in any considerable quantities, either in the counties of New-York, Westchester or Putnam; but it is found in almost every town in the county of Orange, where it either lies naked, or is covered by water, or bog earth or peat. In the few experiments which have been made of this material, as a fertilizer of the soil, we are sorry to see the professor remark, its effects have generally been unfavorable.—His impression is, that too much has been applied, whereby vegetation has been as much prejudiced as if too much quick lime had been applied. A case is cited where marl was applied twenty-nine years ago. Nothing would grow on the field for many years; but latterly corn and wheat have grown well, and yielded bountifully. Too much calcareous matter is as prejudicial to vegetation, as too much sand or too much clay. There are entire districts rendered infertile in the south, by the too great portion of carbonate of lime with which the soil abounds. Two per cent of the tillable stratum, of calcareous earth, suffices for all the useful purposes of vegetation, though twelve per cent, we believe, has not proved hurtful. Soils may naturally contain enough of this earth. Marls differ in the quantity of calcareous matter which they contain, and there is often blended in their composition matters that are prejudicial to healthful vegetation. It is prudent, therefore, to experiment with them on a small scale, till their properties, and those of the soil, are well ascertained, and then to apply them on a larger scale, in the proportions, and in the manner, found to be most serviceable. It would be well to experiment with them as a top dressing upon meadows or pastures, by which they would be deprived of their deleterious properties, and thereby become fitted to improve the soil, after the lapse of a year or years, when they are ploughed under. There is not a doubt but marls are calculated to impart fertility to all soils which are naturally deficient in calcareous matters. We want their analysis, and that of the soils, to know where and how, and in what quantities, to apply them to advantage.

Gypsum.—Although none has been found in this district, the annual amount paid for it in Orange alone, is estimated to cost more than $41,000.

Limestone abounds in all the counties of this district, and is extensively wrought as an article of commerce. The Professor is in the habit of estimating the profit of the lime and other stone quarries, provided the material was all marketed. In this way he states the nett value of a limestone quarry in Westchester, estimating it at $1.50 per barrel, at about $34,000. This is something in the manner of the milk-maid who counted her chickens before they were hatched, or of the speculator in western lands, who foots his profits before he has sold out, or got his pay. The lime of these counties, however, without looking to their ultimate value, affords the material for a profitable commerce, as a building material, and which will no doubt come into use extensively as a fertilizer of the soil, for which purpose it is already partially employed.

The new mode of burning limestone, with the aid of anthracite coal, and in perpetual kilns, as already noticed, from Dr. Beck's report, is one of great economy, and which promises ultimately to reduce the price of this necessary article, especially upon navigable waters. The expense of quarrying the stone, at one of the localities, is estimated at nine cents per barrel, that of the coal at 25 cents per barrel, and the price of the lime in market at $1.50; thus giving, after deducting every expense, including teams, attendance, freight, casks and cooperage, a nett profit of 53 cents per barrel. The amount of lime burnt in Orange county last year, is estimated by Dr. Horton, at 182,650 bushels.

Granite, and much of good quality as a building material, and convenient for water transportation, is found in all the counties of this geological district. Several quarries are already opened and profitably wrought, and many localities of great extent, are pointed out, and estimated upon, by the geologist.

> "It is estimated," says the report, "that several millions of dollars are annually paid out of the city of New-York, and the towns on the Hudson river, for building stone, brought from beyond the limits of the state, while we have within our own boundaries, and near our markets, inexhaustible supplies, of equally good quality, which can be quarried, shipped and hauled, at less expense than the stone we now import from Maine, New-Hampshire, Massachusetts and Connecticut. The granites of the Hudson river *must*, then, soon be wrought and sent to market, and the quarries will become very valuable."

Gneis abounds in most parts of this district. Several quarries are noticed, lying on the banks of and contiguous to the Hudson river, and many other localities are indicated. This stone is extensively employed in the Croton aqueduct, in the construction of bridges, aqueducts, &c.

We omit a notice of other rocks, and of the metallic ores, which are found in this district, which are numerous, and the quantity, particularly of iron, very extensive—one locality, or vein, being computed to contain 5,600,000 tons of iron. The red sand stone is worked to a great extent in Rockland, where there are thirty-one quarries wrought, and which yielded last year 62,000 feet of slabs, valued, with the rubble, at $18,987.

Silk Companies.

We have lately had sent to us, a prospectus of the New-York and Long-Island Silk Growing and Manufacturing Company, capital $60,000. We are in the main opposed to all joint stock companies, for any object that comes within the reach of individual means and enterprise, and particularly such as are likely to conflict with household industry, like those which associate for the culture of the mulberry and the tending of silk worms. This we consider legitimately a family business, and one which ought to be encouraged as such. The organization of joint stock companies for the carrying on of a business which the most humble farmer has the means of profitably conducting, leads to the impression, that great capital or great skill is required in the business, and that individuals cannot compete with companies; and thereby deters hundreds and thousands from entering into a business which could be managed by them with great pecuniary advantage. We do not think that corporate bodies should be created merely for the individual profit of the stockholders—but that the public interest—the interest of the many, is the only justifiable ground for granting corporate privileges.

But the New-York and Long-Island company, if we are rightly apprised of their plan, forms an exception to our remarks. The company, we understand, have purchased a farm on Long Island, three miles from N. York, which they have planted, and intend to plant, with mulberry trees, for the purpose of manufacturing silk; and they design to have the business of picking the leaves, tending the worms, &c. managed by poor widows and fatherless children from the great city.—Plain cheap cottages are to be erected for these widows, with small gardens attached, to occupy their leisure time, and furnish subsistence. In this way, capital will be usefully employed, to promote industry in the young, afford profitable employment to the indigent, profit to the stockholders, and benefit to the public at large.—Under this view of the subject, we commend this stock to the notice of capitalists, as affording a safe, meritorious, and we think profitable investment.

Mr. Colman's Second Report.

The second report of Mr. Colman, on the agriculture of Massachusetts, is principally devoted to a survey of the county of Berkshire, which lies upon the eastern border of our state, though it embraces much other incidental and interesting matter. As the report comprises 200 8vo. pages, we are necessarily restricted to an outline of its most important matter.

Berkshire county is more than 50 miles long, and has an average breadth of about 20 miles, and a population of nearly 40,000. About one-half of the county is improved, say 207,000 acres, of which 117,000 acres are pasturage, 27,000 tillage, and the residue in meadow or mowing. It is of course a grazing district; its dairies are extensive, and its flocks of sheep numerous.

The surface of the county is broken and mountainous; but it is everywhere intersected by rich valleys, and fine streams of water, which afford numerous mill sites, which are extensively improved for hydraulic purposes. The soil in the valleys is generally rich and productive, and the hills and mountains yield excellent grass and pasture. The inhabitants are intelligent, enterprising and prosperous. The crops are those usually cultivated in our latitude; and the produce of the soil is generally consumed by its population—the products of the dairy, cattle, and manufactured goods forming its principal articles of export.

The return of crops does not generally indicate a high state of tillage husbandry, though in some cases the yield is bountiful. Oats, potatoes and ruta baga seem to make the best returns, though corn has, in many cases, given a great crop, and in one case as high as 110 bushels. Some crops of potatoes have gone to 500 and 560 bushels, and the ruta baga as high as 1,200 or 1,300 bushels. But the average returns are less than half of these quantities. These great products serve, however, to show what can be done, and what will more generally be done, under an improved state of husbandry, when bad farmers can be persuaded, or taught, to imitate the good ones.

The common rotation is stated to be, corn or potatoes, generally manured; then oats; third crop wheat or other grain, with grass seeds. The value of clover does not seem to be appreciated, as an alternating crop, or as a fertilizer of the soil, as we do not find it mentioned under rotation of crops. We would barely remark, that three exhausting crops in succession is not considered an indication of good husbandry. Twenty-three pages of the report are principally taken up with statements of expenses and profits of crops. The footings indicate, that the profit has been greatest on ruta baga, and that potatoes and corn are next in value; and generally, the profit is in proportion to the expense—the greatest outlay making the most profitable return. A case is quoted, where 40 bushels of wheat were taken from an acre, which had been planted, the preceding year, with corn upon greensward; and the great product is ascribed to the fact, that the ploughing for the wheat was superficial, leaving the decomposing sod still below, where the roots of the wheat would want and seek for it, and where it would escape the wasting influence of the sun and atmosphere. This mode of economizing the vegetable matter of the sod was strongly inculcated by the late John Lorrain, and has been frequently recommended in the Cultivator.

A practice is mentioned, of alternating corn and potatoes in the same row. The corn is planted 3 feet 6 inches apart, and a hill of potatoes between every two hills of corn. In this way the cultivator thinks he gets 150 bushels of potatoes on an acre, without materially diminishing his corn crop. We are inclined to think, that the better practice is to alternate corn and potato rows, two of each, or one of potatoes and two of corn. The corn is undoubtedly benefitted by the exposure, which is here had, to light, heat and air, while the shade of the corn does but little prejudice to the potatoe crop. Such was the practice of Lorrain, and such has been the practice of others, with undoubted advantage.

DAIRY HUSBANDRY.

This is a great dairy county, the quantity of butter and cheese made is large, and the quality good. The annual keep of a cow is estimated at about $20, and her products, in calf, cheese, butter and pork, is from 30 to 50 dollars, leaving a profit for attention of 15 to 30 dollars, according to the goodness of the cow and the goodness of her keep. Extra feed, judiciously dispensed, is always profitably applied to milch cows, as the extra food is almost wholly converted into milk. Thus a herd of 20 cows gives to the dairyman a mean average profit of at least $400. Three acres of pasture are allowed to a cow. On 22 farms in the town of Cheshire, there are kept 414 cows, which gave in 1837–8 the following produce:

New milk cheese, ...	300,000 lbs.	
Skim do	11,050 "	
	————	311,000 lbs.
Butter sold, ...		19,050 "

We quote the case of an individual farmer in this town, as evidence of the profits of dairy husbandry, and as a notable example of the reward of persevering and honest industry, and of rural comfort and independence.

"This farmer," says the report, "has now a dairy of 24 cows, and they produce a cheese per day, weighing about 100 lbs. Supposing that it requires but a gallon of milk to produce one pound of cheese, this would give 400 quarts of milk per day, or at the rate of 16⅔ to a cow. These cows are all of native stock; most of them raised by himself. His average product of new milk cheese to a cow, in a season, is perhaps between 500 and 600 lbs. Last year the actual yield was 598 lbs. to a cow. Of his 24 cows last year, two were heifers of two years old. Four years since, he was the owner of a cow, whose milk, in the best season, amounted, by actual weight, to 70 lbs. a day. During the time of her greatest yield, she was fed with four pails of cheese whey, and some rye meal. She was of native stock. This farmer has a heifer from her, which gives 60 lbs. of milk per day. He prefers heifers to 'come in' at two years old. Their milking properties are in this way improved. * * *

"The establishment of this farmer," continues the report, "is substantial and independent. As far as the common comforts of life are concerned, little more seems to be desired. Good air, good water, plenty of bread, plenty of fuel, plain and substantial clothing made by the hands of his own family, and the product in a great measure of their own flocks and fields; an estate which he can call his own with truth; because it has been purchased not by fraudulent speculation upon other people's earnings, but by the healthful toil of his own muscles, and the sweat of his own brow; luxuriant pastures filled with those beneficent animals, who are nourished by his kindness, and settle their bills in the most honorable manner every night and morning; and a clean dairy room of ample dimensions, and exemplary neatness, with its numerous shelves, loaded with the richest produce, and speaking as well for the in door as the out door management; these features combined in this picture present one of those beautiful examples of rural independence, and the bountiful rewards with which Providence is pleased to crown industry, frugality and good management, with which I am happy to say the county of Berkshire is everywhere sprinkled over, even on its high mountain summits, as well as on its fertile alluvions, and its peaceful and secluded valleys. The independent proprietor of this establishment is now sixty-six years old. At the age of nineteen he was not the owner of a dollar. He now admits himself worth thirty thousand dollars; and all this, with the exception of less than fifteen hundred dollars, is the produce of his own farming industry, as he has never engaged in any speculation whatever. A higher good than all of this is found, in the fact which he added with an honest pride and enviable pleasure, that he had brought up eight children in the habits of honest industry; and not one of them had ever disgraced his parents.

"The standard of dollars and cents is a very imperfect standard, by which to measure the prosperity of such a man. It is a prosperity flowing from deeper, purer and more enduring sources; from a competency for the evening of life, earned by honest labor; a mind unembarrassed by the fear of want and the vexatious caprices of trade and speculation; and a grateful sense of the kindness of that just and beneficent Providence, whose blessings have rendered his peaceful and unpretending labors successful."

The North Devon cattle are said to prevail generally throughout New-England, though in the main, we suspect they have degenerated from want of attention in breeding from select animals, and by crossing with the long-horns. Some of the cows possess uncommon properties for milk, and if these were carefully crossed with approved bulls of a good milk breed, we have little doubt, but the progeny would soon be in high reputation, as dairy stock, rivalling, perhaps, for this purpose, any breed which we are importing at vast expense from the other side of the Atlantic. Some of the cows noted in the report, have given from 200 to 300 lbs. and one as high as 425 lbs. of butter in a year. Such a cow is worth more, for the profits of the dairy, than ten poor milkers, and her stock ought to be sedulously preserved.

The commissioner here introduces a notice of Mr Jaques' Cream-Pot breed, an eminent farmer and breeder, at the Ten Hill stock farm, near Boston. Mr. Jaques obtained a remarkable cow, by a cross of the Durham upon native breed, which gave him nine pounds of butter in three days; and from this beginning has sprung his *Cream-Pot* breed, the cream of some of which gives 80 per cent of butter. Mr. J. has 40 cows and heifers, and 10 bulls of this breed. Their good properties do not consist so much in the quantity of milk they yield, as in its richness. We have found that while the milk of one of our cows gave but nine per cent of cream, the milk of another, at the same time, and upon the same feed, gave fifteen per cent of cream. The *quality* of a cow's milk does not receive that attention which it merits, in our estimate of dairy cows. We have half a dozen cows, which we esteem superior milkers, and superior in form and appearance, which we have bred from an individual cow, and put to good bulls. If farmers would carefully breed from the best milkers, they would be able to make within themselves, in a few years, a vast improvement in their dairy stock.

The properties to be sought for in neat cattle, differ somewhat according to the purpose for which they are wanted—whether for the pail, the draft, or fattening. And these three properties are very seldom, if ever, found united in a single individual. A cow that takes on flesh rapidly, when in milk, cannot be expected to be a deep milker, unless she is very highly fed. Her food cannot be expected to be converted into both meat and milk; and as the disposition to the one or the other preponderates, so the other must decline. The Herefords, a branch of the Devons, which combine much of the quickness of the Devons in the yoke, with the size and strength of the long horns, and which very much resemble, in size and strength the best working oxen in New-England, and of Madison and other hilly counties of our state, are considered light milkers; and yet they afford probably the best working oxen, and if not the most, are certainly a very profitable stock to feed for the butcher. Of the seven principal prizes awarded at the last Smithfield (London) show of fat cattle, the Herefords carried off five prizes, the Devons one and the short horns one. The first animals of pure Herefords which have fallen under our notice, were a young bull and heifer lately imported, and now owned by our neighbor C. N. Bement.

For the dairy, a general preference is given, says the commissioner, to the common native stock of the country, in which the Devon blood predominates; but such are not preferred as breeders of other but dairy stock. Mr. Coleman quotes from English authority the following statement of the proportion of butter to milk, drawn promiscuously from six different short horns; the milk was one quart in each case.

No. 1 gave	3oz.	6dwt.	No. 4,	1oz.	10dwt.
2 "	1 "	6 "	5,	1 "	14 "
3 "	1 "	12 "	6,	1 "	6 "

Thus showing, that one quart of one cow's milk gave nearly as much butter as three quarts of another cow's milk. The lactometer affords a ready means of determining the relative proportions of cream afforded by the different cows: but then, to show an accurate result, the milk should all be taken alike, that is, from the first or last that is drawn from the udder at a milking,—for the two samples differ very greatly in their quality—the first drawn being very deficient in butricious properties, sometimes one or two hundred per cent, to the strippings. The lactometer is a glass tube, sold by seedsmen, and sometimes by apothecaries, graduated into 100 parts. The milk is put into this, and having had time to rise, the per cent of cream upon the top is ascertained by holding the glass up to the light.

Mr. Colman gives one case in which an experiment was made in soiling a small herd of cows, the cows were kept wholly in the stable, and fed wholly with green cut food. The result was, three gave 389 pounds of butter in 13 weeks, lacking one of being 30 lbs. a week, or 10 pounds a week to each cow. We think a half-soiling system, which affords the cows a range and exercise in the day time, and extra green food at night, is the preferable mode. When the pasture is short or deficient, an extra feed of cut grass at night, adds greatly to the milk, and is a very profitable mode of appropriating a lucern or clover field. We have in this way kept half a dozen cows upon an acre of lucern most of the season. The cows had a run of four or five acres of pasture, and were fed night and morning with as much cut lucern as they would eat up clean. When the acre had been cut over, the ground first cut was in condition for a second cutting.

The commissioner recommends more attention to the raising of calves, by dairy farmers, not only to perpetuate and improve the dairy breed, but as a matter of pecuniary profit; and he cites cases of prime heifers, two years old, bringing with their first calf thirty-five dollars. But the commissioner recommends that which, if commendable, we doubt if it will be carried into effect by farmers generally, viz: that it is best to raise calves in the stall or yard the first season, where they are to be fed with hay, carrots and potatoes cut fine. These roots are scarce at the season of rearing calves, the expense of rearing is increased, and besides, we think the animals are deprived of the exercise of their natural habits—free exercise in the open air, and feeding upon the fresh herbage, destined to become their principal food. Good pasture will keep early calves in a growing healthy condition after they are 12 or 16 weeks old; and we should consider it better, if it is designed to make a superior animal, to give extra feed with the natural food, than to depend wholly upon what may be termed artificial.

In dairy management, the report recommends perfect cleanliness, a pure air in the milk-room, and the churning of cream while fresh, as having a great influence in the quality of the product. Two important suggestions are here omitted; the first is, that after the preceding requisites have been duly observed, still that the quality of the butter will depend much upon the temperature of the cream when submitted to the operation of churning. It has been demonstrated by repeated experiments, that the cream ought to be of a temperature between 56 and 62° of Fahrenheit; that if it is below this, the process of churning becomes more tedious, and the butter of but second quality; and that, as the temperature rises above 62, the butter becomes white, frothy and inferior. In the second place, unless the butter milk is completely extracted, and the salt dissolved and incorporated with the butter, before it is packed down, and air afterwards excluded from the mass, it will not *keep* good, though it be good when laid down.

Mr. Colman recommends the cheese shelves figured and described in our second volume, which are suspended on a horizontal central bar, and upon which many cheeses may be turned by a boy in one operation.

The swine of Berkshire are not highly recommended; although pork is one of the staple products of a dairy district. The Byfield, China, Mocho, grass breed, and Berkshire have been partially introduced. Mr. C. says the Berkshire "is the best hog we have among us." One hog is generally kept to four cows. A shoat weighing 70 lbs. in the spring is made to weigh 250 lbs. in the fall, upon the slops of the dairy of four cows.

A successful pork fatter is noticed whose process of fattening is described as follows:

"As soon as the pasture will afford a good bite of grass, he turns them in where they can have plenty of clover and water. He is careful to salt them once a week, if the season is wet; and changes them from one pasture to another, as he does sheep or other stock, which is of much importance during the summer. As soon as he gathers his harvest, he gives them the stubbles. When these are well gleaned, he gives them corn cut up by the ground for a few days, as it is dangerous to keep them closely shut up and feed them highly in the beginning; having no exercise it tends to produce the blind staggers. In order to remedy this, they must be put upon thin food and have as much salt as they will eat. He commences steaming potatoes for his hogs the first of October, his ruta baga not being then matured; he mashes them fine; puts nothing with them but the sour milk from six cows, and four quarts of salt to a box of 28 bushels. This feed he continues three weeks. Afterwards he commences steaming ruta baga, and continues this feed until the first of December, which is five weeks. He puts with the ruta baga, after being mashed fine, four quarts of salt, and three bushels of oats and peas ground together, into a box of 28 bushels. On this feed they do extremely well. This feed he continues till the 25th December, and then finishes off with meal and corn."

In this way he makes his hogs, the age is not mentioned, average over 300 lbs. There are three facts worth noticing in this mode of fattening swine, in general, we believe, not sufficiently regarded or practised, and which evidently add materially to the profits of the business.

1. Good clover pasture, and a change of pasture, incontestibly beneficial to all other farm stock.
2. A constant and plentiful supply of salt—as essential to the digestive functions and health of the brute as it is to the health and appetite of man. And,
3. The economy of fattening upon roots. Potatoes, to be sure, have long been in use as hog feed; but the use of ruta baga can hardly be said to have commenced with us. These, beets, carrots and parsnips, are believed to be all as nutritious, and as profitably cultivated for swine, as the potato. Our pork may be almost wholly made from the slops of the dairy, clover, roots and apples, with far greater economy than it can be made from corn or other grain; and the more improved mode is now, to give corn and grain only during the last weeks of the fattening process.

We intend to resume the review of this report in our next.

Criteria of Dairy Stock.

We copy from the Farmers' Magazine, the following scale of points of Jersey dairy stock, which has special reference *to the producing butter and milk*, but is not designed to apply to cattle for draught or fatting.

SCALE OF POINTS FOR BULLS.	*Points.*
Art. I. Purity of breed on male and female sides, reputed for having produced rich and yellow butter,	4
II. Head fine and tapering, cheek small, muzzle fine, and encircled with white, nostril high and open, horns polished, crumpled, not too thick at the base, and tapering, tippled with black, ears small, of an orange colour within, eye full and lively,	8
III. Neck fine, and lightly placed on the shoulders, chest broad, barrel hooped and deep, well ribbed home to the hips,	3
IV. Back straight from the wethers to the setting on of the tail, at right angles to the tail. Tail fine, hanging two inches below the hock,	3
V. Hide thin and moveable, mellow, well covered with a fine soft hair of a good colour,	3
VI. Fore arm large and powerful, legs short and straight, swelling and full above the knee, and fine below it,	2
VII. Hind quarters, from the huckle to the point of the rump, long and well filled up; the legs not to cross behind in walking,	2
VIII. Growth,	1
IX. General appearance,	2
Perfection,	28

No prize to be awarded to a bull having less than 20 points.

SCALE OF POINTS FOR COWS AND HEIFERS.	
Art. I. Breed, on male and female sides, reputed for producing rich and yellow butter,	4
II. Head small, fine and tapering, eye full and lively, muzzle fine and encircled with white, horns polished and a little crumpled, tippled with black, ears small, of an orange colour within,	8
III. Back straight from the wethers to the setting on of the tail, chest deep and nearly of a line with the belly,	2
IV. Hide thin, moveable, but not too loose, well covered with fine and short hair of good colour,	2
V. Barrel hooped and deep, well ribbed home, having but little space between the ribs and hips, tail fine, hanging two inches below the hock,	5
VI. Fore legs straight and fine, thighs full and long, close together when viewed from behind; hind legs short, and bones rather fine; hoof small, hind legs not to cross in walking,	2
VII. Udder full, well up behind; teats square and largely placed, being wide apart; milk veins large and swelling,	4
VIII. Growth,	1
IX. General appearance,	2
Perfection for cows,	30

Two points shall be deducted for the number required for the perfection of heifers, as their udders and milk veins cannot be fully disclosed.

No prize shall be awarded to cows having less than 21, or to heifers having less than 19 points.

Portable Manures.

This is a term given in England to what we call *concentrated manures*, that is, bone dust, horn shavings, poudrette, urette, &c. They are probably there called *portable*, for the reason, that they may be transported a distance at one-tenth, or even one-twentieth of the expense that their equivalent of stable manure could be transported. Hence they are in great demand, in Great-Britain; and the quantity used may be judged of from the fact, that that country is now paying annually, £200,000 to foreign countries, equal to $888,000, for bones to fertilize her lands; while the high price of the article has led to the most careful collection of them in every part of the United Kingdom. In 1827, Mr. Huskinson gave it as his opinion, in the House of Commons, that the use of bone dust, in British husbandry, occasioned an additional produce of 500,000 quarters of corn, (four millions of bushels,) and the writer in the Irish Farmers' Magazine, who states the facts we are narrating, adds, "it is not too much to suppose, that the quantity has since been increased four fold;" that is, that the use of bone dust in British husbandry is now annually adding sixteen millions of bushels of grain to her agricultural products! What a lesson this for our farmers, who are exhausting the patrimony which Providence gave for coming generations!

> "The most active ingredients in bone dust," says the writer to whom we refer, "are phosphoric acid and ammonia, combined with lime and carbon; and it is to the action of these upon each other, and the influences of the changes of the atmosphere, and of sun shine and rain, in producing and maintaining that action, both above and in the ground, that is to be attributed the extraordinary results attending the application of bone dust."

The writer then proceeds to say, that a portable manure may be prepared, very easily, and at little expense, in every farm yard, which shall contain the elements which enrich and stimulate the soil to the highest pitch of fertility. The ingredients he recommends, and the proportions of each, are as follows:—1 ton of turf or peat dust, (if ashes the better,) 1 cwt. soot, 1 cwt. common salt, 1 cwt. quicklime reduced to powder, 14 lbs. East-India salt-petre, (nitrate of potash.) The ashes, soot and lime to be well mixed together. The salt and salt petre to be dissolved in urine, as it may be required to saturate and keep moist the heap. After the salts are expended, the urine to be continued—and new ashes to be spread on the top to intercept the vapors. Such a composition, he says, can be formed for 20s. a ton, which would be more efficacious than 40 bushels bone dust, costing 60s. or fifteen cords of yard dung, and might be transported at a single load. The ingredients in the mass supply all the elements for which decayed vegetable and animal substances are used, such as alkali and carbon—as recommended by Arthur Young, and also by Sir John Sinclair.

> "The turf-dust, or ashes, contain carbonaceous matter, in a fit state to combine and retain the active properties of the other ingredients; and serve as a receptacle for the performance of the chemical action of the conflicting substances, until the whole mass becomes impregnated with elastic juices of various kinds, in a highly concentrated state, which are given out gradually, when applied to the soil, according to the influence of the atmosphere, and of sun and rain.—The lime imparts the calcareous property essential to all soils in various combinations with acids. The salt and salt petre yield the mineral and vegetable alkalies, united to nitric and muriatic acid, both of which exert a most powerful influence when separated from their bases—which the contact of caustic lime slowly but certainly effects. The urine, *of all sorts*, furnishes animal matter and ammonia in abundance. The soot adds much strength to the carbonaceous matter, and increases the ammonia. I think this preparation may justly be termed *Imperial Compost.*"

We give the preceding facts, not so much in the expectation that they are likely to result in great immediate benefit to American husbandry, but under the strong belief that they will ultimately prove highly beneficial, by directing the attention of scientific men to that all important branch of national economy—the improvement of the soil. Science and agriculture have hitherto been strangers, although capable of rendering the greatest mutual benefits. We wish to bring them together, and to associate their labors, for the benefit of our country, and the human family. If Dr. Olcott's "*Patent Restorative*," which is noticed in another column, possesses any thing like the properties ascribed to it, and of this we hope to be able to judge, and the cost is not too great, and in this matter we are not advised, it will prove a concentrated or portable manure, of immense value, and will justly entitle the discoverer to the gratitude of his countrymen and of the world.

The American Farmer,

The pioneer agricultural journal of our country, has been resuscitated, by its original editor, John S. Skinner, Esq. who has just issued the first number of a new series at Baltimore. Mr. Skinner rendered his country an invaluable service, in the thirteen volumes of the first series which he published; and he has both the talent and disposition to enhance the obligation by a further devotion of his time to the great work of rural improvement. May he receive, as he merits, a bountiful reward.

Common Schools in Virginia.

"I will infuse good habits and principles into children; for "in twenty short years these children will be the men, giv-"ing the tone and manners of the nation."—*M. Fellenburgh, of the Hoffwyl agricultural school.*

Virginia seems disposed to bend the *twig* as the *tree* should be inclined. She has created a literary fund, not to instruct in Greek and Latin, but to supply English books to her primary schools, and she has chosen a competent board to select *proper* books, and to contract for and supply the schools with the same. The adage teaches, that a man is judged by the company he keeps. It will hold no less true, that a boy may be judged by the books he reads. Books are among a youth's earliest companions, and they have an influence in after life, for better or for worse, upon his habits and morals. The legislature of Virginia have therefore acted wisely, in providing the best companions for their youth, as the surest way of having them brought up in the way they should go.

Had our legislature been equally wise, and had they possessed the moral courage to do a good act in despite of party discipline, they would have done as Massachusetts and Virginia have done—they would have *selected companions for our youth—the books of our common school libraries*—which are to influence their modes of thinking and acting, and which will, in a great many cases, unquestionably, have a controlling influence over their future lives.

The president and directors of the Virginia Literary Fund, have advertised for proposals for the compilation or selection, or either, of a series of books for the use of primary schools—"books adapted to the institutions and habits of the people of that state, which will lay a solid foundation for a sound English education, and at the same time inculcate the purest principles of morality and religion, a true love of country and industrious habits, and direct the attention to the useful arts and common occupations of life."

Virginia, like a prudent parent, lays out the money *for* her children. New-York, like the weak or prodigal parent, gives the money *to* her children, to expend as they list, in bread, or in pea-nuts and powder-crackers.

Buckwheat Straw.

The editor of the Yankee Farmer ascribes great value to buckwheat straw, duly protected from the vicissitudes of the weather, as a food for cattle, and especially for milch cows; and adds, that if cut and boiled, it makes most excellent slop for them. We are apt in our zeal to subserve the interests of our agricultural readers to overrate the advantages of every thing new. The nutrient properties of the stems of all grains and grasses, are believed to be somewhat in proportion to the number of their joints, in which these nutrient properties are principally secreted, and the care with which they have been preserved. Our buckwheat straw, after a frequent long exposure in the field, has been thrown into large piles, where it has been suffered to heat and spoil, as any other forage would heat and spoil under like treatment, and has consequently been considered worthless for cattle feed. More careful farmers have preserved it as they would their hay, and have found it, if not as nutritious, at least worth preserving as cattle forage. That buckwheat straw, properly cured, abounds in nutrient matter, is evidenced by the fact, that when ploughed in green, it affords an excellent pabulum for crops; yet buckwheat straw is not, under any management, as nutritious as corn stalks, and many of the grasses, for farm stock, if the latter are properly preserved. It has fewer joints, and less of nutrient matter, than the stems of most other grains or grasses, gathered, like it, while the stems are green and succulent. Corn stalks are probably twice as valuable, if cut up while they are full of saccharine juice, when the grain is well glazed, carefully and well housed, cut and judiciously fed to stock. But the practice too generally prevails in the east, of spoiling them, by long exposure to the weather, as we are wont to spoil our buckwheat straw. The fiorin, a short jointed grass, is found to be nearly as nutritious when gathered in November, as when gathered in August; but it is not to undergo a wasting fermentation in mass, like our buckwheat straw, nor severed from its roots, to be blanched in the field by the vicissitudes of weather, like the stalks of topped corn. And even that pest, the *quack grass*, first cousin to the fiorin, is probably one of the most nutritious grasses, roots as well as tops, that we have, if properly dried and preserved. Another article, which we consider of little value, and which really is worth very little in the common mode of managing it, might be rendered of as much service for cattle food as buckwheat straw—and that is the stems of our clover, from which we save the seed. And even the first crop of clover, which we cut for forage, is twice as valuable when cured in grass cocks, as it is when made in the old way of spreading to the sun, by which the foliage is wasted, and the stems blanched, before it is fit to be taken to the barn. Every vegetable production of the farm is, in a measure, rendered valuable or worthless, according to the care and judgment we bestow in preparing it for use.

Green Corn Stalks for Fodder.

Where soiling, that is, feeding with cut green food in summer, forms any part of farm economy, we doubt not that corn, sown broadcast for this purpose, may be made to form a very profitable crop, either as a main dependance, or as auxiliary to short or spare pasture. It gives the greatest burthen of green food, and of as nutrient a quality as clover, though it can hardly be made to yield a cutting before August. It might well come in after clover, as food for cows and pigs.

Mr. Holt, of East Haddam, Ct. has made some experiments in raising corn in this way for soiling; and he has found that sixteen square rods of ground, sown with gourd-seed corn, the 12th June, gave food and subsistence for a horse fifty days, and thirty-three days for a cow. An acre would in this way, he thinks, feed thirty cows for a month. A small patch could not fail to be serviceable on any dairy farm, to supply the deficiency of pasture in August and September.

Herefordshire Cattle.

In our account of the most valuable breeds of cattle, in our first volume, we spoke of the Herefords as a branch of the original North Devon stock. By the judicious efforts of some of the English breeders, the Hereford stock is coming into high repute, for their fattening and working properties. As working cattle, they unite the activity of the North Devons, with the size and strength of the Long-Horns. In fattening properties, they have become competitors with the improved Short-Horns. At the autumnal Smithfield show, the Herefords carried five out of seven of the principal prizes, the Short-Horns one and the Devons one. The Hereford cattle have generally white faces, throats and bellies, are of a dark red, and sometimes brown or brindled.

The Herefordshire stock of one of the English breeders, J. D. Kidward, of Westhide, was lately sold at auction, at prices which sufficiently indicate the high estimation in which they were held. A cow sold for £80, ($355;) a heifer and calf for £81; a calf ten days old for £79; a yearling bull calf at £80, &c. and the cows averaged over £30, or $133. These prices, we believe, are about as high as those for which the improved Short-Horns ordinarily sell; though individuals of the latter have often sold at prices much higher.

Use of Sulphur in preserving Plants from Insects.

The Domestic Encyclopædia directs, to tie up some sulphur in a piece of muslin or fine linen, and with this dust the leaves of young shoots of plants; or the sulphur may be thrown upon them by means of a common swan's-down puff, or even a dredging box. No insects or worms will prey upon vegetables which are thus protected. Sulphur has also been found to promote the health of plants on which it is sprinkled.

In support of the recommendation, we state two ca ses wherein we have found the benefit of sulphur, one in protecting plants against insects, and the other in protecting them against mildew. Dusted upon grapes, in the grape house, they have prevented mildew upon the fruit. It is equally efficacious in the open ground, till the sulphur is washed or blown off. For many years, we have lost most of our early cabbages by a maggot which preyed upon the stem under ground.—By mixing sulphur with the grout in which the roots of the plants are dipped before planting, the evil has been wholly prevented; and if the plants are plunged deep in the grout, so as to coat the base of the leaf stems, they are protected from the grub. If scattered upon the rows of young cabbages and radishes, before or after they are up, it would probably be efficacious in protecting both the tops and bottoms.

Industry

Is the grand antagonist of crime, as well as of poverty. *It is the salt which preserves from moral corruption.* Were industry duly and universally inculcated in youth, and enlightened, encouraged and honored, we should have much less need of jails and poor-houses, and we opine, of lawyers, than we have now—three items of expense that consume much of our substance. The late Bishop Asbury, having, in one of his sermons offered a bitter reproof to those who neglect the duty to their children, of bringing them up in moral and industrious habits, suddenly paused and said, "but you will say this is hard. Alas?" he added, letting his voice fall to a low and soft key, "it is harder to be damned." And, temporally speaking, it is harder to see them in the jail or poor-house, or vagabonds at large.

The Multicaulis Fever

Does not seem to have passed its crisis. If aught were wanting to increase it, it is furnished by a late visit from Mr. Olmsted, of East-Hartford, Ct. who exhibited to us forty hanks of beautiful sewing silk, of various colors, weighing between four and five pounds, made from plants of the multicaulis, growing on one-sixteenth of an acre of land, and *the plants themselves put in the ground after the 15th of May, the same season.* So says Mr. Olmsted, and we have no reason to distrust his word. Mr. Olmsted's plan, and we believe his practice, is, to cultivate the multicaulis *as an annual,* that is, to plough up the roots every fall, preserve them in cellars or elsewhere during the winter, and to replant the roots and the cuttings, with the plough, in the spring. Mr. Olmsted also showed various silk fabrics, manufactured at Northampton and elsewhere, and silk in various modes of preparation.

Agriculture of Maine.

We are presented, in the Maine Farmer, with an annual and a semi-annual report of the trustees of the Kennebec County Agricultural Society, containing matters of interest to farmers in every section of the country.

The attention of a considerable portion of the inhabitants of Maine has been taken up with lumbering and fishing; and if agriculture has constituted the great employment, it has not received that attention there till lately which its importance every where demands.—Lumbering and fishing districts afford comparatively poor farmers, however bountiful nature may have been in her gifts to the soil. Within a few years, however, a new interest seems to have been awakened in this matter, and active and successful measures adopted, to advance agricultural improvement. Two agricultural papers have been established, and the state has made liberal appropriations to stimulate and reward her husbandmen; and societies have been formed, and conducted with intelligence and spirit; and improvement has progressed with a pace not perhaps surpassed in any of the other states. One of the leading agricultural societies is that of Kennebec, from which the two reports now under consideration have emanated, and from which we propose to glean some facts and suggestions of general interest.

The public benefits resulting from agricultural societies, are declared, and very correctly, to be palpable, great and certain.

> "These trifling investments, (says one of these reports, in reference to the contributions to the funds of the society,) have yielded a profit not only to the individuals who have made them, nor the agricultural interest alone, but to the country at large, to the whole community. We assert with confidence, that the dollars which have been paid into the treasury of this society, have been refunded to those who have paid them, with interest; and, not like any other appropriations of money, profitable only to those who make them, they have yielded an equal profit to their neighbors; every individual within the sphere of the influence of the society has received, in some shape, a greater or less dividend of the increase."

The Grain Worm.—The report suggests no mode of preventing its ravages, except that of sowing spring wheat late. This coincides with our observations.—All wheat sown in April, or the early part of May, is liable to its attacks; while that sown after the 12th of May, and particularly after the 20th, is likely to escape its ravages. The fly which produces the worm, appeared in Maine last year, on the 27th June, and "closed the campaign about the 19th July—thus remaining about 22 days, during which early sown wheat is in blossom, but the late sown grain does not develop its heads, or but partially." The objection to late sowing is its liability to rust and mildew. To avoid these, the report recommends plenty of seed, and but light manuring. We deem it far better to apply long manure to the previous crop, which may be corn or roots, than to give *any* manure directly to the wheat crop.

Wheat and barley are sown together, for bread-corn, in the proportion of two parts of wheat to one of barley, with decided advantage. The product is said to be greatly increased, the bread good, and the rust and mildew avoided. The culture of barley is also recommended as affording an excellent substitute, when hulled, for rice. The cultivation of this grain is increasing, as an article of food for man and brute.—The committee recommend late sowing, from the 20th May to the 1st June.

Ruta baga is said to be grown on moist as well as on dry soils—on clay loam as well as on sand.

Alternating crops is strongly enforced, in the injunction, to let no grounds that are tillable, remain more than two years in meadow; and that frequent ploughings be practised, whether the object be immediate profit or permanent advantage to the soil.

> "Instances can be referred to," says the report, "where there is a difference in the tilled crop of more than one-half in favor of land which has been but two years in grass, in the same kind of soil, ploughed, manured and managed in the same manner with that which has lain in grass six or seven years."

The committee express an erroneous opinion, we think, when they ascribe to arable or ploughed crops, a fertilizing influence upon the soil. The two years' grass ley gives the elements of fertility; pulverization of the soil, by rendering it open to the influence of air, dew and heat, adds something to these elements, and tends to convert insoluble into soluble geine; but the crop, if carried off, is unquestionably exhausting; and if the process of cropping is continued, without the application of vegetable and animal manures, sterility must be the inevitable consequence. Grain crops are decidedly more exhausting than grass, or root, or green crops.

The reclaiming of bogs and marshy grounds, is strongly recommended; and the example of Massachusetts, where grounds before wholly unproductive, have been made to yield a hundred dollars worth of hay per annum, is given in illustration of the benefits of this kind of improvement. There are within five miles of Winthrop, says the report, bog land enough to produce, if properly reclaimed, five thousand tons of hay annually. This branch of improvement, in connection with draining, even upon uplands, when required, is one of the first importance, not only to agriculture, but to the health of a country. But the subject of draining has not yet sufficiently engaged our attention, and we do not see it noticed in either of the reports.

In a late tour through N. Jersey, and upon the Delaware border of Pennsylvania, we saw an ample field for this kind of improvement. In many places the grounds are flat and wet; the soil of course cold, and the crops meagre. We have no sort of doubt, but that in most cases a thorough Scotch system of under-draining, in connexion with clover, plaster and a judicious alternation of crops, would in five years not only remunerate for the outlay, but would quadruple the agricultural products, and the intrinsic value of the lands. We were happy to learn, that some spirited intelligent farmers had commenced this system of improvement; and wherever it met our observation, the effects fully verified our calculations. We hope the inhabitants of those districts will profit by the example of these pioneers in improvement. In the southern part of our Union, irrigation may affect more than draining. But in the north, we have often a superabundance of water, not always upon the surface, but within the range of the roots of plants, which is hurtful to healthy vegetation. A soil saturated with water in a wet season, is wet and cold in the spring, and dry and hard in a dry summer. It is impervious to the genial influences of air and heat at all seasons.—When drained, the water does not stagnate, but percolates through the soil, leaving it light and porous; the air and moisture do not become stagnant and deleterious; the soil can be worked in all ordinary seasons of farm labor; the vegetable matter is readily decomposed; the roots of the crops have a healthy range in the search of food; and the crop, if there is food in the soil for its proper development, will be abundant.

The semi-annual report, to which we have hitherto confined our notice, closes with a proposition, to have the agricultural and mechanic interests better represented than heretofore, in their legislative councils; or, at least, for the appointment of an agent to represent the interest of the producing classes, to assist in devising the best modes of advancing the great objects of our labor—to render the state independent and prosperous. * * * "The agriculturists and mechanics need the services of such a man, the members of the legislature need his services, and the committee on agriculture need the services of just such a man."

Agriculture and manufactures the basis of our prosperity. Says the annual report—

> "No nation, or state, or community, ever did, or ever can flourish long, when the productive branches of industry are not fostered and encouraged by the government. They are to the community what life is to the system: they give motion and activity to every limb, and if success in one is paralyzed, the other must languish with it. Let agriculture cease to yield her annual harvest, and the mechanic must leave his workshop to seek for the means of subsistence in the forest, or in the lakes and rivers. Let the manufacturer cease to supply his various machines and fabrics, and agriculture can no longer be successfully carried on. The agriculturist may indeed for a time, retain his flocks and herds, and in a half civilized state, live upon their milk and flesh, [and why not add the grains, the roots, and the fruits of the soil?] and clothe himself in their skins, [and in the cloths of his family fabrication, from the wool and flax of his farm.] Agriculture and manufactures are children of one family, and equally deserving the attention of the parent, [the public?] equally requiring the fostering care of those whose aim it should be to devise measures for the common good."

What is national independence?—The committee answer—

> "We are not independent, till our exports, in the whole, are equal to our imports. We shall not increase in wealth till the balance of trade is in our favor."

True, whether the rule be applied to an individual, a family, a state or a nation. The income must be greater than the outgoes, before the individual, the family, the state, or the nation can say—"We are independent." The last few years have increased the debt of the states one hundred and seventy millions of dollars, and upon this debt we are obliged to remit to Europe, annually, ten millions as interest, and the principal is besides to be paid. However we may laud our prosperity, and revel in our day, we are bringing upon our posterity a load of debt that will make them subservient to foreign powers, or to foreign influence, or that will merge them in anarchy and despotism.

The report very properly recommends increased attention to instructing the farmer and mechanic—who constitute the bulk of our population, in a higher grade of studies, and of bringing up our sons in habits of industry and regular application to business.

> "It is this larger part, this majority, that is to give character to the whole. In devising plans, and adopting measures for the future good of a country, it is to the majority we are to look, not to small portions. If our condition as a community is ever to be greatly improved, the habits of the rising generation are to be looked to for the assurance of that improvement. If those who follow us are to be intelligent, prosperous and happy, and fill their places with honor to themselves and the community, we must look to their early habits for a guarantee. They must be furnished with employment, trained to business. They must be inured to that kind of exercise which nerves the arm, and gives vigor to the mind. To this object we call the attention of all who have her interests at heart, and all who have any thing to do in the direction of affairs."

The committee reiterate their former injunction, "never to mow more than two crops of hay from a field before ploughing it." They superadd to this, a recommendation unsound in theory, and which will prove fallacious in practice, "to turn out to pasture all our upland that we are not able to keep under the plough, and depend entirely on straw, fresh meadow hay, grain and roots for keeping stock in winter," or, in other words, to make pasture grounds, which are the only portion of a farm which is improving without the aid of manures, permanent, and thus deprive the farm of all the benefits of the enriching effects of pasture—to confine the alternation of crops to a part, where it is acknowledged to be of great service, instead of extending it to the whole farm. If rotation is beneficial on low grounds, it will be found no less, and we think more so, upon uplands.

Root culture is strongly recommended; and the use of roots, in fattening stock, is deemed far more profitable than fattening upon hay and grain. The committee estimate a profit of $20 the acre under root and other tillage crops, over that of an acre in meadow.

Hint in Transplanting.

The common error in transplanting trees, is not making the holes, or pits, for their reception sufficiently broad and deep. The roots require a mellow soil to strike down and horizontally in; and if the earth under and around them is left undisturbed and hard, they can not extend themselves for food, or but very slowly; the plant consequently grows but slowly, if it survives.—The following experiment, made by M. Chalermeau, illustrates the importance of this hint. The hole should not be proportioned to the extent of the roots *as they are,* but to their extent as they *may be* and *should be.*

> "Four peach trees, resembling each other as to size and vigor of growth, as much as possible, were planted. No. 1 in a hole three feet square; No. 2 in a hole two feet square, and Nos. 3 and 4 in holes eighteen inches square. The soil and exposition similar. No. 1 has every year given the most abundant crops, and the relative sizes of the trees are now as follows: the stem of No. 1, 18 feet high and 8 inches in circumference; that of No. 2, 9 feet high and 5½ inches in circumference; No. 3, 6 feet high and 3 inches 8 lines in circumference; and No. 4, 5½ feet high and 3 inches in circumference."

Showing a difference between No. 1 and No. 4—between large holes and small holes—of five inches in circumference, and 12½ feet in height. Apple, pear and forest trees, generally having a larger spread of roots than the peach, require proportionally larger holes.

Diseases of Neat Cattle.

There have a great number of cattle died in the country, within a few years, of a disease not definitely understood or described, but by many believed to be the *murrain;* and many have also been lost by *hoven,* for want of a knowledge of a proper remedy of relief. The following extracts, from the Encyclopædia of Agriculture, descriptive of the *murrain,* and of kindred diseases,—of the symptoms and treatment of these diseases, and modes of prevention;—and also of the *hove* and the modes of relief—cannot fail of proving interesting to cattle breeders and graziers. We will repeat here an opinion, founded upon reason and long experience, that the best preventive of disease in our farm stock, is the free use of salt, as a condiment; to which our cattle have had daily and free access for fifteen years, during which time no indisposition has appeared among them.

Mild fever, pantas or paretaria. Cattle appear sometimes affected with heat, redness of the nostrils and eyelids; they refuse food, are dull, evacuate stale with difficulty; and the urine is high coloured. These symptoms are often aggravated every other day, giving it the appearance of an intermitting affection. The complaint is often brought on by over driving in very hot weather, occasionally by pushing their fattening process too fast. If there be no appearance of malignancy, and the heaving be considerable, bleed, and give half an ounce of nitre, night and morning; but unless the weather be cold, do not house the animal.

Inflammatory fever, is called, among farriers, cow-leechers, and graziers, by the various names of black-quarter, joint felon, quarter-evil, quarter ill, showing of blood, joint-murrain, striking-in of the blood, &c. Various causes may bring this on. It is sometimes epidemic, and at others it seems occasioned by a sudden change from low to very full keep. Over driving has brought it on. No age is exempt from it, but the young oftener have it than the mature. The inflammatory stage continues but a few days, and shows itself by a dull heavy countenance, red eye and eyelids: the nostrils are also red, and a slight mucus flows from them. The pulse is peculiarly quick; the animal is sometimes stupid, at others watchful; particularly at first, and sometimes irritable. The appetite is usually entirely lost at the end of the second day, and the dung and urine either stop altogether, or the one is hard and the other red. About the third day a critical deposite takes place, which terminates the inflammatory action: and it is to the various parts to which this occurs, that the disease receives its various names. The deposite is, however, sometimes universal, in the form of a bloody suffusion throughout the whole skin. In others, swellings form on the joints, or on the back or belly; and in fact, no part is exempt from their attack. Sometimes the animal swells generally or partially, and the air being diffused under the skin, crackles to the feel. After any of these appearances have come on, the disease assumes a very malignant type, and is highly contagious.

Treatment of inflammatory fever. Before the critical abscesses form, or at the very outset of the disease, bleed liberally, and purge also. Give likewise a fever drink. (1.) If, however, the disease be not attended to in this early stage, carefully abstain from bleeding, or even purging; but instead, throw up clysters of warm water and salt to empty the bowels; give salt mashes. Green meat should be allowed, and a very cool shelter should be provided. As medicine, three doses are necessary, every day, of the malignant epidemic fever drink; (2) and if the weather be warm enough to allow it, two or three hours turning out in the field in a day is proper. It may be added that four drachms of muriatic acid in three pints of oak bark decoction, given twice a day, has proved useful. The swellings themselves may be washed with warm vinegar, both before and after they burst.

Catarrh or influenza in cattle, also known by the name of *felon,* is only a more mild form of the next disease. Even in this mild form it is sometimes epidemic, or prevalent among numbers, or endemical by being local. *Very* stormy wet weather, changing frequently, and greatly also in its temperature, are common causes. We have seen it brought on by change of food from good to bad, and from too close pasturage. It first appears by a defluxion from the nose; the nostrils and eyelids are red; the animal heaves, is tucked up in the flanks, and on the third day he loses the cud. There is a distressing and painful cough, and not unfrequently a sore throat also, in which case the beast almost invariably holds down his head.

The treatment may in some cases be cut very short, by giving, as soon as the attack takes place, *sweet spirits of nitre,* or when not at hand, *spirit of hartshorn,* an ounce, in a pint of sound ale [or other liquid.] After the running has come on, or as soon as the weakness has become considerable, give night and morning the fever drink (1) in a mash or drink. Most mashes, when the weakness is great, are proper. Bleeding only the first two days, carefully sheltering, but in an open airy place, and littering well up.

The malignant epidemic influenza is popularly called the *murrain* or *pest;* and has at various times made terrible havoc among cattle. Ancient history affords ample proof of its long existence; and by accounts handed down, it does not seem to have varied in its type materially. In 1757, it visited Britain, producing extreme fatality among our kine. From 1710 to 1714 it continued to rage on the continent with unabated fury. The years 1730 and 1731, and from 1744 to 1746, witnessed its attack, and produced many written descriptions of it. The British visitation of the malady in 1757, elicited an excellent work from the pen of Dr. Layard, which was afterwards translated into several languages.

Dissections of those that have died of this disease, according to Sauvages, have showen marks of a great inflammation, and of a great putrid tendency; but the solid parts seldom run into gangrene. The fluid secretions, however, always were sufficiently dissolved and broken down by putridity The paunch, he says, was usually filled with undigested matter, and the other stomachs highly inflamed. The gall bladder was also commonly distended with acrid, thick, brown bile. Goelich, who likewise dissected these subjects, describes the gall as particularly profuse and intolerably fœted. According to him, the whole alimentary canal, from the mouth to the anus, was excoriated. Gawnola describes the murrain as accompanied with pustulous sores; and so great was the putrid tendency, that even the milk, before it dried up, which it generally did the fourth day, became putrid.

Symptoms of the murrain. Dr. Layard described it as commencing by a difficulty of swallowing, and itching of the ears, shaking of the head, with excessive weakness and staggering gait; which occasioned a continued desire to lie down. A sanious fœtid discharge invariably appeared from the nostrils, and eyes also. The cough was frequent and urgent. Fever exambating, particularly at night, when it usually produced quickened pulse. There was a constant scouring of green fœtid dung, after the first two days, which tainted everything around: even the breath, perspiration and urine were highly fœtid. Little tumors, or biles, were commonly felt under the skin; and, if about the seventh or ninth day these eruptions became larger, boils and buboes appeared with a lessened discharge of fæces, they proved critical, and the animal often recovered; but if, on the contrary, the scouring continued, and the breath became cold, and the mouth dark in colour, he informs us, mortality followed. Sauvage describes the murrain as showing itself by trembling, cold shivers, nose excoriated with an acrid discharge from it, purging often the first two days, but previous to which there was often costiveness. Great tenderness about the spine and withers was also a characteristic, with emphysema, or a blowing up of the skin by the air discharged underneath it.

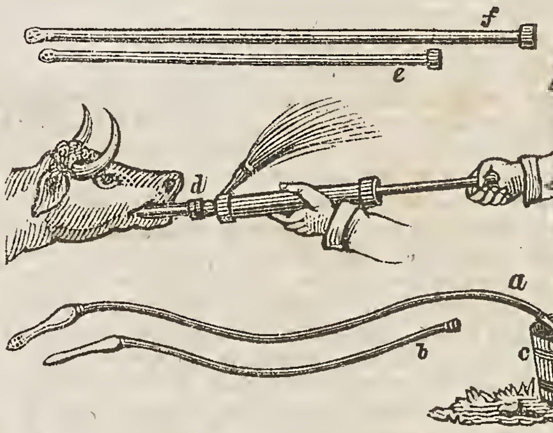
Treatment of the murrain. In the early stages, all eminent authors recommend bleeding; but which should not only be confined to the very early periods, as to the first two days, but also to such subjects as by their previous health and condition can bear it. The animals should be placed in an open airy place; the litter should be frequently removed; and the place itself should be fumigated with the preventive fumigation (3.) It has been recommended to burn green boughs as a substitute; even charcoal fires, occasionally carried round the place, would be useful. Dr. Layard advised the body to be washed with aromatic herbs in water; but vinegar would have been better. In early stages, saline purgatives, as from ten to twenty ounces of Epsom salts, are to be invariably used. If the scourings have already come on, still, however, purge, but with only half the quantity; an artificial purge will carry off the morbid bile; and if excessive weakness do not come on, the same may be advantageously repeated. Setons are also recommended in the dewlap. When abscesses appear, they may be opened, and their contents discharged, washing the wound with brandy or vinegar, if putrid sloughing takes place. The emphysematous swellings, or cracklings, may also be opened, and the air discharged. The other essentials of medical treatment, as detailed for the preceding disease, is here applicable in every particular. When recovery takes place, it is usually a very slow process, and requires care to prevent other diseases supervening. The animals should continue to be housed, and neither exposed to sun or wind for some time, and the feeding should be nutritious.

The prevention of the murrain, or the prevention of its spreading, in many respects is even more important than its medical treatment. When it has already appeared, all the out buildings, but particularly the ox lodges or stalls, should be daily fumigated with the preventive fumigation (3); and even the whole of the infected districts should have frequent fires of green wood made in the open air, and every such district should be put under a rigorous quarantine. The cattle on every farm should be examined three or four times every day, and the moment one is found to droop, he should be removed to a distance from any of the others. In very bad weather, while the disease is prevalent, the healthy cattle should be housed, and well fed; and their pasture should also be changed. The bodies of those which die of the disease should be buried with their skins on, very deep in the earth, and quick-lime should be strewed over them.

The hove or blown in cattle is also an inflammatory affection of the paunch, ending in paralysis and rupture of its substance. From the frequency of its occurrence, it has become a subject of investigation with almost every rational grazier, and a particular matter of inquiry with every agricultural body; from whence it is now very successfully treated by the usual attendants on cattle, when skilful; but when otherwise, it usually proves fatal. It is observed to be more frequent in warm weather, and when the grass is wet. When either oxen, cows or sheep, meet with any food they are particularly fond of, or of which they have been long deprived, as potatoes, turnips, or the different grasses, particularly red clover, they eat greedily, and forget to lie down to ruminate, by which means the first stomach, or paunch, becomes so extended as to be incapable of expelling its contents. From this inflammation follows, and fermentation begins to take place: a large quantity of air is let loose, which still adds to the distention, till the stomach either bursts, or, by its pressure on the diaphragm, the animal is suffocated. The situation of the beast is known by the uneasiness and general swelling of the abdomen; while the circumstances of the animal being found with such food, or the presumption that it has met with it.

Treatment. There are three modes of relieving the complaint, which may be adverted to according to the degree of distention, and length of time it has existed. These are, internal medicines; the introduction of a *probang,* of some kind, into the paunch by the throat; and the puncturing it by the sides. Dr. Whyatt, of Edinburgh, is said to have cured eighteen out of twenty hoved cows, by giving a pint of gin to each. Oil, by condensing the air, has been successfully tried. Any other substances, also, that has a strong power of absorbing air, may be advantageously given. Common salt and water, made strongly saline, is a usual country remedy. New milk, with a proportion of tar equal to one-sixth of the milk, is highly spoken of. A strong solution of prepared ammonia in water often brings off a great quantity of air, and relieves the animal. [Common lye, procured either by pouring water upon ashes, or dissolving pot or pearl ashes, has proved highly efficacious.] Any of these internal remedies may be made use of when the hoven has recently taken place, and is not in a violent degree. But when otherwise, the introduction of an instrument is proper, and is now very generally resorted to. The one principally in use is a species of probang, invented by Dr. Monro, of Edinburgh. Another, consisting of a cane six feet in length, and of considerable diameter, having a bulbous knob of wood, has been invented by Eager, which is a more simple machine, but hardly so efficacious. It is probable that in case of emergency, even the large end of a common cart whip, dexterously used, might answer the end. But by far the best instrument for relieving hoven cattle, as well as for clistering them, is Read's enema apparatus, which is alike applicable to horses, cattle and dogs. It consists of a syringe (*a*, *Fig.* 19,) to which tubes of different kinds are applied, according to the purpose, and the kind of amimal to be operated upon.

[Fig. No. 19.]



There is a long flexible tube for giving an anema to horses and cattle (*a*) and a smaller one for dogs (*b*). To relieve hoven bullocks effectually, it is necessary not only to free the stomach from an accumulation of gas, but from the fermentating pultaceous mixture which generates it. For this purpose a tube (*f*) is applied to the extremity of the syringe, and then passed into the animal's stomach through the mouth, (*d*) and being put in action, the offending matter is discharged by a side opening. When the same operation is performed on sheep, a smaller tube (*e*) is made use of. The characteristic excellency of Read's instrument is, that there is no limit to the quantity of fluid that may be injected or extracted. The same instrument is used for extracting poison from the stomach of man, for smoking insects, extinguishing fires and syringing fruit trees. [This machine is now sold at the seed shops, as a garden syringe—lacking merely the tubes which may be prepared readily to screw on.] The introduction of any of these instruments may be effected by the aid of an assistant, who should hold the horn of the animal by one hand, and the dividing cartilages of the nose in the other; while the operator himself, taking the tongue in his left hand, employs his right in skilfully and carefullly introducing the instrument; the assistant bringing the neck and head into such an attitude as to make the passage nearly straight, which will greatly facilitate the operation. But when no instruments can be procured, or as cases may indeed occur when it is advisable not to try them, as when the disease has existed a considerable time; or the animal has become outrageous, or the stomach so much distended with air, that there is danger of immediate suffocation or bursting—in these instances the puncture of the maw must be instantly performed, which is called *paunching.* This may be done with the greatest ease, midway between the ilium, or haunch bone, and the last rib of the left side, to which the paunch inclines. A sharp pen-knife is frequently used; and persons in veterinary practice should always keep a long trochar, which will be found much the most efficacious, and by far the most safe, as it permits the air to escape certainly and quickly, at the same time that it prevents its entrance into the cavity of the abdomen, which would occasion an equal distention. As soon as the air is perfectly evacuated, and the paunch resumes its office, the trochar may be removed; and, in whatever way it is done, the wound should be carefully closed with sticking plaster or other adhesive matter. It is necessary to observe that this operation is so safe, that whenever a medical assistant cannot be obtained, no person should hesitate a moment about doing it himself. After relief has been afforded either by the probang or the paunching, a stimulant drink may yet be very properly given, such as half a pint of common gin, or one ounce of spirits of hartshorn diluted in ale or water, or 2 oz. of spirits of turpentine in ale, may any of them be used as an assistant stimulus. When also the cud is again chewed, still some relaxation of the digestive organs may remain; at first, therefore, feed sparingly, and give, for a few mornings, a tonic (4).

(1.) *Fever drink*—Sweet spirits of nitre 1 ounce, mindererus spirit 6 ounces, water 4 ounces.

(2.) *Malignant epidemic fever drink*—simple oxymel [a mixture of vinegar and honey] mindererus spirit, beer yeast of each 4oz. sweet spirits of nitre 1oz.

(3.) *Fumigations for purifying infected stables, sheds, &c.*—Manganese 2 ounces, common salt 2 ounces, oil of vitriol 3 ounces, water 1 ounce. Put the mixed manganese and salt into a basin; then, having before mixed the vitriol and water very gradually, pour them, by means of tongues, or any thing that would enable you to stand at a sufficient distance, on the articles in the basin gradually. As soon as the fumes rise, retire and shut up the door close.*

(4.) *Tonic Alteratives*—Gentian, aloes, ginger, blue vitriol, in powder, of each one drachm, oak bark in powder 6 drachms.

Spirit of Foreign Agricultural Journals.

The *principles* of an enlightened agriculture have almost a universal application. The *practices* of agriculture vary with climate, with soil, and the demands of the market. The European agricultural publications contain much of the principles that is useful in our practice, and much in practice, from which we may profit. They also contain much which is very useful on the other side of the Atlantic, but which it would be a waste of ink and paper, to promulgate here. We design to separate the wheat from the chaff, that is, to give an abstract, or to publish in detail, such matters, as have a direct application to our husbandry, whether in principle or in practice, and to omit what is inapplicable to our climate, our products and our markets. These notices will of course be excursive, as we find them in perusing the foreign works to which we have access.

If any apology or explanation is deemed necessary, for filling so many of our columns with *foreign* instead of *domestic* extracts—we have two reasons to offer, viz. 1. That the principles or science of agriculture are better understood and applied in Europe than they are in America, and the practices, perhaps from necessity, more economically and profitably managed there, than they are with us. And 2. Because these extracts add much to the stock of our agricultural knowledge, by superadding to American skill and knowledge, which is being widely disseminated, the agricultural skill and knowledge of another continent, from whose science and practice we have profited greatly, and may profit much more, in all the arts of productive labor, and particularly in the various departments of husbandry. In selecting models for imitation and improvement, it is always wise to select good ones; for if we fail in copying the entire picture, we may catch at least the great outlines, and fill up the canvass as our leisure or our interests will permit or require.

HONEY-DEW AND MILDEW PREVENTED BY SALT.

George W. Johnson has given an essay, in the Quarterly Journal of Agriculture, on the diseases incidental to the most usually cultivated plants, in which he ascribes the honey-dew to a morbid state of the sap of the plants on which it is found; and he states several experiments in which it was prevented, by the application of a weak solution of common salt. There is danger in making the pickle too strong, so as to injure the plant. Put one ounce of salt, says Mr. Johnson, to a gallon of water. "I have noticed," says he, "that standard fruit trees, around which, at the distance of six or eight inches from the stem, I had deposited, at the depth of twelve inches, a quantity of salt, to promote the general health of the tree, according to the manner adopted to some extent in the cider countries, for the apple orchards; that these escaped the honey-dew, (which infested adjacent trees,) just as well as those which had been watered with salt and water."

The experiments of Hitt and Knight, which Mr. Johnson quotes, go to show, that salt is also a preventive of mildew, a conclusion which we had almost arrived at, from our limited experiments upon the gooseberry and grape. By the use of water in which a small portion of common salt had been dissolved, Knight preserved the health of his autumnal crop of peas from mildew, a disease to which they are very subject. "It is more than probable," says this distinguished horticulturist, "that most of the diseases of plants arise, in some way or other, from the irregular action of the sap, caused very often by sudden transitions in the atmosphere.—By a very easy experiment, the cultivator may convince himself of the power of common salt in preventing these injuries."

The use of salt in promoting health, or preventing disease in animals, is now well known; as is the fact, that it is most favorable to farm stock when given daily. How far the analogy will hold good between animals and vegetables, remains to be ascertained. It seems from the experiments above noted, that it does operate beneficially in preventing certain diseases in some plants. This should encourage us to experiment with it upon others.

In speaking of the *extravasation of sap* from trees and vines, which often takes place to a prejudicial extent, from wounds in trees caused by winter or spring pruning, before the leaves have expanded, Mr. Johnson directs, as the best means of preventing or checking the flow, that the wound be covered with a sponge, dipped in a solution of sulphate of iron, and the sponge covered with a piece of sheet lead, and bound there firmly.

AGRICULTURAL SCHOOLS,

Are springing up in Ireland, and measures are taking to establish them in England; while in France, says the Westford Independent, "new schools are founded daily, establishments for rearing cattle of improved breeds, and making experiments in husbandry, are formed and conducted at the cost of government, and a considerable number of our best animals and sheep, are constantly purchased to improve the native stock. Professors are appointed in various parts of the country, to give lectures on agriculture, and in short, all possible means taken to render the nation independent of foreign countries, for the supply of such necessaries of life as are capable of being produced by their own soil. We consider these schools the grand basis of agricultural improvement—the light that will shed its benign influence on the mist that now envelops the principles upon which the most important practical operations in agriculture are based."

The most prominent plan proposed in England, is to establish a national agricultural college, upon a broad and liberal basis, to be supplied with the best teachers, and to connect with it pattern or experimental farms, upon different soils, and in different sections of the kingdom, to be under the direction of the best practical men. In the college the scientific theory of the art is to be taught, and the explanations of the different systems of practice in the kingdom and abroad to be given.—The practical instructions to be given on the farms, to which the students are to be sent for stated periods.

"These farms to be used solely for experiments, to test and prove every suggestion that science, theory and practice may offer: and if upon repeated trials, they be found irreducible to practice, they will fall to the ground; if they succeed, they would be sent forth as attested and valuable facts. The members of the central college and the conductors of the farms would be in constant communication, comparing and examining every suggestion and observation, both by science and practice, and detailing to each other, for the general benefit, the results of reflection and experience." "If ever such an institution be established," says a writer in the Farmers' Magazine, "the first step must be, to kick sheer overboard, the prejudices of men, and to level with the dust that curse of the human race, the great barrier to improvement in all ages of the world. On every subject, the greater part of mankind are biassed in favor of some particular way of thinking, and way of performing any operation which they have adopted, and to which they have been accustomed, and of which very few are ever able to divest themselves. Prejudice completely obscures our perceptive and intuitive powers, clogs our understanding, and perverts our judgment, and renders wholly useless the reasoning faculty conferred upon us as the distinguishing characteristic of our nature. No sound judgment can be exercised on any subject, or a satisfactory conclusion arrived at, where this pernicious propensity prevails: no dependence can be placed on the opinion of any man, who allows his judgment to take precedence of his reason, and whose mind is wilfully shut against conviction.—For the furtherance of any art, the great essential desideratum is to combine theory and practice; and on this point the agricultural world (with some splendid exceptions,) has floundered over head and ears in the mud. It is only of late years, that our mechanics and manufacturers have been able to combine them; but until that be effected, and as much as possible in the same persons, or by different persons being in constant and friendly intercourse, it is very evident the progress will be slow. If properly established and conducted, incalculable benefits might accrue. The members of the college must consist of men eminent for knowledge in every branch of education connected with agriculture, and one thoroughly versed in agriculture itself, and their employment would be to draw suggestions from the investigations of science, to be transmitted to the farms for the test of experience. The conductors of these farms must be the most intelligent practitioners that can be found for the soils they are intended to manage; thoroughly acquainted with arable farming and the suitable implements; our different breeds of stock; intelligent and open to, and able to comprehend, and able to execute, the suggestions transmitted to them from the central college. Until we have a field of tests, we do not know what invaluable discoveries may be hid in suggestions laughed at and neglected, or in those that may be made. That great absurdity has attended many of them, must be readily granted; but the wheat cannot be obtained without separating it from the chaff."

Thus far our extract. There is no truth more palpable, than that science, to benefit agriculture as it has benefitted the other arts, must be associated and combined with its practical labors, as it has been profitably combined with the labors of the artizan and manufacturer. And we are of opinion that this would be more efficiently done, in a school and farm in the same location, than it could be where the school is located in one place and the farm in another. Locations may be found which combine most of the varieties of soil; and the principles of science being well inculcated, and their general application to practice properly taught and explained, the pupil would be qualified judiciously to vary his practice according to soil and circumstances. Like civil engineering, which was hardly taught or practised before the commencement of our system of internal improvements, a school of scientific and practical agriculture would soon produce competent teachers, to take charge of new institutions, or to disseminate in the community, the various branches of useful knowledge acquired in the school.

STRATHMORE AGRICULTURE.

A premium of ten sovereigns was awarded last fall, by the Highland Agricultural Society, to Robert P. Newton, of Hallyburton, for an essay on the rural management of the Forfarshire part of the western district of Strathmore. We abstract some facts of general application, as interesting and profitable to our readers.

The potato, Hopetoun and common oat, are cultivated extensively, not only as cattle food, but as a principal bread corn for the inhabitants. The common oat pays best on poor soils; the Hopetoun ripens earliest, an object there, but is most liable to smut; it gives the best straw, and the potato oat, on good land, the best yield in grain.

Root crops, that is, the potato and ruta baga, are extensively cultivated, fed to cattle, and, being thus converted into beef and mutton, are conveyed, at trifling expense, to market, and turned into money, while the manure they produce, goes to enrich the land.

Bone dust is in high estimation, and a handsome public acknowledgment has been made to Mr. Keillor, who first introduced it, and demonstrated its advantages. Bone dust and *sheeping* together, that is, pasturing of sheep, form the most ample and rich preparation for the barley crop, which is a favorite one in the district. It would be equally advantageous for any other arable crop, which should follow turnips.

REARING CALVES.

We have endeavored to convince our breeders, and even our dairymen, that they mistake their interest, in not rearing more calves. Cattle have become scarce, from the demands of the butcher and the dairyman, and command double the price which they formerly did. It has been the practice of the dairymen to *deacon* their calves, that is, to kill them at three days old, to save milk; and of the breeder of prime stock, to give two cows to one calf, in order to grow *large* calves—a bad criterion, however, of *good* ones—to let the calves run with the cows, and thus sensibly to diminish the value of the cows as good milkers. In Strathmore, a far better mode is practised. *One* cow brings up *five* calves, and instead of the latter subsisting altogether upon milk, they are early taught to subsist, in part, upon that food which is ultimately to constitute their entire subsistence. This course is dictated as well by economy as by nature. This mode of managing calves is from Mr. Watson, and we give it in his words.

"The cows intended for nursing, generally calve early in the season, about the month of January or February, when a strange calf is procured from some of the small tenants in the district, who have dairies. This calf is suckled with the others by the same cow, and although the cow at first shows great dislike to the stranger, in a few days she receives it very quietly, care being taken that both are put to suck (one on each side,) exactly at the same time, by tying the calves bands to the stall, or to the band of the cow, so as to keep each calf at its own side. They remain with the cow for fifteen or twenty minutes, by which time her milk is perfectly drawn away. As the calves advance in age, they eat hay, sliced potato, porridge, and other food they are inclined to take.—By the first of May, or as soon as grass is ready, they are weaned and turned out from the byre, when two fresh calves are immediately put into their stalls, and receive the same treatment, excepting that they are turned out at twelve o'clock, after they have got their suck, to eat grass, and are brought into the byre again at evening, when the cows come in to be sucked. This set is ready to be weaned by the first of August, and a single calf is put into the feeding-pen, and fattened for the butcher, the season being now too late for rearing. As these are fed off, the cows are let off milk, having each suckled *five calves*. It is necessary to have a very steady and careful person to attend to the suckling, which has to be done three times a day, viz: early in the morning, before the cows are turned out to grass, at mid-day, and in the evening when the cows come into the byre for the night, and get a little cut grass, tares, or other green food. The byre is arranged so that each of the cows has a stall about four feet wide, with their heads to the wall; and on the opposite wall the calves are tied up, two in a stall, exactly behind the cow, so that there is little trouble in putting them to the cow, and no chance of misplacing them. The fat calves have in some seasons been sold at £5 (=$22,) each, this being the scarcest time of the year for veal."

On the advantages of sheep husbandry, in improving the soil, Mr. Newton is decided and earnest.

"It is now universally allowed," he remarks, "that there is no manure which diffuses itself more equally, or which is more valuable in its effects, than that produced by sheep, whether as applied on pasture land or in turnip feeding on the ground. Farmers in this district are now so satisfied of this, that they almost universally make a point of grazing their pasture lands one year with sheep. It is an old remark, that where you have plenty of sheep, plenty of *oats* follow."—Oats, it will be remembered, being the great agricultural staple of Scotland.

In speaking of the roads, Mr. N. very justly gives a preference to M'Adams over rail roads, as means of facilitating agricultural improvement and profit. "The superiority of the M'Adams system," he says, "is now almost universally acknowledged, and almost universally adopted." Rail-roads are private, or corporate property, subject to the caprice and changes of their proprietors; while the other roads are public, upon which every man can travel with his own team, subject to a moderate regulated toll.

Cattle sheds are general. The pillars which support the roof are of cast iron, and cost 10s. ($2.22,) each, the walls are of stone, and the roof is slated. The cattle are put in them in cold, rainy or stormy weather, and well littered. These sheds are cleaned out at the middle and close of the season, and the manure is conveyed to some spot for a dung hill, convenient to the field to which it is to be applied; and women and boys are employed to go over the pasture with a barrow, to collect the droppings, which are added to the pile; the dung is turned and mixed, and in August and September, three parts of waste earth are mixed with two of the dung; and in this condition it is soon after applied as a top dressing to grass lands, in proportion to 20 cart loads, of 30 bushels each, to the acre.

The rents in this district average 32s. or about $7 the acre. The "*peasantry*"—farmers—are represented to be a "sober, hard-working quiet race;" the "*hinds*"—

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* Chloride of soda, or of lime, exposed in a tiquid form, in open vessels, would probably be alike afficacious.

laborers or farm-servants, unless they are married, "are generally huddled together in what they call a *boothy*. Each man has his allowance of meal and milk; and brose [oat-meal with milk or water,] constitutes his breakfast, dinner and supper"!!!

BENEFITS OF DRAINING.

In the "Mark Lane Express," it is stated, that land which, with difficulty, had been let at *five shillings* per acre, became worth two guineas (42s.) to the landlord, by the mere operation of draining. This, says the writer, I know to be the case on many large estates in Scotland. It is mentioned, that an increase of twelve bushels an acre may be counted upon as one result of draining; but I can appeal to the principal agriculturists of East-Lothian and Ayreshire, (the counties where draining is most advanced,) whether the increase of crop consequent upon that process may not more properly be put at *double*, and even *treble*, the previous produce of the land.

CULTURE OF THE POTATO.

Some interesting facts in regard to the culture of the potato, are given in a communication of Mr. Towers, a correspondent of the late Mr. Knight, in the Quarterly Journal of Agriculture. The communication embraces the opinions and experience both of Mr. Towers and Mr. Knight; and no persons are better qualified, perhaps, than these two gentlemen were, both from their knowledge of vegetable physiology and numerous and carefully conducted experiments, to make sound conclusions in the matter.

Potatoes will grow in any soil, containing vegetable matter; but, says Mr. Towers, the produce in amount or quality appears to be materially influenced by local agencies, even in soils of the same constitution; and he cites cases, where a kind is very good in one district, and very inferior when grown in another district.

That soil and routine of culture which produce the strongest haulm, will yield the greatest bulk of tubers; though if the foliage is too massive, the quality of the tubers will be inferior, and prove deficient in starch. He therefore prefers a medium growth of tops, wherein the balance of strength is supported between the stem and the leaves, the result of a well prepared and healthy soil, reciprocating with the stimulus of the sun's rays, and the decomposing agencies of atmospheric air and water. Firmness of texture and mealiness ought to be the standard, rather than weight of tuber; and such, he says, may be produced by proper management, on all soils. Although Mr. Knight has calculated that 1,000 bushels, weighing 80lbs. each, may be produced on an acre, partially demonstrated by experiment, Mr. Towers estimates the average crop of the county at 300 bushels.

Mr. Towers finds fault with the practice of cutting potatoes sometime before they are planted. The starch exudes from the cut surface, and the set becomes soft and flaccid in consequence of emptying the cellular tissue by evaporation. He cuts in the field as he plants.

He quotes a letter from Mr. Knight, saying, that he obtained 670 bushels of 80lbs. each, from an acre; that he always plants whole seed, and selects the largest for seed, and from very early crops; that he plants them upon their ends, to stand with the crown end upwards, at four or six inches apart in the rows, and the rows two to four feet apart, according to the natural growth of the tops, the taller growth requiring the widest intervals —if the height of the stems be three feet, the intervals between the rows should be four feet.

Both of these gentlemen concur in the opinion, that the blossoms take away a great deal of sap, or nutriment; and they therefore prefer those kinds for culture, which do not produce seeds, or balls, of which Mr. Knight obtained several new varieties by cross impregnation. The exhausting influence of blossoms and fruit may be seen upon fruit trees. If a tree fruits abundantly, it makes little or no growth in wood; if one blossoms which has been just before transplanted, it proves injurious or fatal to the tree.

To obtain early potatoes, Mr. Knight takes those which have ripened early, for the reason, that those which ripen late, are not sufficiently "*excitable*," though more eligible for a late, or rather moderately early crop, the produce of which will be proper to plant for a very early crop. Mr. Knight adds, that immature potatoes, or those which have not become perfectly ripe, are as good for planting as others. Mr. Towers' experiment with *early* potatoes, gave an increase of six for one.

Mr. Towers *cuts* his potatoes into sets comprising two, and not more than three eyes. He calls the end where the eyes are chiefly congregated, the *rose*, or *crown;* and he cuts diagonally, dividing the crown into different sets. Two facts are here stated, which, we confess we never before considered, but of the truth of which we are satisfied, and which we believe few farmers have duly appreciated. We state them in Mr. Towers' words.

> "*First*—All the eyes of entire potatoes do not push at one time, therefore it is a mistake to suppose, that a plant becomes crowded by a useless haulm, if the potatoes be planted whole." [We see this at planting. Some eyes have sent forth their sprouts, while others remain perfectly dormant.]
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> "*Again*—Persons have imagined, that weakness of the root is occasioned by the destructive action of frost upon the earliest shoots. This is also a mistaken notion. For if any eyes remain unexcited in the tuber under ground, the loss of one shoot is speedily supplied by the substitution of another. Time may, indeed, be sacrificed to a certain extent, but that is all. Of this any one may convince himself, by endeavoring to exterminate a straggling potato; he may hoe, or pull off the first shoots, and think his ground cleared of the intruder; but in a week or two the spot will be again occupied, and it will be perceived, that nothing short of the complete removal of the tuber can prove effectual. If sets, with one or two eyes, have been planted, and have sent up all their shoots, then the destruction by frost may prove fatal; but it may happen that a shoot may appear to be killed to the ground, and yet produce a fruitful plant, though late in the season, from embryo eyes seated round the stem, near its point of eruction from the potato."

These gentlemen seem to have arrived at the conclusion, and it is certainly a rational one, that *light*, that is, the influence of solar light upon the plants and soil, has a controuling influence upon the quality and product; and hence they argue, that the foliage should not be crowded, but be duly exposed to the sun and air.

Mr. Towers prefers sets for seed to whole tubers.—He found that sets gave as great a product as whole tubers; generally about six of produce to one of seed, and that by this means he effected a great saving of seed. He also applied lime, ashes or gypsum to his cut potatoes before burying them in the ground, not only to increase their growth, and prevent the waste of their juices, but to prevent their being attacked by the grub. In several experiments he obtained 354lbs. from 12lbs. of seed, 520 from 30lbs. 215 from 22lbs. and 150lbs. from 30lbs. of seed.

The potato, according to Mr. Towers, prefers a free soil; but where the soil is heavy, he advises, that the land be set up in one bout ridges in autumn, to expose a great surface to the frost; that the manure be previously added, with coal ashes if they are to be had, which never fail to meliorate heavy binding earth. He says that the plant affects a light rich soil, wherein its fibrous roots and tuber bearing processes may wander laterally but not deeply; that the manure should be well blended with the earth; and that six inches of good mould is enough for the crop.

The keeping quality of a variety of potatoes is to be judged of by the protrusion of their eyes or shoots in spring, the eyes of the good keepers remaining longest dormant. To keep them in good eating condition, during winter, he advises that they be kept in a dry cave, or pit, or cellar, where the utmost degree of equable cold can be maintained, consistent with the exclusion of frost.

EXHIBITION OF SEEDS.

An exhibition of seed corn and grass seeds is noticed in a late Gardeners' Gazette, at which handsome premiums were awarded for the best parcels. The weight of some of the prize seeds were as follows:—Barley 57 and 58lbs. 3oz. the chevalier the heaviest; oats 45lbs.; rye grass 21lbs. the bushel. Whatever diversity of opinion may prevail, as to the policy of awarding premiums on fat cattle and large crops, none we believe is entertained as to the propriety of encouraging, by premium, the raising and selling of good seeds.

AGRICULTURAL STATISTICS.

In Great-Britain there are 961,154 families, embracing 4,805,670 individuals, which belong to the agricultural class, and a total population of 16,539,318—a proportion of a little more than one agriculturist in four of the population. In Ireland, the agricultural families amount to 884,339, embracing 4,863,864 individuals, in a total population of 7,767,441. The cultivated acres in Great-Britain exceed 34,000,000; in Ireland they do not amount to 15,000,000.

AGRICULTURAL MUSEUMS.

Two have recently been established in Ireland.

CORN LAWS.

When the average price of wheat in the British market is under 70s. ($15.54,) per quarter of eight bushels, the importation of foreign grain is prohibited; when the average price is over 70s. the importation is permitted, on the payment of a duty of 17s. a quarter.—This was under the old corn law. The maximum price has since been reduced to 60s. per quarter.

COLLECTIONS.

Early Rising.—There is no time spent so stupidly as that which inconsiderate people pass in a morning between sleeping and waking. He who is up may be at work, or amusing himself; he who is asleep, is receiving the refreshment necessary to fit him for action; but the hours spent in dozing and slumbering are wasted without either pleasure or profit. The sooner you leave your bed, the seldomer you will be confined to it. When old people have been examined, in order to ascertain the cause of their longevity, they have uniformly agreed in one thing only, that they "all went to bed and rose early."—*Gardeners' Gaz.*

The German Press.—It is calculated that ten millions of volumes are annually printed in Germany, and that there are upwards of fifty thousand authors of one or more books.

Encomium of Socrates upon Agriculture.—"Agriculture," says Socrates, "is an employment the most worthy the application of man, the most ancient and the most suitable to his nature; it is the common nurse of all persons, in every age and condition of life; it is the source of health, strength, plenty and riches, and of a thousand sober delights and honest pleasures. It is the mistress and school of sobriety, temperance, justice, religion, and in short of all virtues, civil and military."—Socrates would no longer be counted a sage in this enlightened age; for even many farmers have discovered, that his counsels are erroneous, and that agriculture is subordinate to the more *genteel* pursuits of life; and they therefore wisely resolve to make their sons measurers of tape and molasses, or retailers of law, rather than tillers of the soil.

Measuring light.—Sir John Herschell has lately invented an instrument for measuring the intensity of light, and he has found, that at the Cape of Good Hope this is twice as great as in England. "Although temperature has a great deal to do with plants," remarks Prof. Hall, "probably light has much more."

ARTIFICIAL MEADOWS.

The vast benefits resulting from artificial meadows, or in other words, of selecting for them plants of our own choosing, and alternating with grain and root crops, is strongly illustrated in the following extract from Yvart, a French agricultural writer.

> "If meadows," says he, "be the nerve of good husbandry, it is, above all, to artificial meadows we must apply this great truth. The state of those cantons which have adopted the new system, is now as brilliant as it was before wretched and miserable. Alsace has put on a new face since the introduction of clover, and wheat crops have been increased more than one-third. The village of Sebach, under the old system, bought annually 180,000lbs. of forage, and now sells 150,000. The canton of Virien, which gave formerly only rye and buckwheat, (and poor crops of these,) now gives abundant crops of fine wheat. This is altogether owing to clover and gypsum. The same remark applies to the department of Doubs. In the departments of the Seine and Oise, the four year rotation is adopted, of which clover is the basis, and moro than double the produce is raised for exportation. In Varenne, the soil of which is a poor sand, the same effect is produced, by sainfoin, instead of clover. In a canton of the department of Loiret, M. Segret has doubled his income by the introduction and culture of Lucerne."

THE BUDGET.

Cutting Bushes.—Oliver Moore asks, at what season bushes, sprouts and timber should be cut, that they may not grow again—and if the moon has any influence in the matter? If we are to regard popular opinion, the old moon in August is the propitious time to cut bushes, &c. to prevent their sprouting again; and so far as we have had experience, it goes to confirm popular opinion. In August, there is probably less sap circulating in trees than at any other time in summer, and consequently there is less disposition to throw up new sprouts; while the intense heat of the season, operating upon the wounds, tends to destroy vitality. All we will pretend to say in regard to lunar influence is, that there is ordinarily a more abundant flow of sap in the new than in the old moon. We therefore advise that bushes be cut in the old moon in August. Mr. Moore is informed, that the entire volumes of the Cultivator may be had, either stitched or bound.

Short-Horn Bull.—George P. Hawley, of Frankfort, Herkimer, asks us where he can buy a full blooded Short-Horn bull, spring calves, &c. and John Sommer, 3d, of Passumpsic, Vt. informs us he has such a bull to sell. C. N. Bement has also one or two. We have opened an advertising page particularly for the buyers and sellers of farm-stock, implements, seeds, &c.

Foreign Agricultural Periodicals.—A correspondent, J. M'M. asks us to recommend to him a foreign agricultural journal. We recommend the Quarterly Journal of Agriculture, published quarterly at Edinburgh, and the Farmers' Magazine, published monthly in London, both or either, as the best we are acquainted with.—Our correspondent will requite all obligations to us, by sending the result of his pending "experiments," favorable and unfavorable, in the Miami valley.

Silk Culture in the District of Columbia.—Our Washington correspondent writes—"Besides a number of individuals who have commenced growing multicaulis in this district, the Washington City Silk Company have purchased a farm near the city, at $12,000, have planted 200,000 buds, and are feeding the worms from five ounces of eggs. The company have also purchased three of Gay's Machines, and intend to manufacture all the cocoons they can either make or purchase in the district." And we hope they will employ in their labors, the invalid, the indigent and the young. Thus they may feed the hungry and clothe the naked, without serious prejudice to their interests.

Thrashing Machines.—It is out of our power to add to the information we have published on this subject. In answer to the inquiry of J. D. Rodney.

THE "ROBINSON FUND."

"For the encouragement of those who feel disposed to contend for these premiums, I have to inform you, that the seat of justice of Lake county has lately been located in the town where those premium lots are situated, and which will greatly enhance their value. May they be as nobly won, as they will be freely given. I remain, respectfully, SOLON ROBINSON."

CORRESPONDENCE.

Legislative Encouragement to Agriculture.

The following is an extract of a private letter to the conductor. The writer is a farmer. His letter will show that he is a gentleman of talents, and a patroit. We do not feel at liberty to give his name. It matters little whose hand records truths, if they concern, as the subject of this letter does, the most important interests of the state. We commend the subject matter to the serious attention of our readers, of all classes.

June 1, 1839.

J. BUEL, Esq.—Dear Sir—I intended to have written to you immediately on the rising of the legislature, but ill health and other engagements have compelled me to put off till the present time. Is it not vexatious, that after every thing had been put in such a train as to ensure success, our agricultural and silk bills must have had the go by, under the paltry excuse that they could not be suffered to pass without a full discussion. From Mr. ———, I should have expected nothing better; he has been opposed to aiding agriculture from the beginning; but that Mr. ——— should have done the same is to me surprising. Talk of importing silk to obtain the state premium, under a law for the protection of *domestic silk culture,* and as carefully guarded as was ours, how absurd? It was enough to make the blood of an honest man boil, to read the debates in the assembly on the agricultural bill. To hear the men whom the farmers sent there for far different purposes, than to abuse them, putting the horse jocky, the blackleg, and the avowed swindler on a par with the owner and cultivator of the soil, is intolerable. How came these men in the assembly? how came they by the education which was supposed to have fitted them for that place, and which in its legitimate effects should have made them gentlemen? They received, the most of them, their education at places for which the farmers of this state have paid above two millions of dollars; farmers by their votes placed them there, and gave them their power; and when farmers asked that they should have the use of some $25,000 annually, these men had the effrontery to talk of legislative aid to agriculture, being "arrant quackery?" Was it quackery when legislative grants endowed colleges and academies; and fenced the professions with legal enactments, which in effect has made them a privileged class? which has given them a power they are now using, to kick down the men who claim the right to rise to the same level with themselves? Do not understand me as casting these censures upon the whole legislature. We had some noble hearted supporters there among the professions; men whom our opponents dared not meet with an argument, but rather chose that dishonorable weapon, a sneer. But it is a melancholy truth, one apparent to all, that every thing in state legislatures and in congress, is opposed or supported, more with reference to political effect than any thing else: every thing is made subservient to the support or the overthrow of a party. It is one of the darkest of the signs of the times, that the merit or demerit of a cause has little to do with the success or failure of a measure, and that the mass of the people "love to have it so". After all the farmers have no one to blame but themselves. It is for them to say, whether they approve or disapprove the conduct of their servants, or rather as the times go, their masters. It is for them to say whether the sneers of a ——, or the atrocious language of a ———, shall be submitted to with patient approval; whether when they ask for bread, they shall not only be turned away with a stone, but cudgelled off with blows and flagellation.

There is in my opinion no disguising the fact, that we are fast becoming a people of caste; and that *rank* in reality, if not in name, is as much felt here as in England. On one side are the producers, on the other the non-producers; on one side the mass of the people, the "laymen" as they were contemptuously called in the late legislature, on the other the professions, as they are in courtesy called. The mechanic and the farmer wish to improve, to rise; and the beneficed, and privileged, are determined they shall not. Their rights are secured by law, and they make, they frame, and they expound the laws. They say what interest shall be aided and protected, what depressed or punished for its presumption. They grant millions for colleges to educate their sons, and keep their ranks full; we ask for hundreds or thousands to instruct and benefit the mass, to endow a school of agriculture, or societies for promoting it, and are told by these men we are fools, do not know our own business, and that aid to us would be the vilest quackery and folly. Well, unless I am mistaken, "we bide our time;" we will have our place in the temple we have erected, or we will pull it down.

I know not what you think of these matters, for I have not seen the present volume of the Cultivator, but I think I know your opinion so well as to have no doubt of your sentiments. At any rate I have written freely, for I feel deeply, and on this subject it is the duty of farmers to speak fearlessly. We must not be discouraged, but gird up ourselves for another effort. The subject must not sleep; we can, and we will be heard. We will not forever pay, and receive nothing; forever be filling the treasury to see it squandered on objects and for purposes, which to the improvement of agriculture in consequence, are but as the dust of the balance.

Cure for the Stifle.

Lincolnton, N. C. May 28, 1839.

J. Buel—Dear Sir—I noticed in your February number of the Cultivator, page 207, a cure for stifle, by external applications; to wit, a decoction of sumach and white oak bark, &c. This is new to me and may be very effectual, but there is a remedy which I have practised, which is certain, simple and quick, which I will communicate, and if you think it worth notice, may recommend it.

"Fasten a strong rope or chain round the foot-lock of the injured leg, and let a strong man hold it; then have the horse moved forward, while the rope is held fast by the person behind, pulling the rope so as to occasion the leg to be extended back as far as it can be drawn. Let this be done three or four times before the rope is taken off."

I have never known it to fail to make a cure on the first application, but the gentleman who gave me the information, and applied it to a horse of mine, told me that when the stifle had remained for some time, the first jerking might not effect a cure, and in that case it would be necessary to repeat it in a few days. I do not know the cause of the lameness, but was told by the same gentlemen, who informed me of the remedy, that it was occasioned by the slip of a bone, about as big and long as a man's fore finger, at the thigh joint, near the flank, and that the jerking the leg back restored the small bone to its place. If that be the cause, perhaps the decoction mentioned in your February number might assist in the cure; but I never failed to relieve a horse of lameness of stifle, by putting the leg back, as above described, and have cured several.

It might be of importance to some to know how to judge when the lameness of a horse is what is called stifle. That can be ascertained by leading the horse over a log, fence or bars, eighteen inches or two feet high. When the horse is stifled he will drag the lame leg over the log, and the pain in the thigh joint, preventing the animal from raising the leg up, as it does in stepping over a fence or log, and when first afflicted, seems to be very painful, and makes the animal sweat very much. Respectfully yours, &c.

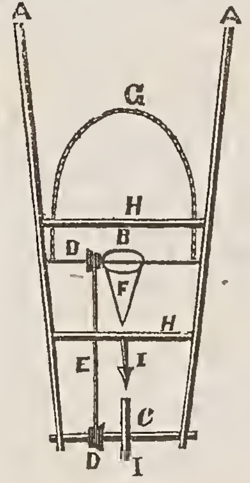
ROBERT H. BURTON.

P. S. In pulling or jerking the leg back, care should be used that it should be directly behind, for if turned to the one side or the other, it may be injured. My horse, which was relieved in this way, had travelled a hundred miles quite lame, and sometimes in great pain, and when turned out after one operation, showed no more lameness, and set to playing.

Mr. Whalen's Cultivator.

Whalen's Store, May 17, 1839.

[Fig. No. 20.]



J. Buel, Esq.—Dear Sir—In compliance with the request of Mr. Bailey, I herewith send you a description of my drill-barrow, with a drawing of the same. It excels, for cheapness and simplicity, anything I have seen.

A A are side pins or arms, 5 feet long, 1½ inches thick, made of white ash or oak. B, tin barrel or cylinder 8 inches long, 5 inches diameter in the middle. 3 inches the ends. C, wheel 13 inches diameter, made of 1½ inch oak plank, banded with hoop iron. D D, pulleys or wheels, turned tapering, 5 inches diameter at large end, 5 grooves in each. E, band made of cotton, ⅜ inch diameter. F, hopper suspended below tin box to catch and carry seed to ground, tapering to 1½ inches in the clear. G, trace chain dragging behind to cover seed. H H, cross ties. I, coulter suspended from cross tie, so guaged as to make a small furrow for seed.

The tin barrel is perforated in the middle with 4 holes, equidistant from each other, large enough to pass a No. 3 shot, or 2 or 3 seeds at a time; about an inch from the end is a hole 1 inch in diameter, for receiving the seed, stopped with a cork. The axle of the tin barrel is of wood, passes through the same, and is about 1 inch diameter. I generally use 2 trace chains instead of 1. With the tapering whirrs, the barrel can be geared to drop faster or slower. I have found it preferable to sow an extra quantity of seed, and thin down in order to get a good stand. A communication appeared a short time since in the Cultivator, recommending to transplant or dibble out the plants. I never could succeed well with the plan, and all that Cobbet and others may have said in its favor will not persuade me to adopt it.

In conclusion, I would say, I grew last season 1,600 bushels ruta baga, large measure, on 2 acres ground.

Respectfully yours,
SETH WHALEN.

Physiology—Vegetable and Animal.

J. Buel—Dear Sir—By the way of extracts, I now further proceed to observe, that while all writers agree, that the origin of the vegetable kingdom is by generation, its growth by nutrition, and a termination by death, but in an organized structure and an internal living principle; *physiologists* differ in the powers with which the living principle is endowed, and the effects it is capable of exerting. In the plant it is limited, so far as we are capable of tracing it, to the properties of irritability, contractibility, and simple instincts; in the animal, it superadds to these properties those of muscularity, sensation, and voluntary motion.

There have been, indeed, there still are, physiologists who, not adverting to the extraordinary effects, which the power of irritability is capable of producing, when roused by different stimulants, and under the influence of an internal and all-pervading principle of life, operating by instinctive laws and instinctive actions, or those, as we shall show hereafter, which are specially directed to the growth, preservation, or production of a living frame, or any particular part of it,—have conceived plants as well as animals to be possessed of sensation and muscular fibres; and as sensation is the result of a particular organ, and the organ producing it is connected with various others, have, at the same time, liberally endowed them with a brain, a heart, and a stomach; and have very obligingly permitted them to possess ideas, and the means of communicating ideas; to fall in love and to marry, and thus far to exercise the distinctive faculty of volition. The whole of which however, is mere fancy, grounded altogether upon an erroneous and contracted view of the effects of the principle of irritability, when powerfully excited by the influence of light, heat, air, moisture, and other causes.

In reality, such kinds of loves and intermarriages are not peculiar to plants, but are common to all nature; they exist between atom and atom, and the philosopher calls them attractions; they exist between congeries and congeries, and the chemist calls them affinities; they exist between the iron and the loadstone, and every one denominates them magnetism. Nor let it be said, that in these cases of mutual union, we have nothing more than a mere aggregation of body; for we have often a third substance produced, and actually generated, as the result of such union, far more discrepant from the parent substances, both in quality and feature, than are ever to be met with in vegetable or animal life. Thus, if an acid be married to an alkali, the progeny brought forth will be neutral salt, possessing not the remotest resemblance to the virtues of either of its parents. In like manner, if alcohol be married to any of the more powerful acids, and the bans be solemnized over an altar of fire, the offspring engendered will be a substance called ether, equally unlike both its parents in its disposition.

But in this it may be said that we have no instance of a multiplication of species; only the production of a third substance; yet in many cases we have instances of multiplication also. Such especially are those wonderful increases that occur in the case of ferments and contagions.

A few particles of yeast lying dormant in a dessert-spoon, are introduced into a barrel of beer, or of any other fermentable fluid, and in a few hours propagate their kind through the largest vessel that was ever manufactured; so that at length every particle of the fluid is converted into a substance of their own nature.

The terms loves and marriages will just as well apply to these as to the vegetable creation. The cause of the respective unions, and of the changes that take place in consequence of such unions, are nothing more than elective attractions; in the mineral and gaseous kingdoms produced by what chemists have denominated the principle of *affinity,* and in the vegetable, by what physiologists have called the principle of *irritability.*

No experiment or observation has hitherto proved vegetables to be possessed of any higher powers than those of irritability, contractibility, and those instinctive energies which we shall hereafter show, are dependent upon the principle of life.

Plants, then, like animals, as has been already observed, are produced by generation, and through the medium of ova or eggs. The exceptions to this common rule are few, and they occur equally in both kingdoms. The egg of the plant is its seed; which is sometimes naked, but more generally covered with a pericarp, or called in popular language, pod. Stripping off this outer covering, we find the seed to consist internally of a *corculum,* or heartlet, and externally of a fleshy substance, surrounded with a double integument, sometimes single, and sometimes bifid; these are called seed-lobes or seed leaves. In the common kidney-bean, we have as striking an instance as in any plant, just peeping in two distinct segments above the ground, as soon as the seed has began to germinate. The cotyledon is that part necessary for the germination and future growth of the seed, and may be denominated its lungs. Plants possess lymphatics and air vessels: through the former of these it absorbs the moisture of the soil into which it is plunged, decomposes a part of it into its elementary principles, and conducts these principles, together with the undecomposed water, to the corcle or heartlet, which becomes stimulated to the process of germination by the oxygen thus set at liberty. It is the corcle which is the true *punctum saliens* of vegetable life, and to this the cotyledon is subservient. The corcle consists of two parts, an ascending and a descending; the former called its plumule, which gives birth to the trunk and branches; the latter named its rostel, which gives birth to the root and radicles. The position of the corcle in the seed is always in the vicinity of the *hilum* or eye. The first radicle or germinating branch of the rostel uniformly elongates, and pushes into the earth, before the plumule evinces any change. The radicles consist chiefly of lymphatics and air-vessels, which serve to separate the water from the soil, in order that the oxygen may be separated from the water.

Hence originates the root, unquestionably the most important part of the plant, and which in some sense may be regarded as the plant itself; for if every other part of the plant be destroyed, and the root remain uninjured, this organ will regerminate, and the whole plant be renewed; but if the root perish, the plant becomes lost irrecoverably.

The solid parts of the trunk of the plant consist of *cortex,* cuticle, or outer bark; *liber, cutis,* or inner bark; *alburnum,* or soft wood; *lignum,* or hard wood; *medula* or pith. The trunk enlarges, by the formation of a new liber or inner bark every year; the whole of the liber of one year, excepting its outermost layer, which is transformed into cortex, becoming the alburnum of the next, and the alburnum becoming the lignum.

All the concentric circles which are produced in the trunk of a tree by the growth of every year, are still visible after the conversion of every other part into lignum or hardwood, and we can trace its age with a considerable degree of certainty, by allowing a year for every outer circle, and about two or three years for the complete lignification of the innermost.

The respective vessels of the vegetable system are adducent and reducent, or arteries and veins; the arteries or sap vessels may be seen by the naked eye; the veins or returning vessels bring back the elaborated sap from the leaves to the liber for the new layer of the existing year.

The lymphatics lie immediately under and in the cuticle; immediately below these lie the adducent vessels or arteries; they are the largest of the vegetable vessels, rise from the root and communicate nutriment in a perpendicular direction. Interior to these lie the reducent vessels or veins; which are softer, more numerous, and more minute than the arteries.

This double set of vessels is possessed of an opposite power, and acts in an opposite direction, the one to convey the sap or vegetable blood forwards, and the other to bring it backwards; being thus sufficiently able to establish a circulatory system.

It should be observed, that the matter of fibrine, or the principle of the muscular fibre which exists in animals, also exists in vegetables. Dr. Hales cut off the stems of vines in the spring, and by fixing tubes on the stumps, found that the sap rose in many instances to the height of thirty-five feet. Tubes have been fixed to the large arteries of animals, as near as possible to the heart, in which the blood did not rise higher than nine feet.

Plants are also possessed of cutaneous secornants or perspiratory vessels; and in many plants the quantity of fluid thus discharged is very considerable. Dr. Hales in a very accurate set of experiments determined that the sunflower threw off or perspired nearly half its own weight in twenty-four hours.

Plants, nevertheless, do not appear to have the smallest basis for sensation, admitting that sensation is the result of a nervous system. The vessels of plants do not appear to possess any muscular fibres, yet we have evident proofs of the existence of a contractile and irritable power from some other principle; and a variety of facts occurring in making it highly probahle that it is by the exercise of such a principle that the different fluids are propelled through their respective vessels; we have abundant proofs also that a contractile power may exist independently of muscular fibres in the animal system.

In what part of a plant the vital principle chiefly exists, or to what quarter it retires during the winter, is not known, and we are equally as ignorant in respect to animal life. The plant yearly thrives and increases in bulk, puts forth a new progeny of buds, and becomes clothed with a beautiful foliage of lungs for the respiration of the rising brood; and with a harmonious circle of action, that can never be too much admired, furnishes a perpetual supply of nutriment, in every diversified form, for the growth and perfection of animal life, while it receives in rich abundance, from the waste of diminuation, and even decomposition of the same, the means of new births, new buds, and new harvests.

Thus every thing lives, flourishes and decays; every thing dies, but nothing is lost: for the great principle of life only changes its form, and the destruction of one generation is the vivification of the next. Yours, &c.

S. W. JEWETT.

Great return of capital laid out in agriculture.

Metuchen, N. J. June, 1839.

J. Buel, Esq.—Dear Sir—In conversation with a gentlemen, recently returned from England, who has had opportunities of visiting some of the best farms in the most improved agricultural districts of that country, and whose judgment in all matters pertaining to the soil is well matured both by study and practice, I was surprised to hear of the enormous difference in the results of agriculture between that country and our own. As an instance of the profits generally derived there, by men who commence farming, without any acquaintance with the practical department, but with only that knowledge which may be acquired by study, and judgment based upon observation of the methods and practice pursued by others, he stated, that he had visited a relative, who six years since, leased a farm of six hundred acres, at a yearly rent of seven hundred pounds, equal to about three thousand five hundred dollars. Now this to us would appear a good price to pay for the purchase of the same amount of land. Yet it was no more rent, than ordinary good land would readily command there, at that time. But by many who were not so well acquainted with the much ridiculed theory of agriculture, who had not applied themselves to the study of those sciences which are requisite to a correct and judicious management of any soil, and who were in fact ignorant of the very nature, and qualities of the soil, they were themselves laboring to obtain a competence from; by many such, the undertaking was thought, owing to the previous occupant's ill success, as next to folly itself. Not so with the present lessee. Although he had never "held the plough, or driven," and perhaps to this day, has not yet "fretted the skin from off his maiden palms," yet from acquired knowledge of the properties, and capabilities of every soil, when treated according to the manner indicated by its qualities, and by a liberal system of *feeding* as well as *cropping* that soil, he has been enabled not only to pay the apparently enormous rent above mentioned, but also, to reap a rich reward for his enterprise.

For the first two or three years, he sunk annually about fifteen hundred pounds; but this was expected, as from the situation in which he found the land, the most lavish expenditure was required, to bring it up to that state of productiveness which he knew it to be capable of. Yet this was willingly afforded; not with that blind recklessness with which many of our gentlemen farmers commence operations, but with strict attention to the aptness of his measures, and with the view constantly before him of their future and lasting benefit to the soil. And while liberality was the ruling sentiment in all his operations, yet a just economy both of ways and means, was never lost sight of. I have given you as yet, only an idea of part of the expenditures; I will mention a few more, that when the profits are named, they may not seem disproportioned, or that the whole system may not appear too chimerical to encourage gentlemen of capital to pursue it in our own country. Among other items he mentioned, that it cost him every year about two hundred and fifty pounds, one thousand two hundred and fifty dollars, for oil cake, and that he yearly made use of two thousand bushels of bone dust, the cost of which was of no consequence, as he would have it at any price. That into his barn yard there was carted every morning, a large two horse cart load of straw, and that he used a root slicer that with two men, would cut three bushels of turnips per minute.

These few particulars may enable the *initiated* to account for the success attendant upon his undertakings, and to understand how, in favorable seasons, he manages to make one thousand pounds, or five thousand dollars *nett* profit from a farm of about six hundred acres.

Culture of Corn.

Setauket, Suffolk co. May 18, 1839.

Judge Buel—Sir—For some time I have thought of offering my mode of treating the corn, which I consider the most important among the grain crops; and the springing of the young plants prompts me again to submit it. Whether manure has been spread before ploughing or only placed in the hills afterwards, I adopt the same practice. As soon as the corn has got up, so that the rows or lines can be distinctly seen, I run the *plough* through as near to the hills as may be without displacing the plants, to the depth of five inches, throwing the earth from the hills; if moles or mice are plenty in the field, both ways, if not, only one way. The rows are then gone over with the hand hoe, the hard surface or crust immediately about the plants stirred and broken, and the contiguous weeds or grass destroyed: this is the first dressing. After about ten days, set in the plough in the same manner as before, if it has been ploughed through only one way; if both, reverse the furrows and let the hoe be used to loosen the earth about the plants, and to draw a little fresh soil to the hill, at the same time eradicating all weeds and grass near the plants. Now we have ended the second lesson, and will be ready at the proper time for the third and fourth, or more, as the soil or season may require, with the cultivator or harrow to break down small hillocks or ridges, and to keep a soft surface between the rows, that will absorb the showers or dews, when a hard surface would be but little benefitted, taking care at each time, to draw a little new mould to the hill, yet leaving it at the last dressing with a wide square hill, but slightly elevated. This little rise about the corn hill will help to support it at the autumnal gale, and will not turn the showers off to the injury of the crop. This management may seem not exactly orthodox; but I fancy I derive some advantages not to be obtained by the use of the harrow or even cultivator alone. Those mischievous miners, the moles and mice, are more effectually opposed in their operations, a deeper and softer bed is prepared for the roots to strike into, and greater extent of surface is exposed to be heated by the sun's rays; which is in effect protracting the summer a week or ten days, time enough not unfrequently to save a crop. A common saying with our farmers is, corn only wants hot weather; and the fact is notorious, that a fair crop of corn may be obtained by nice management, in a season so dry that any other grain crop would fail almost in toto. The harrow and cultivator scarify the ground, but do not lay it open with a bold incision, nor leave the corn hill on a prominent ridge or hillock at the commencement of growth, when nothing but heat seems necessary to the vitality and health of the plants. If it be objected, that by this use of the plough we assist the escape of vegetable food, in the form of carbonic acid gas and volatile alkali, I reply it may be so, to the amount of six or eight per cent, an inconsiderable matter compared with the accelerated maturity of the crop. Should you deem these remarks of consequence enough for insertion in the Cultivator, they are at your service. Respectfully yours,

ARCH. JAYNE.

The Silk Business.

Goshen, May 12th, 1839.

J. Buel, Esq.—Dear Sir—The silk business seems to be on the advance in this country. Rapid indeed has been its progress within the past six years, if we consider the quantities of trees raised, as a part of the business.

As almost every one has an opinion of their own, this opinion, if founded on personal observation & experience, might be worth committing to paper, especially as there is so much yet to be learned upon the subject; I have taken the liberty to trouble you with a few of my thoughts upon the subject, presuming that you will not suffer anything to have a place in the columns of your paper, which would not tend to promote the end for which it was designed. The business of making silk in this country, will undoubtedly, at no very distant period, be a great one. Many of our best farmers, who are now deterred from engaging in the business through ignorance or fear of the expenses incident upon a new business, will, when they see from the experiments of their more enterprising neighbors, the ease with which the operations are performed, that it is as simple as almost any branch of husbandry, and more than all, that if properly managed, it yields a rich return from a small investment, be much more ready to engage in it. Yet at the commencement of the business, some judgment and foresight is necessary, more especially in the selection of the right kind of trees.

The white mulberry is a good hardy variety and produces silk of good quality, but the quantity of foliage it produces to the acre is much less than that of some other kinds.

Immense quantities of the morus multicaulis have been grown in this country, but I suspect more for the purpose of speculation, than from any desire to promote the manufacture of silk. I had occasion not long since to take a journey into Massachusetts, on business, and while in Amherst, I became acquainted with Mr. Timothy Smith, and several other intelligent gentlemen, engaged in the silk business. Mr. Smith, I considered, as the most candid man I conversed with, and who has been in the business the longest. He commenced in 1832, with the white mulberry, found that the leaves made good silk, but the quantity of foliage produced to the acre was small. He then successively tried the multicaulis, Canton, and Alpine, which he pronounced only a variety of the Canton. He gave a decided preference to the two last varieties, alleging as his reasons, that the quantity of foliage to the acre from Canton trees, was nearly as large as that of the multicaulis, while the leaf of the former seemed to be more palatable to the worms, and did not create disease amongst them, as the leaves of the multicaulis did, owing to the quantity of moisture in the latter. The Canton proves to be a much hardier variety than the multicaulis, as he has proved by actual experiment, that they will stand our winters while the multicaulis will not. Other experiments and observations which I have not time nor room now to detail, convince me that the Canton tree is the best adapted to our northern climate, and when the rage for buying up multicaulis cuttings, at 4 cts. a bud has in a measure subsided, and the business of making silk begins to claim a share of public attention, this tree will be more sought after.

I have a piece of ground very mellow, but not very rich, which I intend to sow with ruta baga. Would it be a good plan to sow to buckwheat and turn it under as food for the turnips? Yours with respect.

CHAS. STRONG.

Bloody Murrain.

Black Locust Grove, Mo. May 3, 1839.

Hon. J. Buel—Sir—I will now give you (and if you think them worthy of it, through you to the public) *my own* observations and experience about the "*bloody murrain*," a disease I never heard of among cattle till I moved to this country. I have tried the "tar," sir, to my own satisfaction.* It may have cured some cattle, but not one of mine, for I have lost six head of valuable cattle in the last five months with it, and I tried tar on all that I could get to in time to do any thing with, but one, and it has failed, entirely failed, to do any good. Indeed, sir, I have come to the conclusion, that there is no specific for it; but like cholera, some few cases may be cured, but ninety-nine out of one hundred will die. It is a most painful, dreadful disease; those that discharge the blood through the urine and bowels, suffer much less pain (though no less fatal) than those that bleed internally; and I believe the best preventive is regular feeding, and not too sudden a change of food. Now for my reasons for thus believing.

In the first place, the spring and fall are the times in the year it prevails most; the poorest or fattest are the most liable, though some exceptions, both as to time and the order they are in. Last fall I had a very fine heifer (one that had taken the premium at our fair,) in fine order which was the first of mine that took it; she ran in a lot through which I was hauling corn to the cribs, and while we were unloading she would usually gather up the falling ears, and I would throw her the nubbins. On the next first day of the week, she did not get any corn, as the grass in the lot was thought sufficient. On Monday following she died. In the last of February I had two steers that died. It being wet, the cattle did not eat their food clean, consequently they did not receive their usual quantity of aliment; and being weaker than the most of my other cattle, they were kept off, and consequently became excessively hungry. I then had another heifer that I prized very highly. In order to save her, as she was getting poor, I had her fed an extra meal, and the very next day she died. Here I had ample opportunity to try the tar, for from day light till night (and the night before she was well, at which time I began to give her the extra feed,) I had her to operate on, but to no purpose. Well, sir, when grass came and would afford a good bite, one of my neighbors had a bull which he had kept upon dry food. I wished to get some of his calves, and obtained the use of him; turned him on my pasture, quit giving him dry food, and in three days he died. So, then, I conclude that too sudden a change from dry to green, or from green to dry, will produce it; hence its prevalence in the fall and spring. Or permit a fat animal to get very hungry, or a poor one to get very hungry, or unusually full, will produce it; and when produced it most generally brings forth death.

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* Mr. Smeally wrote us, after the insertion of his communication, recommending tar, that it had failed with him in some subsequent experiments, which we forgot to notice.—*Cond.*

While I am writing, I will mention a practice I fear is coming into vogue, which in my opinion is not only dishonorable, but calculated to do harm. It is the custom of puffing certain seeds into notice, and then to cheat the community with them. For instance Baden corn was posted through our newspapers as the brag corn, whether as to number of ears to the stock or yield to the acre. Well, sir, we had some forty bushels brought to our country, and I do most positively affirm, taking the bushel I got as a specimen, there was at least one-fifth wholly unfit to plant, yet it cost us five dollars per bushel. There was not only every variety, from the hard flint up to the common *white and yellow*, but the nub or blossom end corn, and some of it actually rotten. Again, sir, a man who has Rohans for sale at St. Louis, at eighteen and three-fourth cents for each potato, (as I am credibly informed,) says each potatoe *will plant three hills, and each hill will yield one bushel of potatoes.* What must be the size of a potatoe hill to get a bushel of potatoes from it? Yours as ever,

A. H. F. PAYNE.

N. B. Now, sir, do as you think best with this communication, but if you publish it, let it appear in the best garb you can, for I never was in the habit of writing for the public. A. H. F. P.

New Disease in Sheep, &c.

JUDGE BUEL—Sir—Mr. Bailey solicits information of your correspondents and patrons, respecting a new disease which has recently attacked his sheep, described in the May No. of the Cultivator. By the symptoms therein described, I should attribute the cause, to his sheep partaking too freely of the stock or root of some poisonous plant. A powerful application of quicksilver to the skin sometimes will produce similar symptoms.

Treatment, blead them immediately after the attack, by opening the vein which lies between the innermost corner of the eye and nose; or bleed them in the nose. By the sheep's taking the blood it answers as a mild purge.

Treatment for blindness.—By the assistance of a quill, blow a few grains of pulverized blue vitriol into the eyes; or for a milder remedy add an equal quantity of fine loaf sugar with the vitriol. I have used the above with good success in removing the film from horses and cattle also.

Breachy sheep.—Good fences are the *best remedy* for this complaint; but when fencing timber is scarce, I have known the following application to be safe and effectual. Part the skin perpendicularly, about three-fourths of an inch, so as to expose and cut the two cords on each hind foot, (which are about the size of the stale to a pipe,) between the dew claw and hoof; a few days should intervene between the two operations, that one ankle may heal before the other is operated upon. Yours, &c.

May 12, 1839. S. W. JEWETT.

On the principle of fear or timidity in Horses.

MR. EDITOR—Sir—I send you the following remarks, trusting that you may find them worthy of an insertion in your periodical; for I presume that any thing that tends to elucidate the nature of that noble animal the horse, comes properly within the province of your remarks; although the appellation of your pamphlet is the Cultivator.

It has been asserted by some authors, whose names I do not recollect, "that the superior knowledge that mankind possesses, is partly owing to the power of handling or feeling that they have, and that were it not for this faculty, their knowledge of objects would be very vague and indistinct." This I have no doubt is correct, for it is very probable that a child has but a very imperfect notion of objects until he begins to feel and handle them. A boy about a year old is frequently frightened at objects, such as a bright scarlet cloak, a large dog, &c. and this kind of fear continues, until he acquires some knowledge of their nature by feeling and handling of them; this faculty being the great corrector of our sight. It is very probable that a horse is in the same situation; nature never having bestowed upon him the faculty of handling or feeling, his knowledge of objects must be very vague and indistinct. As a proof that this is the case, it may be observed, that horses are not any more frightened at unusual sounds than mankind are, and they are on about an equal footing with man in regard to the sense of hearing. An uncommon sound frightens a man as much as it does a horse; the former's reasoning powers will no doubt some times refer him to the sound, but at an unusual noise with which both are unacquainted, the one will be as much frightened as the other. It may be observed further in proof of my position, that all animals that possess the power of handling are more intelligent than those that have not this faculty. The elephant, the monkey, and the dog, are much more intelligent animals, than the horse, the cow or the sheep. A dog by jumping upon objects and pawing on them, acquires a knowledge of their nature and dimensions. A monkey can handle any thing about as well as as a man, and an elephant has such a nice sense of feeling in his trunk, that he can pick up a pin from the ground, and this is one reason of his great sagacity. A dog can travel along a great way without seeming to be afraid of any inanimate object, while a horse is continually scared and frightened at such trifling things as the stump of a tree, a heap of stones, &c. But all this may be best exemplified by different animals in passing over a bridge; and as I have lived for a number of years within a few rods of one, I have had frequent opportunities of witnessing their actions. A horse who is not used in passing a bridge, most generally turns round on approaching it, and refuses to pass; he seems afraid, and acts in a manner that would seem to indicate that he knows nothing about the object of his fear, only that it has that impression on his senses, something like a child with a bug-bear. A cow and a sheep act very much in the same manner. But how differant the actions of a dog, a monkey, or an elephant. A dog passes over without any reluctance; a monkey would probably do the same. I once had an opportunity of witnessing the passage of an elephant. He approached the bridge carefully, and put on his foot, as if to test its strength, and having done so, he retired to one side; his fear, in this instance, did not seem to arise from any other consideration but that the bridge would not be strong enough to support him; and after his keeper examined the bridge thoroughly, he passed over without much reluctance.

It may be stated as an objection to this method of reasoning, that the domestic cat is an animal possessing the faculty of handling, and is not remarkable for any great intelligence. I differ very much from this opinion; for I consider puss as a clever animal, and she can cuff ears as dextrously as any of our most expert matrons. I have been quite astonished at what I have seen some cats perform, having owned one that could open every door in the house, almost as well as any biped in it. From these remarks, I think it will appear, that the faculty of handling is a great cause of superior intelligence amongst animals, and the lack of it in the horse is one reason of his great timidity or liability to being frightened. But in order to make this appear as plain as possible, I will state one example further. I once caught a species of porcupine, and on bringing it home I introduced it to the notice of a cat. Puss was evidently disconcerted, but on its moving towards her, she gave it a smart scratch or two, and then retired. I next laid it before a dog. He appeared at first embarrassed, but mustering courage, he began to paw it, and at last he bit it; but on finding it pricked him, he kept walking around it in search of a vulnerable part. The last animal I introduced it to, was the horse. He leaned down his head for the purpose of smelling at it. Now this way of smelling, although it may serve a useful purpose for distinguishing the animal food, is rather an awkward way of ascertaining the nature or quality of an object; and as soon as he saw the procupine move, he started suddenly back, and had he been at liberty, would no doubt have bounded off at full speed. In this instance the horse would never know any thing of the nature of the porcupine, and would be as readily frightened at it at any future time as ever; but the result would be different with the dog or cat, who would probably always recognize it afterwards. But after all, could a remedy be devised for this excessive timidity in horses, and their liability to be frightened, it would, doubtless, be a great improvement. The use of blinds is an attempt at this; but it may be questioned whether they are of any advantage, although they may prevent the animal from seeing so many objects at his side; yet they rather increase than diminish his chance of being frightened, from any thing coming suddenly up from behind. Hoping that these hints thrown out, may be the means of suggesting to some of your ingenious readers, a method by which this dangerous disposition in horses may be ameliorated, I remain, yours truly.

J. GLENN.

Morrisville, May 22, 1839.

Canal Repairs.

Schenectady, 16*th May*, 1839.

DEAR SIR—When the Erie canal was making over the flatlands at Schenectady, I remarked to the engineers, that in all cases where the water was to be sustained by artificial banks above the ground, I thought it would be liable to breaches, unless the banks were sheet piled.

All such observations were treated contemptuously, as presumptuous from observers who did not pretend to make water run up hill.

In consequence of trusting to such banks without sheet piling, they have been broken by the water, and required repeated repairs, till the amount stated in the report of the commissioners of the canal fund, to the legislature, of 3d January, 1839, under the head "repairs," is $4,284,366.24. And I presume one million more may be added for individual damages by detention in consequence of the breaches. These sums would make a ship canal of the Mohawk river from this to Utica. And before ten years more shall have elapsed, the cost of repairs will probably enlarge the sum sufficient to meet the expense of continuing the ship canal to lake Ontario. And yet we are to jog on, enlarging and repairing the artificial banks, because we began wrong and cannot acknowledge the error nor retract.

The breaches in the enlarged canal will be attended with double the cost of repairs, and more to individuals, because a large sheet of water, when suddenly let loose, will force its way with more than twice the power of a small one. But the banks of the river, being ascending, would not break, nor would the bottom fall out, as that of the canal has done, to the depth of fourteen feet below the ground, by means of quicksand, on the flats in Rotterdam. Respectfully,

D. TOMLINSON.

Soap-boilers' Waste.

Fishkill Landing, May 27, 1839.

J. BUEL—Dear Sir—I have recently learnt that soap and tallow chandlers throw away annually a large quantity of liquid, which they call salt lye. It is possessed of a lyey sort of substance, and is so strong that the smallest quantity when applied to vegetables while growing will entirely destroy them. If this sort of lye can be made worth anything to the farming interest, you will do a favor by saying in what manner, in the next number of the Cultivator. We have a very pernicious sort of a weed or plant among us, known to some by the name of snapdragon, to others by stink weed, (bears a yellow flower) which, should it continue to spread in our lots as it has done for some few years past, will render our farms almost useless. Information as to the course to be pursued to destroy it will be very highly prized by many of the farmers of Dutchess and Orange counties. Should you tell us how to prevent the ravages of the locust-borer upon the young locust, it will be looked upon as valuable. Yours truly.

A FARMER.

REMARK—The lees, or salt lye, of the soap boiler and tallow chandler, we believe, if thrown upon a compost heap, or sufficiently diluted with water, would serve as a fertilizing material in the soil. It must contain alkali, lime, and probably some oil, all of which will prove beneficial to the soil. Urine is destructive to vegetation, if applied to growing plants in a fresh state; and yet it is a powerful fertilizer when suitably diluted, or mixed with earthy materials, and modified by fermentation. The pernicious weed mentioned by our correspondent we believe to be *linaria vulgaris*, sometimes denominated *yellow toad-flax*. a perennial which spreads rapidly in clay grounds. The only means of extirpating it are those we have recommended for the extirpation of Canada thistles, star of Bethlehem, and other perennial incumberers of the ground—preventing the growth of their leaves by the good culture of hoed crops. We know of no preventive of the ravages of the locust-borer. There are either two varieties of this tree, one of which is not attacked by the insect, or the soils in which they grow make a difference. If our correspondent will cross the Hudson, and visit the farm of Messrs. Hallock, a little below the village of Milton, he will see hundreds, if not thonsands of the locust, of thrifty growth, which are not at all affected by the borer. These produce very few seeds.—*Cond.*

Questions and Answers.

Dover, Md. May 31.

JUDGE BUEL—Can your inform me who keeps hogs on an extensive scale, that I may get some information? Do you know of any kind of grass that could be cut by the middle of July or sooner, so as to yield a good return on a sandy loam?

Our corn crops are coming on very finely; plenty of rain, though at present rather cool. I was thinking as soon as my wheat is cut of sowing oats on the stubble immediately, and plough it under so as to afford a green crop, on which to spread lime in the fall for corn next year; is it a good plan?

P. S. RUTH.

ANSWERS

For pig farmers see our advertising sheet for Feb. Lucern will grow on a sandy loam, if rich and clean; and may be cut in Delaware by the middle of May, and will yield an abundant return. The oat crop after wheat may afford pasture, and may give some fertility to the soil, if ploughed under before it is destroyed by frost.

More "Last Words" About Millers' Tolls.

Rahway, May 15, 1839.

MR. J. BUEL—Dear Sir—It would not have been necessary for me to say anything more concerning millers' tolls, had not Mr. Walton's communications appeared in the last volume of the Cultivator; as they have not proved that grain contains the quantity of air they have asserted. But since they thought proper to have it inserted in this volume; and as you are receiving such a multitude of new subscribers to every new volume, they will see but one side of the question; therefore permit me to occupy a small space in your next number with a final and concise review of our former controversy. I will commence with Mr. David Walton's first communication on this subject; he has here asserted "that in solid bodies there is fixed air," of which fact perhaps nine-tenths of the agricultural community are ignorant. I will here observe, that it is hopeful that ten-tenths of the community may forever remain ignorant of this ignominious blunder of Mr. D. Walton's: Does he presume to assert that nothing is solid within itself? if so, he must be deficient of common sense, in so publicly exposing his ignorance; for this has forever been one of the foundation stones of all philosophers, that every substance or matter is solid within itself. I will here inform him that the minuteness of matter is far beyond all human conception. To illustrate this, I will introduce him to divisibility, and here inform him that there can be no substance of matter so small but that it can be divided, and it will have an upper and under side. I will quote the illustrations of D. Blair, under the head of divisibility. "1st. Since matter can never be annihilated by division, so we can never imagine it to be cut into such small particles that any of them shall not have an upper and under surface, which may be separated if we have instruments small enough for the purpose. 2d. It would be absurd to say that the greatest mass has more halves, quarters, or thousandth parts than the smallest particle of matter;" to prove that every particle of fluids are solid, I will not presume to go beyond the assumption of wise philosophers. I will quote Blair's observations under the head of hydrostatics. "Obs. 1. Heat or motion is supposed to be the cause of fluidity: for example, ice without heat is a solid—with heat, it becomes a fluid in water—and with more heat an electric fluid in steam. In the first state the atoms are fixed in crystals; in the second, are thrown into intestine motion; and in the third state, are forced asunder with an amazing expansive force." "2d. Philosophers have usually assumed that the particles of fluids are round and smooth, since they are so easily moved among one another." This supposition will account for some circumstance belonging to them. If the particles are round, there must be vacant spaces between them, in the same manner as there are vacuities between cannon balls that are piled together; between the balls smaller shot may be placed, and between them still smaller, or gravel or sand may be diffused; in a similar manner a certain quantity of particles of sugar can be taken up in water without increasing its bulk; and when the water has dissolved the sugar, salt may be dissolved in it and yet the bulk remain the same; and admitting that the particles of water are round, this is easily acconnted for. Mr. Walton further states "that he has found by careful experiment in grinding rye, (weighing fifty-six pounds per bushel,) that it lost three and a half pounds; and many experiments in grinding grain it lost from one to five pounds per bushel; which loss could not be accounted for any way, better than supposing it to be the escape of fixed air.

In answer to which, I asserted in my first communication that Mr. D. Walton presumed to make it appear than one bushel of grain contained more than one bushel of loose air; and then go on to prove it by the philosophy of D. Blair, which says "that air weighs three hundred and twenty-four grains for every one thousand cubic inches, and that it is nine hundred times lighter than water." I then state that there is two thousand one hundred and fifty and forty-two one hundredths cubic inches in a bushel; therefore, if one thousand cubic inches of air weighs three hundred and twenty-four grains, two thousand one hundred and fifty and forty-two one hundredths cubic inches of air will weigh one ounce nine dwts. but no more; and before he confines more loose air in a bushel of grain than one ounce nine dwts. he will be obliged to employ some artificial power to aid nature in her wonderful and mysterious work of its germination.

In answer to which, Mr. D. Walton says, "the one-tenth which is the lawful toll in this state, with what the millers in this part of the country extract in the process of cleaning, (and that too without the waste of grain,) would amount to more than the tenth part of the original weight of the grain when taken to mill; and until he proves that there is no unavoidable diminution of weight in the grinding of grain, or that it can be attributed to some other cause more certain than the departure of fixed air, my statements remains sound and unrefuted. And further, Martin's philosophy expressly says, that this fixed air as it is roused, expands itself into a million times more space than it filled before in a dense body; or in other words, in the position in which nature placed it "in her wonderful and mysterious works of formation." In answer to which I stated, that I had ground and bolted under my own inspection, two bushels of wheat, weighing one hundred and twenty pounds, and that it lost in the process of grinding one and one-fourth pounds, on the two bushels, which of course, will make a loss of ten ounces on one bushel; and then assert that I do not believe that the average loss in grinding twenty bushels would exceed seven ounces per bushel. Now the mystery is, how to account for this loss. I will account for a part of it in two ways, viz. first, the dampness of the grain is absorbed by the heat caused by the friction of grinding, (which dampness or water, Blair says is nine hundred times heavier than air;) of this fact any person may convince himself by putting his hand up in the top part of the leader that conveys the flour from the stones; he will find it wet and pasted with damp flour; and in the second place, flour coming from the stones, hot and parfectly dry, the finest and dryest of it will rise into the air, there remain until impregnated with its dampness, then settle into every part of the mill. I then say, I consider it much more philosophical to attribute this loss of weight to the dampness, or water contained in the grain, than to suppose, as Mr. D. Walton has, that it is all fixed air. I then wish him to prove that there is more air in any species of grain, than the open portions of said grain will contain of loose air, [or if he prefers the term better, air in its natural, free state]; the only way he can make it appear, is, that the air is condensed, which I will not admit without plain proof. I say it is confined, if there should any appear in the grain, but do not believe it to be condensed. It is folly to assert that there is condensed air in grain; for this reason, before it can be condensed, the grain must diminish to a smaller substance than that from which it originated. Or as I have before stated, if it contains air at its formation, the air has more room as the grain grows; the grain may shrink some from the size it once attained, but before it can condense the air it must shrink to a smaller substance than from which it sprang; it may be argued that the grain receives the air all the time it is growing; if so, the air is not condensed; for that moment the grain begins to shrink, the air will leave it through the same passage it was received. I asserted that I thought he would be disappointed if he expected to convert nine-tenths of the agricultural community to the belief, that the grain they raised is even one-hundreth part air. I will here inform him the number of bushels of loose air, (or air in its free, natural state,) it will take to weigh 1lb., 5lbs. and 12lbs. It will take to weigh one pound or sixteen ounces, eleven bushels and one quart, to weigh five pounds, fifty-five bushels five quarts, to weigh twelve pounds, one hundred thirty-two bushels, twelve quarts; now in the fist place this one pound or eleven bushels, one quart of air, is to occupy a space of only 1-60 part of a bushel, (if it should be wheat weighing 60 pounds per bushel,) for if there is a loss of 1 pound, that is one-sixtieth of a bushel, and if this loss is condensed air, it will take 11 bushels and one quart of loose air to weigh 16 ounces or 1 pound, and provided his loss is 3 1-2 pounds as he has stated it to be, in 56 pounds of rye $\frac{3.5}{56}$ if this loss is fixed air it will measure 38 bushels 19 quarts, and must occupy a space of $\frac{3.5}{56}$ parts of a bushels. As this is my last communition upon this subject, I will observe that I have considered what Mr. Silas Walton has had to say upon this subject, beneath my notice. He has been quoting from Oliver Evens, Martin, and Blair, but is so self conceited, that he thinks their wisdom is nothing compared with his. I will assure him before he confines one-half the quantity of air he wishes to make exist in a bushel of grain, it will explode, and fracture his skull notwithstanding the thickness it appears to be. Respectfully yours, WILLIAM A. STONE.

Attention to Silk recommended.

Shrewsbury, N. J. June 19, 1839.

JUDGE BUEL—Dear Sir—Will you through the medium of your widely extended paper, call the attention of the American people to this one single subject, viz.:—*Growing raw silk in the states for home or foreign market, as an additional resource to the country*, free from a confusion with every other subject which various writers and speakers appear to confound with it; such as *importing silk goods, manufacturing silk goods, the advantages of wearing silk, &c.* My object is to concentrate the public mind to one single subject at once.—The question is not (in my humble opinion,) whether we import twenty-five millions of dollars worth of silk annually, or fifty millions, or none at all, or large amounts in iron, hemp or other staple or fancy articles; for if we imported one hundred millions in silk, and could export to advantage the same amount in the produce of our country, we need not go to raising silk, (or seek any other resource to pay the debt,) or to manufacturing silk to prevent it. But the first grand question is, *Does the whole of our imports exceed our exports? and if so, how much?* In investigating this question, if a balance is found against us, how shall we improve our system of national economy, so as to keep an even account with other nations? My answer is, *increase the resources of the country*, in some way or other, equal to the wants of the people, or such revulsions as the past will be a natural consequence of trading beyond means, and will return again in due time, as sure as the return of summer and winter. If we had a despotic government, the despot might retrench expenses of living, the peasantry could be compelled to dispense with silk, and all other imported goods, both dry and wet; but free trade is the motto of a free people; so retrenchment is out of the power of a free government. A free and sovereign people will eat, drink and wear what they please if they can get it. Now how shall we prepare to pay the balance annually counting against us in Europe, or turn the balance in our own favor? My answer is, go to raising raw silk in the north and west, and on the exhausted cotton and tobacco lands of the south, and add that to the cotton and tobacco of the south, and if the tables are not turned in less than ten years, the American people are not what I take them to be. We want union of effort. It interests the whole community. It would puzzle me to tell which class would be most benefitted by the improvement, the commercial, manufacturing or farming community; or the north, the west or south. In my humble opinion, it would tend to cement the Union, and secure peace at home and abroad; it will make the interest of all of the states more generally one interest; it would be a good backer to our commercial community, and raise and secure their credit abroad, and would tend to facilitate trade, and secure peace with other nations, and especially England, as she could obtain her raw silk of us in trade, and can raise none herself. Now would not raw silk equal in amount to the cotton in the south, be a help to the commercial class in times like the past, and would it not enable the manufacturing class to set their wheels agoing sooner in case of another revulsion? And would it not be a profitable additional branch of farming?—Now, sir, will you give the ideas of an illiterate farmer, (submitted with humble deference,) a proper investigation, and expunge or add what you think proper, and couch the whole in proper language, and lay this single subject fairly and squarely before the American people, and I'll be bound they'll not be slow in seeing their own interest. Yours, &c. LYCURGUS.

EXTRACTS.

On the Selection of Grain Seeds, Roots, &c.

[*From the Mark Lane Express*]

The grand and distinguishing characteristic of plants over inorganic matter—that which characterizes their latent powers and living functions, is their susceptibility of improvement; animals have it to a certain degree, but not nearly to such an extent as plants, for the productive faculty of the former cannot be increased like that of the latter. As is well remarked by Mr. Sharon Turner, most agreeable and surprising transformations have arisen from this property. The rose is the product of cultivation; the original plant from which all our beautiful varieties have proceeded is considered by botanists to have been the common wild briar. Our plums are cultivated decendants of the sloe; the peach and nectarine of the common almond tree; filberts are the improvements of the wild hazel; the delicious apples whose species may now be reckoned by hundreds, are the cultivated successors of the small austere crabs and wildings, which swine will scarcely eat; the original pear is a petty fruit, as hard and crude as the former; our cauliflowers, cabbages, and other domestic vegetables, may be regarded as almost artificial products, so much has human skill had to do in their production.

If then so great a susceptibility of improvement exists in the productions of horticulture, it becomes a question of great interest and momentous importance to ascertain whether or not the different species of grain, roots, and grasses, employed in agriculture are possessed of a like inherent susceptibility. It is a well known fact that grain, if allowed to degenerate, returns into a state very similar to that of some of our coarser grasses, which of itself is a very strong argument as respects the point at issue. But we have still more unequivocal evidence that wheat, even in what may be denominated its present improved state when compared with the inferiority of its supposed original, is possessed of the principle of productiveness to an extent fully as great as the vegetables mentioned in the above quotation. In proof of this, we would refer to the experiments instituted by Colonel Le Couteur on the different varieties of wheat, as fully detailed by him in a valuable pamphlet which we have just perused, and which we would recommend to the careful consideration of every agriculturist. Colonel Le Couteur began seriously to cultivate the important plant of wheat so as to procure the several soils distinct from each other, and at the same time note the experiments made on the culture, produce, weight of the grain, and qualities of the corn, flour and straw. He has kept a most minute account of the experiments, and taken the greatest care to preserve the best sorts in their purity, and the result of his experience is, that he believes the proper mode of cultivation of wheat is yet unknown or unpractised. The Colonel, before he turned his attention to the selection and purification of wheat, considered his crops tolerably pure, yet on Professor Le Gasca, a celebrated botanist, examining them, he selected from them, twenty-three sorts, of which some have since been discovered to be three weeks later in ripening than others, which circumstance accounts for the many shrivelled, ill-grown grains in a sample of wheat, arising no doubt from the unequal growth of the many varieties that link in the purest crop. The importance of ascertaining the qualities of the different varieties of wheat, is well exemplified by Col. Le Couteur in respect to their relative value as to produce of straw. The quantity of straw produced from a single ear of one of his best varieties, No. 1, Jersey Danzig, was 3lb. 3oz. of wheat, and 3lb. 9oz. of straw, only 6oz. more straw than wheat; No. 2, "Album Densum," produced 2lb. 12oz. of wheat and more straw than wheat; No. 5, "Coturaneum," six ounces more straw than grain; and No. 8, "Koelen," 4lbs. 4oz. of wheat and only 3lbs. 13oz. of straw. The next, No. 9, the Red Compact, produced only 2lb. 9oz. of wheat from 3lbs. 15oz. of straw, an excess of one pound six ounces of straw over the grain in this last, whereas the former, No. 8, a most excellent and superior variety, there was an excess in grain of seven ounces over the straw. Col. Le Couteur justly observes, that by a proper system of culture, it must appear obvious from these facts that wheat should be brought to such perfection, as to produce more grain than straw; Nos. 8, 10 and 13, varieties selected and tested by actual practice, having done so. Now by reference to the article "British husbandry" chap.—page 154 of that excellent work, the farmer's series of useful knowledge, we find it stated that "the straw is generally reckoned to be about double the weight of the grain." We believe this may be perfectly correct as far as regards ordinary husbandry, yet if the results obtained by Col. Le Couteur's experiments are of any value, we must conclude that the proper culture of wheat, if known, is unpractised.

These experiments, however, were not confined to the weight or productiveness of the different varieties of wheat; on the contrary the Colonel continued his researches from the straw and grain, on to the meal itself, in order to be fully satisfied which of the sorts under experiment contained the greatest proportion of meal or flour, and the result nearly proved that the most productive sort in grain was also the most farinaceous. A circumstance of a very important nature was elucidated in the progress of these experiments, and proves the comparative advantages to be derived from actual practice, skill, and observation, to that of science alone for the purpose of testing and proving the merits of the different varieties of grain. Professor Le Gasca with all his experience and botanical research, was impressed with the notion, that a variety of No. 14 was one of the most productive, while it was proved by actual experiment to be the most inferior of the fourteen sorts tested, evincing the positive necessity of comparative experiments to ascertain the relative produce of wheat, which the theory alone, even of the learned Professor, could never have discovered, he merely having judged from the external appearance of the wheat, its squareness and compact form; than which, nothing could have proved more deceptive.

We have frequently in the course of these letters inculcated the advantages of a change of seed grain, and the adaption of certain districts for producing the different varieties in greater perfection, than that of others, and we are glad to observe, that Col. Le Couteur arrives at the same conclusion. It indeed must inevitably stand to reason, that the fine white wheat which is grown on a rich fertile loam suitably retentive of moisture, can never be the proper sort to be sown on a poor black soil, such as Bagshot Heath, which of itself is incapable of retaining or attracting moisture. But it will not be denied that if a red or coarse variety, equally productive as to quantity, though perhaps less farinaceous, could be grown on such a soil, it would be an end greatly to be desired, and of much national importance. An observation made by Col. Le. Couteur leads him to believe that such will be the result. In a piece of land which had been ill prepared, and was poor and out of condition, a crop of white wheat had been sown; it scarcely grew three feet in height, but among it was a plant of fine, tall, rich. brown wheat, with a large round, but rather coarse grain. It proved a highly productive variety. Had he happened to have sown the field with all such, instead of having only had twenty bushels per acre, subsequent experience has shown him that he would probably have had forty.

In Colonel Le Couteur's observations on the selection of seed grain, he remarks—"It has frequently puzzled me much to imagine, upon what principle some writers have recommended for seed a sort of inferior grain, the refuse of a crop, after all has been sent to the market. How a principle so entirely contrary to the whole economy of nature could for a moment obtain it is difficult to conceive. For even from the finest of seed, after five years of experiments, I am persuaded that for a crop one-tenth of the best grain perishes, or is destroyed by birds, mice or insects; but from some sorts which looked sickley, and were purposely sown singly, grain by grain, in 1833, I found that a liver-coloured variety which, from the appearance of the ear, promised to be highly productive, though the grains were ill-grown, thirty-three grains out of seventy-two died, which induced me to discard it as being too delicate, its grains being poor and lean, though grown on a rich and well prepared soil. Another variety also from poor ill-fed wheat, lost forty-nine grains out of sixty-two. A sample of golden-drop, which I got at Mark-lane, tolerably well grown, had seven varieties in a handful, and thirty-four of these died out of seventy-two grains. Whereas from other healthy plump grains of several varieties, only nine, ten and twelve died out of seventy-two grains of each variety. In 1834, the "Belle Vue Talavera," was so well grown and plump, that of three rows of seventy-two grains each not one died; of No. 1, Danzig, only three to four in three rows of the same number; and of No. 2, "Album Densum," only eight from the same number died. From one hundred and forty-four grains of a new white Spring Wheat, a very rare, hardy and promising variety, only ten died.

My general observations lead me to believe, that when wheat appears to grow lean and poor looking it should be discarded from the locality, after a fair trial—say after the third year, as the second only might be the result of climate, or the want of being naturalized to the soil. The first trial should be made from seed of the best quality: if this fails after the third year, it is evidently unsuited to the soil and climate, and a new sort should be introduced. It must be obvious that lean and shrivelled wheat is not so likely to nourish the young plant just starting from its embryo state into life, with a mere miserable skin of a parent to live upon, as the fine rich nutriment to be met with in a plump, round, farinaceous grain, full of meal.

The nice discrimination and care requisite to mature a pure and distinct variety of grain, is well exemplified in Colonel Le Couteur's own practice; for in the progress of dibbling out the grains of four ears of wheat which were selected to him by Professor Le Gasca, he remarked a great discrepancy in the grains of each ear; they were not even of the same colour, and differed greatly as to form, some being round, some oval and peaked, some plump but very small, some more elongated, some with the skin or bran much thicker than others; there were also, many with liver-coloured yellow, and dark grains among the white. Colonel Le Couteur therefore recommends the selection of a single grain of a pure and known variety, for the purpose of procuring a sort with a distinct character and of prolific habits; but this subject is so nice, and admits of so many distinctions, that to arrive at this he believes it may be necessary to destroy every female blossom, excepting one, on the plant, which may be selected for impregnation or future experiment; and there can be no doubt that, with due attention, the practice can be established as satisfactorily, as the success that has been met with by those who have attended to the intercrossing of geraniums, now grown of all shades and colours, almost at will.—Indeed, the care which Colonel Le Couteur took in making his selections, and the great number of sorts he found of all shades and colours, forming varieties and sub-varieties, as they were termed by Professor Le Gasca, confirmed him in the opinion that the only chance of having pure sorts was to raise them from single grains or single ears. In reference to this matter, Colonel Le Couteur observes—"It is but fair to add, that even the pains I took in making these first selections amply rewarded my labours, as the produce of my crops was increased from an average of about twenty-three or twenty-five bushels per acre to about thirty-four; and since I have raised wheat from single ears or carefully selected sorts, I have increased my crops to between forty and fifty bushels the acre. Hence I have no doubt, that with extreme care in obtaining the best and most suitable sorts of wheat, that land, in high tilth, with fine cultivation may be made to produce sixty or seventy bushels per acre." Colonel Le Couteur further remarks, that "much has been judiciously written on the growth and cultivation of wheat, which has tended to a material improvement in those farms where care has been taken, perceptible even to superficial observers; but no writer has yet called the attention of the agricultural world to the cultivation of pure sorts, originating from one single grain. It is contended that this has been the root of all the evil; many have attempted to begin well, but few, if any, have thought of commencing from the original, and persevering and keeping it pure. This idea struck the author so powerfully on the first conversation which he had with the Professor Le Gasca, that it has never quitted him. His project was considered visionary and unattainable. Old farmers said, that as no farmer in the world had ever thought of separating and classing wheat it could not be done; it was impossible to get a pure crop! The bees would mix the farina, mice would mix the grain, birds would do the same; if it had been feasible, it would have been tried before. Corn-factors assured him, that the climate of England was not calculated for the growth of such fine skinned wheat as that of Danzig, Volhynia, and Sandomir. Professor Le Gasca alone perceived and approved of the author's project.

The learned Professor had been theoretically employed in the classification and scientific examination of wheat as a plant, in the research and consideration of all its varieties; but it had escaped him to consider it in its properties, with relation to the good of man.—This practical view the author took of it, and he determined to attempt to discover which were the most farinaceous and productive varieties, by comparing their character and produce one with another.

From the foregoing observations we will arrive at the following conclusion, viz.—That the wheat in this country is much mixed, and therefore is rendered less productive than a variety or varieties with distinct characters, distinguished for their suitableness for our different soils and climates, and the practicability of obtaining such varieties is clearly demonstrated in the practice of Colonel Le Couteur. Also, that when we procure a pure and suitable variety of seed wheat it is absolutely necessary to guard against the admixture, and that this can only be accomplished by unremitting care and attention.

It will farther be observed, that it is not enough to select varieties that may appear valuable in the eye of the botanist, but that they must be tested and proved by actual experiment before their merits and qualities can be properly appreciated or understood, and that in fact the want of these practical tests have hitherto proved the root of all the evil.

Lastly, although Colonel Le Couteur has directed his experiments solely to wheat, yet sufficient is known to render it probable that the different seeds and roots at present in cultivation in this country would be susceptible of a like improvement, if subjected to a similar process and the test of experiment.

A SCOTCH FARMER.

On the Nature and Properties of Lime.

Sir H. Davy says, that "quick lime (hydrate of lime) in the pure state, is injurious to plants; that when mixed with moist fibrous vegetable matter, there is a strong action between the lime and the vegetable, and they form a kind of compost of which a part is usually soluble in water; but that carbonate of lime is a useful ingredient in soil, that it acts upon the decomposing vegetable and animal matter in the soil, so as to render it more fitted for the purposes of vegetation, that it prevents the two rapid decomposition of substance already dissolved, but has no tendency to form soluble matter."

Quick lime is a combination of lime with one-third of its weight of water, in which state it is called hydrate of lime; when it is exposed to the atmosphere a sufficient time it reabsorbs from the atmosphere the carbonic acid gas which it lost during the process of burning, and in this state it resumes all the properties it had before it was burnt. This effect is soon produced after it has been slaked and spread on the land in a dry state, and it has very little time in its caustic state of quick lime to effect any alteration on the soil; it must therefore be in its original carbonaceous comminuted state when intimately mixed with the soil, that it can have any effect either on the soil or on the decaying vegetable matter therein.

The effect which it produces on the soil must therefore be as an alterative in changing its texture by the addition of so much carbonate of lime to it in a very finely divided state.

Dr. Anderson and Du Hamel are of the opinion that powdered marble or powdered limestone has a good effect on grass land.

Anderson says, "that lime is no sooner slaked than it immediately begins to absorb its air and return to its former mild state; or in other words, it becomes effete, in which state it possesses the same chemical qualities in every respect as limestone.

"If this be spread out thinly upon the surface of the earth, it absorbs its air in a very short time. A few hours in this situation, restores a large proportion of its air; and in a day or two, at most, it becomes perfectly effete, as masons experience when they sweep together the scattered particles that have lain around their heaps of lime and attempt to use it in mortar by itself, for it is then no more coherent than sand or moistened earth.

"Hence then it must follow, that in every case, lime is converted into the same state with limestone, in a few days after it is mixed with the soil; so that if it produces any effect at all as lime, as a saline substance, it must only be at the very first, when it is applied, and it must act ever afterwards merely as powdered limestone.

"But it is well known, that lime produces scarcely any sensible effect as a manure, at the beginning. Even the first year after it is applied to the soil its effects are inconsiderable, in comparison of what it produces in the second and succeeding years. From whence we must conclude, that it operates upon the soil, merely as a mild calcareous earth; and that its calcination is of no farther utility in preparing it for manure, than as a cheap and efficacious method of reducing the limestone to a fine powder." Other chemists say that it requires exposure to the atmosphere for a considerable time to render it completely effete, or to receive its full quantity of carbonic acid gas. Kames, Young, Brown, and others say, that long experience has convinced them that lime is as efficaceous in its effete as in its caustic state, and Kames thinks it produces little effect on vegetables till it becomes effete; it therefore appears not only from their opinion, but also from the appearance of practical farmers, that the efficacy of lime on some land does not arise from any effect it may produce when in a caustic state, but from those qualities which it possesses in common with all other calcareous matter. It must be evident that lime, in a dry, slaked, or pulverized state, can be more easily and intimately mixed with the soil, than when it becomes wet, and in a state like mortar.

Is lime only a stimulant exerting its influence on something that is already in the soil? and if so, does its influence tend to exhaust this something? or, is it an enriching manure which gives nourishment to plants? or does it, by becoming a portion of the soil, improve its texture and composition by making the soil more capable of supplying the food necessary for the production of vegetables? Dr. Anderson says, "Writers on agriculture have been long in the custom of dividing manure into two classes; viz. enriching manures, or those that tended directly to render the soil more prolific, however sterile it may be. Among the foremost of which was reckoned dung, and exciting manures, or those that were supposed to have a tendency to render the soil more prolific, merely by acting upon those enriching manures that had been formerly in the soil, and giving them a new stimulus, so as to enable them to operate anew upon that soil, which they had formerly fertilized, in which class of stimulating manures, lime was always allowed to hold the foremost rank."

"In consequence of this theory, it would follow that lime could only be of use as a manure, when applied to rich soils; and, when applied to poor soils, would produce hardly any, or even perhaps hurtful effects." "I will frankly acknowledge, that I myself was so far imposed upon by the beauty of this theory, as to be hurried along with the general current of mankind, in the firm persuasion of the truth of this observation; and for many years did not sufficiently advert to those facts that were daily occurring to contradict this theory. I am now, however, firmly convinced, from repeated observations, that lime and other calcareous manures, produce a much greater proportional improvement upon poor soils, than on such as are richer; and that lime alone, upon a poor soil, will, in many cases, produce a much greater and more lasting degree of fertility than dung alone.

"In direct contradiction to the theory, I must add, that I never yet met with a poor soil in its natural state which was not benefitted in a very great degree by calcareous matters when administered in proper quantities.

"But I have met with several rich soils that were fully impregnated with dung, and therefore exactly in that state in which the theory supposes that lime would produce the greatest effect,—but upon which lime, applied in any quantities, produced not the smallest sensible effect."

And again, in another place he says:—"I have often heard it urged, as an objection to the use of lime as a manure, that although it does indeed promote the fertility of a soil, in a higher degree at first, yet, in the end, it renders it much more sterile than formerly.

"This, like many other objections to useful practices, takes its rise entirely from the avarice and unskilfulness of those who complain. It is chiefly heard of in those part of the country, where it is not uncommon for a farmer, after once liming a poor soil, to take fifteen or sixteen crops of oats successively, without any other dressing or alternation of crops. It must be a good manure that enables these soils to produce such a number of successive scourging crops of any sort; but it would be a marvellous one indeed, if it should prevent those fields from being exhausted by them.

"But is it not well known, that in all the richest and best improved parts of the country, lime has been long employed as a manure?—yet so far are these soils from being rendered sterile by it, that it is doubtful if any art, without the assistance of lime or some calcareous matter, could ever have brought these fields to their present degree of fertility. Those, therefore, who complain of the hurtful effects of lime as manure, proclaim what they ought to conceal, that they have had in their possession a treasure, which might have enriched their posterity, but which they have idly squandered away in their own lifetime." Although lime produces a great effect on certain poor land which has been in a state of nature, yet where lime is applied to poor worn out arable land which has been limed and exhausted by severe cropping, it has, from practical experience, no effect whatever.

If lime be a stimulant, there are roots in the soil of poor land in a state of nature for it to act upon; but in poor worn out land exhausted by severe cropping, there are none.

Again, such worn out land may, from the very circumstance of its worn out state, be so loosened, that an application of lime may, as an ingredient in the composition thereof, only tend to increase the evil by making it more loose and friable. Brown says, "It is sufficiently understood, that land which has been long in grass contains much vegetable matter, and that the trouble and expense of liming it would be amply repaid to the cultivator; but the propriety of applying lime on old arable lands, has been questioned, and with much justice, by the most part of practical agriculturists, and their doubts on that head are confirmed by the fullest experience.

"Were lime a manure, it would be a noble substance, for enriching and restoring fertility to lands worn out by a succession of corn crops; but as worn out land is not restored to fertility by the application of lime, we are warranted to consider it in a different light; or, in other words, as an article to bring certain principles into action, previously possessed by the soil. This conclusion is sanctioned by experience; and experience is a far better guide than the most plausible theory.

"When lime duly operates, the whole powers of the soil are put in a state of requisition, and may be forced to act till the very soul of vegetation is extracted. It is scarcely practicable to restore fertility to land, even to the best natural quality, which has been thus abused; at least, a considerable period must elapse before it can be restored to its original fertility; but thin moorish soils after being exhausted by lime, are not to be restored. To lime them a second time, is not only a useless expenditure of labor and money, but also productive of serious mischief. Soils of this description, after a second liming, are apt to singe and burn the grain that is sown upon them; and, even when dunged, not to make such a return as would have been rendered under different circumstances.

"Lime has been long applied by British husbandmen, as a stimulus to the soil; and in consequence of such an application, luxuriant crops have been produced even upon soils of apparently inferior quality, and which would have yielded crops of trifling value had this auxiliary been withheld. In fact, the majority of soils cannot be cultivated with advantage till they are dressed with lime; and whether considered as an alterative, or as a stimulant, or as a manure, it will be found to be the basis of good husbandry, and of more use than all the other manures put together. Wherever lime has been properly applied, it has constantly been found to prove as much superior to dung, as dung is to the rakings of the roads, or the produce of a peat mine.

"From a pretty long experience, and considerable attention to the operation of lime, we are inclined to think that it acts both as an alterative and as a stimulant; operating in the one case as a medicine that changes the nature of the soil, and in the other as arousing or bringing into action the vegetable powers contained in the soil, which without such an application would have remained dormant and inactive. These opinions, we know are different from those maintained by several ingenious men, but they are supported by the result of numerous trials, undertaken to ascertain how and in what measure lime operated upon the soil."

It is evident that lime, when applied to land in however small quantities, will tend to change its texture; and when there is vegetable matter in the soil, it may produce a greater decomposing disposition in it than before. In this case, it will act as a stimulant, hastening the decay of vegetable matter, and thereby furnishing the elements of vegetable life. Lime also acts powerfully on an irony matter in the soil, and on the gravel sands, and clay soils of the diluvial formation; and on the soil of the plastic clay, the new and old red sandstone, and the basaltic formation, the effect produced by the application of lime is very great. This may be owing, as we have said before, to neutralizing the pernicious effects of the sulphate of iron, and converting it into a useful soil; and every fresh application of lime may therefore convert an additional portion of sulphate or oxide of iron into an additional portion of good and useful soil. When there is a deficiency of carbonaceous matter in the soil, a fresh portion of lime must increase the productive powers of the soil.

The effects which lime, as an alterative, has on the soil, must depend in a great measure on the composition of that article, and also on the composition of the soil to which it is to be applied; for the composition of the various limestone formations, and also the chalk and marls, vary greatly. The nature of the ingredients being different, the lime from the silicious limestone contains a considerable portion of silicious particles, and may answer best on stong clay soils, as it will furnish both silicious and calcareous matter to the clay soil; and the lime burnt from the lias limestone, which contains a considerable portion of clay, will produce the best effect on light sandy soils. But there are some soils on which lime when applied, has never produced any beneficial effect. This is the case with the soil on the oolitic formations, and other calcareous soils. This is evidently owing to the superabundance of lime already in the soil, so that an addition of calcareous matter only increases the evil; but where there is no calcareous matter in the soil, and also a great quantity of iron, as is the case in the soil of the new red sandstone formation, the lime has an increased effect on every fresh application. This is so well known in the neighborhood of Taunton in Somersetshire, and over all the soil of the new red sandstone, that the farmers lime their land every time it comes in course of fallow for turnips, and this produces excellent crops even without dung.

It is most astonishing that writers on agriculture have retailed an opinion, that quick lime, when mixed in a mass of earth containing the live roots and seeds of weeds, will destroy them. Any attempt of this kind will meet with a complete failure; for the roots and the seeds of weeds cannot be destroyed by the fermentation or any heat that can be produced in such a compost.—The same writers have also stated that lime hastens the decay of vegetable matter; whereas the fact is, that it retards the process of the decomposition of vegetable matter. If straw of long dung be mixed with slaked lime, it will be preserved, while if mixed with an equal portion of earth, the earth will hasten its decay.

It has been shown that although vegetables are composed of mucilage, starch, sugar, albumen, gluten and various other substances, yet all of them are reducible into carbon, oxygen, and hydrogen; and that water and air are composed of these substances;—that vegetable and animal manures are decomposed into the same elements, as those of water and air;—that any of the simple minerals which compose the surface of the earth, when unmixed with any other mineral, are unfit for the growth of vegetables; but that when these simple materials are intimately mixed together, that this compound when exposed to the influence of the sun and atmosphere, produces an abundant crop;—that there is no process going on at the surface of the earth amongst the materials which compose the cultivated soil which changes any of the mineral component parts of it into a new substance; that none of the materials composing the soil, enter into the composition of the plants;—and that the application of manure does not always cause productiveness in soils.—*Morton on Soils.*

Agriculture.

The following statement of the comparative modes of farming in England and America, is extracted from that amusing publication, *The Clockmaker:*—"The bane of this country, Squire, and, indeed, of all America, is havin' too much land; they run over more ground than they can cultivate, and crop the land so severely that they run it out. A very large portion of land in America has been run out by repeated grain crops; and when you add that to land naturally too poor to bear grain, or too broken for cultivation, you will find this great country in a fair way to be ruined: The state of Vermont has nothin' like the exports it used to have; and a plaguy sight of the young folks came down to Boston to hire out as helps. The two Carolinas and Virginia are covered with places that have been given up as ruined, and many other states. We hav'n't the surplus of wheat and grain we used to have in the U-nited States, and it never will be so plenty again. That's the reason you hear of folk's clearin' land, makin' a farm, and sellin' off again, and goin' further into the bush. They've exhausted it, and find it easier to clear new lands than to restore the old. A great deal of Nova Scotia is run out: and if it war'n't for the lime, marsh-mud, sea-weed, salt sand and what not, they've got here in such quantities, there'd be no cure for it—It takes good farmin' to keep an upland location in order, I tell you, and make it sustain itself. It takes more to fetch a farm too that's had the gizzard taken out of it than it's worth. It actilly frightens me when I think your agriculture in Britain is progressin' and the land better tilled every day, while thousands upon thousands of acres with us are turned into barrens. No traveller as I've seed have noticed this, and our folks are not aware of it themselves to the extent of the evil. Squire, you and I wont live to see it; but, if this awful robbin' of prosperity goes on for another century as it has progressed for the last hundred years, we'll be a nation of paupers. Very little land in America, even of the best, will carry more than one crop of wheat arter its cleared a'fore it wants manure; and where its cleared' so fast, where's the manure to come from, it puzzles me? (and I won't turn my back on any man in the farmin' line;) the Lord knows, for I don't; but if there's a thing that scares me it is this. * * * Yes, too much land is the ruin of us all at this side of the water. Afore I went to England I used to think that the onequal divisions of property there, and the system of landlord and tenant, was a curse to the country; and that there was more dignity and freedom to the individual and more benefit to the nation, for every man to own the land he cultivated, as with us. But I'e changed my mind; I see it's the cause of the high state of cultivation in England, and the prosperity of its agriculture. If the great men had the lands in their own hands there, every now and then an improvident one would skin the soil and run it out; bein' let to others, he can't do it himself, and he takes plaguy good care by his lease his tenant shan't do it neither. Well, then, there he his, with his capital to make great improvements, substantial repairs, and so on, and things are pushed up to perfection."

Young Men's Department.

Self-Culture.

BY W. E. CHANNING, D.D.

(*Continued.*)

I proceed to another important means of self-culture, and this is the control of the animal appetites. To raise the moral and intellectual nature, we must put down the animal. Sensuality is the abyss in which very many souls are plunged and lost. Among the most prosperous classes, what a vast amount of intellectual life is drowned in luxurious excesses. It is one great curse of wealth, that it is used to pamper the senses; and among the poorer classes, though luxury is wanting, yet a gross feeding often prevails, under which the spirit is whelmed. It is a sad sight to walk through our streets, and to see how many countenances bear marks of a lethargy and a brutal coarseness, induced by unrestrained indulgence. Whoever would cultivate the soul, must restrain the appetite. I am not an advocate for the doctrine, that animal food was not meant for man; but that this is used among us to excess, that as a people we should gain much in cheerfulness, activity, and buoyancy of mind, by less gross and stimulating food, I am strongly inclined to believe. Above all, let me urge on those, who would bring out and elevate their higher nature, to abstain from the use of spirituous liquors. This bad habit is distinguished from all others by the ravages it makes on the reason, the intellect; and this effect is produced to a mournful extent, even when drunkenness is escaped. Not a few men, called temperate, and who have thought themselves such, have learned, on abstaining from the use of ardent spirits, that for years their minds had been clouded, impaired by moderate drinking, without their suspecting the injury. Multitudes in this city are bereft of half their intellectual energy, by a degree of indulgence which passes for innocent. Of all the foes of the working class, this is the deadliest. Nothing has done more to keep down this class, to destroy their self-respect, to rob them of their just influence in the community, to render profitless the means of improvement within their reach, than the use of ardent spirits as a drink. They are called on to withstand this practice, as they regard their honor, and would take their just place in society. They are under solemn obligations to give their sanction to every effort for its suppression. They ought to regard as their worst enemies, (though unintentionally such,) as the enemies of their rights, dignity, and influence, the men who desire to flood city and country with distilled poison. I lately visited a flourishing village, and on expressing to one of the respected inhabitants the pleasure I felt in witnessing so many signs of progress, he replied, that one of the causes of the prosperity I witnessed, was the disuse of ardent spirits by the people. And this reformation we may be assured wrought something higher than outward prosperity. In almost every family so improved, we cannot doubt that the capacities of the parent for intellectual and moral improvement were enlarged, and the means of education made more effectual to the child. I call on working men to take hold of the cause of temperance as peculiarly *their* cause. These remarks are the more needed, in consequence of the efforts made far and wide, to annul at the present moment a recent law for the suppression of the sale of ardent spirits in such quantities as favor intemperance. I know, that there are intelligent and good men, who believe, that, in enacting this law, government transcended its limits, left its true path, and established a precedent for legislative interference with all our pursuits and pleasures. No one here looks more jealously on government than myself. But I maintain, that this is a case which stands by itself, which can be confounded with no other, and on which government from its very nature and end is peculiarly bound to act. Let it never be forgotten, that the great end of government, its highest functions, is, not to make roads, grant charters, originate improvements, but to prevent or repress crimes against individual rights and social order. For this end it ordains a penal code, erects prisons, and inflicts fearful punishments. Now if it be true, that a vast proportion of the crimes, which government is instituted to prevent and repress, have their origin in the use of ardent spirits; if our poor-houses, work-houses, jails and penitentiaries are tenanted in a great degree by those, whose first and chief impulse to crime came from the distillery and dram-shop; if murder and theft, the most fearful outrages on property and life, are most frequently the issues and consummation of intemperance, is not government bound to restrain by legislation the vending of the stimulus to these terrible social wrongs? Is government never to act as a parent, never to remove the causes or occasions of wrong doing? Has it but one instrument for repressing crime, namely, public, infamous punishment, an evil only inferior to crime? Is government a usurper, does it wander beyond its sphere, by imposing restraints on an article, which does no imaginable good, which can plead no benefit conferred on body or mind, which unfits the citizen for the discharge of his duty to his country, and which, above all, stirs up men to the perpetration of most of the crimes, from which it is the highest and most solemn office of government to protect society?

I come now to another important measure of self-culture, and this is, intercourse with superior minds. I have insisted on our own activity as essential to our progress; but we were not made to live or advance alone. Society is as needful to us as air or food. A child doomed to utter loneliness, growing up without sight or sound of human beings, would not put forth equal power with many brutes; and a man, never brought into contact with minds superior to his own, will probably run one and the same dull round of thought and action to the end of life.

It is chiefly through books that we enjoy intercourse with superior minds, and these invaluable means of communication are in the reach of all. In the best books, great men talk to us, give us their most precious thoughts, and pour their souls into ours. God be thanked for books. They are the voices of the distant and the dead, and make us heirs of the spiritual life of past ages. Books are the true levellers. They give to all, who will faithfully use them, the society, the spiritual presence of the best and greatest of our race. No matter how poor I am. No matter though the prosperous of my own time will not enter my obscure dwelling. If the sacred writers will enter and take up their abode under my roof, if Milton will cross my threshold to sing to me of Paradise, and Shakespeare to open to me the worlds of imagination and the workings of the human heart, and Franklin to enrich me with his practical wisdom, I shall not pine for want of intellectual companionship, and I may become a cultivated man though excluded from what is called the best society in the place where I live.

To make this means of culture effectual, a man must select good books, such as have been written by right-minded and strong-minded men, real thinkers, who instead of diluting by repetition what others say, have something to say for themselves, and write to give relief to full earnest souls; and these works must not be skimmed over for amusement, but read with fixed attention and a reverential love of truth. In selecting books, we may be aided much by those who have studied more than ourselves. But, after all, it is best to be determined in this particular a good deal by our own tastes.—The best books for a man are not always those which the wise recommend, but oftener those which meet the peculiar wants, the natural thirst of his mind, and therefore awaken interest and rivet thought. And here it may be well to observe, not only in regard to books but in other respects, that self-culture must vary with the individual. All means do not equally suit us all. A man must unfold himself freely, and should respect the peculiar gifts or biasses by which nature has distinguished him from others. Self-culture does not demand the sacrifice of individuality. It does not regularly apply an established machinery, for the sake of torturing every man into one rigid shape called perfection. As the human countenance, with the same features in us all, is diversified without end in the race, and is never the same in any two individuals, so the human soul, with the same grand powers and laws, expands into an infinite variety of forms, and would be wofully stinted by modes of culture requiring all men to learn the same lesson or to bend to the same rules.

I know how hard it is to some men, especially to those who spend much time in manual labor, to fix attention on books. Let them strive to overcome the difficulty, by choosing subjects of deep interest, or by reading in company with those whom they love. Nothing can supply the place of books. They are cheering or soothing companions in solitude, illness, affliction. The wealth of both continents would be no equivalent for the good they impart. Let every man, if possible, gather some good books under his roof, and obtain access for himself and family to some social library. Almost any luxury should be sacrificed to this.

One of the very interesting features of our times, is the multiplication of books, and their distribution through all conditions of society. At a small expense, a man can now possess himself of the most precious treasures of English literature. Books, once confined to a few by their costliness, are now accessible to the multitude; and in this way a change of habits is going on in society, highly favorable to the culture of the people. Instead of depending on casual rumor and loose conversation for most of their knowledge and objects of thought; instead of forming their judgments in crowds, and receiving their chief excitement from the voice of neighbors, men are now learning to study and reflect alone, to follow out subjects continuously, to determine for themselves what shall engage their minds, and to call to their aid the knowledge, original views, and reasonings of men of all countries and ages; and the results must be, a deliberateness and independence of judgment, and a thoroughness and extent of information, unknown in former times. The diffusion of these silent teachers, books, through the whole community, is to work greater effects than artillery, machinery, and legislation. Its peaceful agency is to supersede stormy revolutions. The culture, which it is to spread, whilst an unspeakable good to the individual, is also to become the stability of nations.

Another important means of self-culture, is to free ourselves from the power of human opinion and example, except as far as this is sanctioned by our own deliberate judgment. We are all prone to keep the level of those we live with, to repeat their words, and dress our minds as well as bodies after their fashion; and hence the spiritless tameness of our characters and lives.—Our greatest danger, is not from the grossly wicked around us, but from the worldly, unreflecting multitude, who are borne along as a stream by foreign impulse, and bear us along with them. Even the influence of superior minds may harm us, by bowing us to servile acquiescence and damping our spiritual activity. The great use of intercourse with other minds, is to stir up our own, to whet our appetite for truth, to carry our thoughts beyond their old tracks. We need connexions with greater thinkers to make us thinkers too. One of the chief arts of self-culture, is to unite the childlike teachableness, which gratefully welcomes light from every human being who can give it, with manly resistance of opinions however current, of influences however generally revered, which do not approve themselves to our deliberate judgment. You ought indeed patiently and conscientiously to strengthen your reason by other men's intelligence, but you must not prostrate it before them. Especially if there springs up within you any view of God's word or universe, any sentiment or aspiration, which seems to you of a higher order than what you meet abroad, give reverent heed to it; inquire into it earnestly, solemnly. Do not trust it blindly, for it may be an illusion; but it may be the Divinity moving within you, a new revelation, not supernatural but still most precious, of truth or duty; and if after inquiry it so appear, then let no clamor, or scorn, or desertion turn you from it. Be true to your own highest convictions. Intimations from our own souls of something more perfect than others teach, if faithfully followed, give us a consciousness of spiritual force and progress, never experienced by the vulgar of high life or low life, who march, as they are drilled, to the step of their times.

Some, I know, will wonder, that I should think the mass of the people capable of such intimations and glimpses of truth, as I have just supposed. These are commonly thought to be the prerogative of men of genius, who seem to be born to give law to the minds of the multitude. Undoubtedly nature has her nobility, and sends forth a few to be eminently "lights of the world." But it is also true that a portion of the same divine fire is given to all; for the many could not receive with a loving reverence the quickening influences of the few, were there not essentially the same spiritual life in both.—The minds of the multitude are not masses of passive matter, created to receive impressions unresistingly from abroad. They are not wholly shaped by foreign instruction; but have a native force, a spring of thought in themselves. Even the child's mind outruns its lessons, and overflows in questionings which bring the wisest to a stand. Even the child starts the great problems, which philosophy has labored to solve for ages. But on this subject I cannot now enlarge. Let me only say, that the power of original thought is particularly manifested in those, who thirst for progress, who are bent on unfolding their whole nature. A man who wakes up to the consciousness of having been created for progress and perfection, looks with new eyes on himself and on the world in which he lives. This great truth stirs the soul from its depths, breaks up old associations of ideas, and establishes new ones, just as a mighty agent of chemistry, brought into contact with natural substances, dissolves the old affinities which had bound their particles together, and arranges them anew. This truth particularly aids us to penetrate the mysteries of human life. By revealing to us the end of our being, it helps us to comprehend more and more the wonderful, the infinite system, to which we belong. A man in the common walks of life, who has faith in perfection, in the unfolding of the human spirit, as the great purpose of God, possesses more the secret of the universe, perceives more the harmonies or mutual adaptations of the world without and the world within him, is a wiser interpreter of Providence, and reads nobler lessons of duty in the events which pass before him, than the profoundest philosopher who wants this grand central truth. Thus illuminations, inward suggestions, are not confined to a favored few, but visit all who devote themselves to a generous self-culture.

Another means of self-culture may be found by every man in his condition or occupation, be it what it may. Had I time, I might go through all conditions of life, from the most conspicuous to the most obscure, and might show how each furnishes continual aids to improvement. But I will take one example, and that is, of a man living by manual labor. This may be made the means of self-culture. For instance, in almost all labor, a man exchanges his strength for an equivalent in the form of wages, purchase-money, or some other product. In other words, labor is a system of contracts, bargains, imposing mutual obligations. Now the man, who, in working, no matter in what way, strives perpetually to fulfil his obligations thoroughly, to do his whole work faithfully, to be honest not because honesty is the best policy, but for the sake of justice, and that he may render to every man his due, such a laborer is continually building up in himself one of the greatest principles of morality and religion. Every blow on the anvil, on the earth, or whatever material he works upon, contributes something to the perfection of his nature.

Nor is this all. Labor is a school of benevolence as well as justice. A man to support himself must serve others. He must do or produce something for their comfort or gratification. This is one of the beautiful ordinations of Providence, that, to get a living, a man must be useful. Now this usefulness ought to be an end in his labor as truly as to earn his living. He ought to think of the benefit of those he works for, as well as of his own; and in so doing, in desiring amidst his sweat and toil to serve others as well as himself, he is exercising and growing in benevolence, as truly as if he were distributing bounty with a large hand to the poor. Such a motive hallows and dignifies the commonest pursuit. It is strange, that laboring men do not think more of the vast usefulness of their toils, and take a benevolent pleasure in them on this account. This beautiful city, with its houses, furniture, markets, public walks, and numberless accommodations, has grown up under the hands of artizans and other laborers, and ought they not to take a disinterested joy in their work? One would think, that a carpenter or mason, on passing a house which he had reared, would say to himself, "this work of mine is giving comfort and enjoyment every day and hour to a family, and will continue to be a kindly shelter, a domestic gathering-place, an abode of affection, for a century or more after I sleep in the dust;" and ought not a generous satisfaction to spring up at the thought? It is by thus interweaving goodness with common labors, that we give it strength and make it a habit of the soul.

There is one circumstance attending all conditions of life, which may and ought to be turned to the use of self-culture. Every condition, be it what it may, has hardships, hazards, pains. We try to escape them; we pine for a sheltered lot, for a smooth path, for cheering friends, and unbroken success. But Providence ordains storms, disasters, hostilities, sufferings; and the great question, whether we shall live to any purpose or not, whether we shall grow strong in mind and heart, or be weak and pitiable, depends on nothing so much as on our use of these adverse circumstances. Outward evils are designed to school our passions, and to rouse our faculties and virtues into intenser action. Sometimes they seem to create new powers. Difficulty is the element, and resistance the true work of a man. Self-culture never goes on so fast, as when embarrassed circumstances, the opposition of men or the elements, unexpected changes of the times, or other forms of suffering, instead of disheartening, throw us on our inward resources, turn us for strength to God, clear up to us the great purpose of life, and inspire calm resolution. No greatness or goodness is worth much, unless tried in these fires.—Hardships are not on this account to be sought for. They come fast enough of themselves, and we are in more danger of sinking under, than of needing them. But when God sends them, they are noble means of self-culture, and as such, let us meet and bear them cheerfully. Thus all parts of our condition may be pressed into the service of self-improvement.

I have time to consider but one more means of self-culture. We find it in our Free Government, in our Political relations and duties. It is a great benefit of free institutions, that they do much to awaken and keep in action a nation's mimd. We are told, that the education of the multitude is necessary to the support of a republic; but it is equally true, that a republic is a powerful means of educating the multitude. It is the people's University. In a free state, solemn responsibilities are imposed on every citizen; great subjects are to be discussed; great interests to be decided. The individual is called to determine measures affecting the well-being of millions and the destinies of posterity. He must consider not only the internal relations of his native land, but its connexion with foreign states, and judge of a policy which touches the whole civilized world. He is called by his participation in the national sovereignty, to cherish public spirit, a regard to the general weal. A man who purposes to discharge faithfully these obligations, is carrying on a generous self-culture. The great public questions, which divide opinion around him and provoke earnest discussion, of necessity invigorate his intellect, and accustom him to look beyond himself. He grows up to a robustness, force, enlargement of mind, unknown under despotic rule.

It may be said that I am describing what free institutions ought to do for the character of the individual, not their actual effects; and the objection, I must own, is too true. Our institutions do not cultivate us, as they might and should; and the chief cause of the failure is plain. It is the strength of party spirit; and so blighting is its influence, so fatal to self-culture, that I feel myself bound to warn every man against it, who has any desire of improvement. I do not tell you it will destroy your country. It wages a worse war against yourselves. Truth, justice, candor, fair dealing, sound judgment, self-control, and kind affections are its natural and perpetual prey.

I do not say, that you must take no side in politics. The parties which prevail around you differ in character, principles, and spirit, though far less than the exaggeration of passion affirms; and, as far as conscience allows, a man should support that, which he thinks best. In one respect, however, all parties agree. They all foster that pestilent spirit, which I now condemn. In all of them, party spirit rages. Associate men together for a common cause, be it good or bad, and array against them a body resolutely pledged to an opposite interest, and a new passion, quite distinct from the original sentiment which brought them together, a fierce fiery zeal, consisting chiefly of aversion to those who differ from them, is roused within them into fearful activity. Human nature seems incapable of a stronger, more unrelenting passion. It is hard enough for an individual, when contending all alone for an interest or an opinion, to keep down his pride, wilfulness, love of victory, anger and other personal feelings. But let him join a multitude in the same warfare, and, without singular self-control, he receives into his single breast the vehemence, obstinacy and vindictiveness of all. The triumph of his party becomes immeasurably dearer to him than the principle, true or false, which was the original ground of division. The conflict becomes a struggle not for principle but for power, for victory; and the desperateness, the wickedness of such struggles, is the great burden of history. In truth, it matters little what men divide about, whether it be a foot of land or precedence in a procession. Let them but begin to fight for it, and self-will, ill-will, the rage for victory, the dread of mortification and defeat, make the trifle as weighty as a matter of life and death. The Greek or Eastern empire was shaken to its foundation by parties, which differed only about the merits of charioteers at the amphitheatre. Party spirit is singularly hostile to moral independence. A man, in proportion as he drinks into it, sees, hears, judges by the senses and understandings of his party. He surrenders the freedom of a man, the right of using and speaking his own mind, and echoes the applauses or maledictions, with which the leaders or passionate partizans see fit that the country should ring. On all points parties are to be distrusted; but on no one so much as on the character of opponents. These, if you may trust what you hear, are always men without principle or truth, devoured by selfishness, and thirsting for their own elevation, though on their country's ruin. When I was young, I was accustomed to hear pronounced with abhorrence, almost with execration, the names of men, who are now hailed by their former foes as the champions of grand principles and as worthy of the highest public trusts. This lesson of early experience, which later years have corroborated, will never be forgotten.

Of our present political divisions I have of course nothing to say. But among the current topics of party, there are certain accusations and recriminations, grounded on differences of social condition, which seems to me so unfriendly to the improvement of individuals and the community, that I ask the privilege of giving them a moment's notice. On one side we are told, that the rich are disposed to trample on the poor; and on the other, that the poor look with evil eye and hostile purpose on the possessions of the rich. These outcries seem to me alike devoid of truth and alike demoralizing. As for the rich, who constitute but a handful of our population, who possess not one peculiar privilege, and, what is more, who possess comparatively little of the property of the country, it is wonderful, that they should be objects of alarm. The vast and ever-growing property of this country, where is it? Locked up in a few hands? hoarded in a few strong boxes? It is diffused like the atmosphere, and almost as variable, changing hands with the seasons, shifting from rich to poor, not by the violence but by the industry and skill of the latter class. The wealth of the rich is as a drop in the ocean; and it is a well known fact, that those men among us, who are noted for their opulence, exert hardly any political power on the community. That the rich do their whole duty; that they adopt the great object of the social state, which is the elevation of the people in intelligence, character, and condition, cannot be pretended; but that they feel for the physical sufferings of their brethren, that they stretch out liberal hands for the succor of the poor and for the support of useful public institutions, cannot be denied. Among them are admirable specimens of humanity. There is no warrant for holding them up to suspicion as the people's foes.

Nor do I regard as less calumnious the outcry against the working classes, as if they were aiming at the subversion of property. When we think of the general condition and character of this part of our population, when we recollect, that they were born and have lived amidst schools and churches, that they have been brought up to profitable industry, that they enjoy many of the accommodations of life, that most of them hold a measure of property and are hoping for more, that they possess unprecedented means of bettering their lot, that they are bound to comfortable homes by strong domestic affections, that they are able to give their children an education which places within their reach the prizes of the social state, that they are trained to the habits, and familiarized to the advantages of a high civilization; when we recollect these things, can we imagine that they are so insanely blind to their interests, so deaf to the calls of justice and religion, so profligately thoughtless of the peace and safety of their families, as to be prepared to make a wreck of social order, for the sake of dividing among themselves the spoils of the rich, which would not support the community for a month. Undoubtedly there is insecurity in all stages of society, and so there must be, until communities shall be regenerated by a higher culture, reaching and quickening all classes of the people; but there is not, I believe, a spot on earth, where property is safer than here, because, nowhere else is it so equally and righteously diffused. In aristocracies, where wealth exists in enormous masses, which have been entailed for ages by a partial legislation on a favored few, and where the multitude, after the sleep of ages, are waking up to intelligence, to self-respect, and to a knowledge of their rights, property is exposed to shocks which are not to be dreaded among ourselves. Here indeed as elsewhere, among the less prosperous members of the community, there are disappointed, desperate men, ripe for tumult and civil strife; but it is also true, that the most striking and honorable distinction of this country is to be found in the intelligence, character and condition of the great working class. To me it seems, that the great danger to property here is not from the laborer, but from those who are making haste to be rich. For example, in this commonwealth, no act has been thought by the alarmists or the conservatives so subversive of the rights of property, as a recent law. authorizing a company to construct a free bridge, in the immediate neighborhood of another, which had been chartered by a former legislature, and which had been erected in the expectation of an exclusive right. And with whom did this alleged assault on property originate? With levellers? with needy laborers? with men bent on the prostration of the rich? No; but with men of business, who were anxious to push a more lucrative trade. Again, what occurrence among us has been so suited to destroy confidence, and to stir up the people against the moneyed class, as the late criminal mismanagement of some of our banking institutions. And whence came this? from the rich or the poor? from the agrarian, or the man of business? Who, let me ask, carry on the work of spoliation most extensively in society? Is not more property wrested from its owners by rash or dishonest failures, than by professed highwaymen and thieves? Have not a few unprincipled speculators sometimes inflicted wider wrongs and sufferings, than all the tenants of a state prison? Thus property is in more danger from those who are aspiring after wealth, than from those who live by the sweat of their brow. I do not believe, however, that the institution is in serious danger from either. All the advances of society, industry, useful arts, commerce, knowledge, jurisprudence, fraternal union, and practical Christianity, are so many hedges round honestly acquired wealth, so many barriers against revolutionary violence and rapacity. Let us not torture ourselves with idle alarms, and still more let us not inflame ourselves against one another by mutual calumnies. Let not class array itself against class, where all have a common interest. One way of provoking men to crime is to suspect them of criminal designs. We do not secure our property against the poor, by accusing them of schemes of universal robbery; nor render the rich better friends of the community, by fixing on them the brand of hostility to the people. Of all parties, those founded on different social conditions are the most pernicious; and in no country on earth are they so groundless as in our own. *(To be continued.)*

THE N. YORK AND LONG-ISLAND SILK GROWING AND MANUFACTURING COMPANY.—This company has been formed for the purposes which its title indicates. Its capital is $60,000, divided into shares of $10 each, most of which having been subscribed, the company will shortly go into operation. Books of subscription for the remaining shares will be opened on and after the 30th of April, at the undermentioned places, where the prospectus may be had and every information obtained.

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N. B. Persons at a distance wishing to subscribe to the above, can do so by forwarding 20 per cent on each share, (post-paid,) to GEO. C. THORBURN, treasurer. 1t

WATKINS' PATENT WHEAT FANS, GRAIN CRADLES, and every other variety of tool required for harvesting, for sale by R. SINCLAIR & Co.
July–2t Baltimore, Md.

AGRICULTURAL WAREHOUSE and SEED STORE, 79 Barclay-street, New-York. At this old established stand, the subscribers take pleasure in announcing to the public, that they have made extensive arrangements to accommodate farmers in all articles connected with husbandry, viz:—Agricultural implements, a full and fresh supply of Field and Garden Seeds, Fruit Trees, Durham Cattle, Chinese and Berkshire pigs, 10,000 morus multicaulis mulberry trees, publications on rural subjects, &c.

Published here, the Rural Library, S. Fleet, editor; a few copies of 1st vol. for sale. The object of this work is to constitute a library at the least possible expense. 2d vol. commencing with Prof. Low's Elements of Practical Agriculture, with nearly 250 fine engravings; subscription $3. Subscriptions received for the Genesee Farmer, Cultivator, &c.
July–3t J. W. WEAVER & Co. 79 Barclay-st. N.Y.

THOROUGH-BRED IMPROVED SHORT-HORN CATTLE.—The subscriber has recently taken charge of the superior stock of Short-Horn Cattle, bred by L. F. Allen. Esq. on his farm at Grand-Island, in the Niagara river. The original stock from which these have been produced, were selected from among the best animals in the country, and several of them were imported direct from England. As a milking stock, the cows of this herd will challenge competition with those of any other in the United States; several of them being extraordinary milkers, and all of them good. For the making of butter, they have been thoroughly tested, and their dairy excellence is remarkable. Their value in this particular, is fully sustained in the grade animals descended from the bulls of this herd, which have, thus far, without exception, proved the best of milkers. This excellence, possessed in reality by no cow so much as in the pure Short-Horn, has been too much neglected by both English and American breeders, and their value as a dairy stock thus underrated.

In addition to the above, are a select herd of DEVON SHORT-HORNS, bred from two choice pure Devon cows, directly descended from the celebrated herd of Mr. Coke, of Holkham, Eng. These beautiful animals are a cross of different degrees with the pure "Improved Short-Horns," without any admixture of common blood; and are as perfect combinations of excellence in color, hardihood, symmetry and size as can be found.

As the present herd, of all ages, has now attained the number desirable to be kept on the farm, (upwards of forty,) a part of them are offered for sale. Application may be made either personally or by letter, (post-paid,) to SAMUEL ALLEN, Esq. at Black-Rock, N. Y. or to the subscriber on the farm, five miles below, at which a ferry connects with the main shore, on the Erie canal. LEWIS G. COLLINS.
Grand-Island, May 15, 1839.
P. S. A few fine grade animals also for sale. jtf.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 189 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

FOR SALE—A splendid Farm, in the town of Hillsdale, Columbia county, N. Y. situated 18 miles east of the city of Hudson, containing about 208 acres of first rate land, about 180 of which is fine level arable soil, of an excellent quality, in a good state of cultivation, and on a very public road from New-York to Albany, and not surpassed by any in Columbia, for fertility; the remainder in fine timber; about 30 acres of good pine and chestnut timber. This situation is the most splended in the town of Hillsdale. The farm can conveniently be divided in to two farms, giving an equal quantity of timber land to each. There is a beautiful grove of fruit and ornamental trees about the main dwelling; also three other DWELLING-HOUSES, three Barns, besides Hay Barns and Barracks, Sheds, &c. Also, out-houses of almost every description, and in first rate order.

Also—Several lots of land in the counties of Broome and Tioga. Terms of payment made to suit the purchaser. Inquire of the subscriber on the premises.
July–2t BARENT WAGER, Hillsdale.

*Moneys received between the 20th May and 24th June, in sums of $5 and over. The total receipts are included from post-offices marked with an asterisk.**

	No. Vols.		No. Vols.
*Abbot's Mills,	Ten. 11	*Long Meadow,	Va. 11
Amherst C. H.	Va. 11	*Lynchburgh,	Va. 84
*Augusta,	Geo. 48	Lafayette,	Va, 6
Asylum,	Pa. 5	*Lewistown,	Pa. 20
Augusta,	Ill. 5	Lexington,	Va. 22
Brockwayville,	Pa. 5	Lancaster,	O. 5
Beaufort,	S.C. 5	Lake C. H.	Ia. 8
Bethlehem,	Ia. 5	Little Level,	Va. 5
*Bennington,	Vt. 19	Lafayette,	Ia. 14
*Bardstown,	Ky. 11	La Grange,	Ala. 10
Bowling Green,	Ky. 5	*Madison,	Ia. 20
Buckhead,	S.C. 5	*Manhattan,	Ia. 20
*Boydton,	Va. 22	*Middletown,	Va. 22
*Burlington,	Vt. 25	*Monroe,	Ga. 18
*Boston,	Mass. 159	*Meadville,	Pa. 13
Bridgewater,	Ct. 5	New-Orleans,	La. 12
Bell-Air,	Md. 12	*Newark,	N.J. 9
*Baltimore,	Md. 103	*New-Holland,	Pa. 25
Bolivar,	Ten. 5	*Newtown,	Ct. 10
*Concord,	N.H. 11	*Newark,	O. 15
*Cincinnati,	O. 21	*New-York City,	241
Charles City C. H.	Va. 6	*Nicholasville,	Ky. 13
*Connellsville,	Pa. 12	*Newton,	N.J. 18
*Catskill,	N.Y. 15	Newark Valley,	N.Y. 6
Conrad's Store,	Va. 6	*Norwalk,	Ct. 28
Charlestown,	Va. 28	*Princess Ann,	Md. 28
Clifton Park,	N.Y. 6	*Peoria,	Ill. 38
*Detroit,	Mich. 24	*Plattsburgh,	N.Y. 33
Erin,	Ga. 6	*Pittsfield,	Mass. 14
Elmira,	N.Y. 13	*Pittsburgh,	Pa. 69
*Elizabethtown,	Ky. 11	*Philadelphia,	Pa. 152
Evansville,	Ia. 5	Petersburgh,	Ga. 30
*Fincastle,	Va. 70	*Rhinebeck,	N.Y. 27
*Fort Hamilton,	N.Y. 8	*Richmond,	Va. 183
*Frederick,	Md. 39	*Simpsonville,	Ky. 22
*Friendship,	Md. 15	*St. Louis,	Mo. 55
*Flushing,	N.Y. 13	*Springfield,	Mass. 35
Fort Wayne,	Ia. 5	*Shelbyville,	Ky. 20
Flemington,	N.J. 13	*Sing-Sing,	N.Y. 25
Gainesville,	Ala. 5	Shrewsbury,	Pa. 17
*Goshen,	Ct. 19	*Suffolk,	Va. 28
Greensborough,	Ga. 11	Springfield,	Ill. 6
*Guilford,	Ct. 7	Trenton,	N.J. 25
*Hartford,	Ct. 59	Verona,	N.Y. 5
Hopkinton,	R.I. 5	Winchester Centre,	Ct. 7
*Hudson,	N.Y. 23	*Waterbury,	Ct. 12
Hawesburgh,	Va. 7	Wellsburgh,	Va. 13
*Huntingtown,	Md. 32	*Whalen's Store,	N.Y. 20
Highland,	Mich. 5	Woodstock,	N.Y. 5
Inlet,	Ill. 5	*Williamsport,	Md. 25
*Jerusalem,	Va. 16	Westport,	Mo. 7
Kingsville,	Md. 6	West Burlington,	N.Y. 9
Lewiston,	N.Y. 6	*Worcester,	Mass. 11

PRICE CURRENT.

ARTICLES.	New-York. June 24.	Boston. June 23.	Philadelphia. June 22.	Baltimore. June 21.
Beans, white, per bush.	1 75.. 2 25	2 00.. 2 25	1 75.. 1 87	1 87.. 2 00
Beef, cwt.	8 00..10 00	9 00..11 00	10 00..11 00	8 00.. 9 50
Bacon, western, lb.	11.. 12	12.. 14	11.. 12	11.. 12
Butter, fresh, lb.	21.. 25	21.. 25	14.. 20	14.. 20
Cheese, lb.	9.. 11	12.. 14	10 00.. 11	9.. 11
Cotton, best, lb.	12.. 16	14.. 20	14.. 17	15.. 17
Flour, best, bbl.	6 00.. 8 00	6 50.. 7 25	6 00.. 6 25	6 00.. 6 21
Grain—Wheat, bush.	1 40.. 1 45	....	1 30.. 1 35	1 15.. 1 20
Rye, bush.	90.. 1 00	1 00.. 1 12	95.. 1 00	90.. 95
Oats, bush.	50.. 60	50.. 65	58.. 62	53.. 55
Corn, bush.	87.. 93	94.. 1 00	86.. 89	77.. 85
Hams, pork, lb.	12.. 13	13.. 15	12.. 13	14.. 15
Pork, in hog, cwt.	....	12 50..13 00	9 00.. 9 50	9 00.. 9 50
Seeds—Red Clover, bush.	10 00..13 00	10 00..13 00	9 00.. 9 25	9 00.. 9 50
Timothy, bush.	2 60.. 2 75	2 50.. 3 00	2 75.. 3 00	2 60.. 2 87
Wool—Saxony, fleece, lb.	55.. 62	62.. 70	55.. 58	55.. 58
Merino, lb.	45 .. 52	55.. 57	52.. 57	53.. 57
1-4 and com. lb.	36.. 40	37.. 40	38.. 40	37.. 40
Sheep, head,	4 00.. 5 25	3 50.. 4 00	2 50.. 3 77	3 00.. 3 75
Cows and Calves,	33 00..55 00	22 00..65 00	28 00..53 00	30 00..55 00

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

C H Kellogg

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Look out for another Panic.

The New-York Times gives the following statement of the amount of duties paid in the district of N. York, during the first quarter of 1838, and the first quarter of 1839:

1838,	$2,407,755 78
1839,	4,309,500 21
Difference,	$1,901,744 43

Now, if we assume this as a criterion for the three coming quarters of the year, it will give an aggregate of $7,606,972.72, as the amount of duties upon foreign importations, paid in the district of New-York, in 1839, over and above what was paid upon the like importations in 1838. This immense sum of seven and a half millions of dollars, the reader will bear in mind, is not the *cost* of the foreign articles we import, but merely the *duty* which is exacted by our laws on their introduction into our country. And if we consider that almost every foreign article not coming in competition with our own manufactures, is imported duty free; and that many other articles pay merely a nominal duty, we may with safety assume, that the duties payable at the custom-house do not amount to more than one-tenth of the cost of the foreign merchandize imported. We arrive, then, at this result, that the foreign goods imported into New-York during the present year, will exceed in amount the importations of 1838, SEVENTY-SIX MILLIONS OF DOLLARS!!!

And who is to foot the bill?—who is to pay the balance? Here is an extra charge against us, in a single port, of seventy-six millions of dollars, in a great measure for articles which we can either produce within ourselves, or do without. We may boast of this as an era of *commercial prosperity*—we may boast that it fills the coffers of our national treasury—but we cannot conceal the apprehension, that it is pregnant with future and direful evils to our country; that it is the prelude to another commercial panic, more dreadful in its effects than the one from which we are just recovering. Really, we are getting commercially mad. Like the reckless spendthrift, we are cumbering our patrimonial inheritance, entailing upon our posterity a ruinous debt, and compromiting our independence as a nation, from a vain ostentation of buying what we do not want, or what at all events we are unable to pay for.

We repeat the question—By whom and how is this seventy-six millions of dollars to be paid? Paid it must be, if we would sustain our character for honesty and fair dealing. The total amount of our exports is but a little over one hundred millions—some millions less than our imports of last year; and according to the data we have assumed, they are likely to fall short of the imports of the current year from fifty to a hundred millions of dollars. Our state stocks have, to the amount of one hundred and seventy millions, been already sent abroad towards paying old balances; some considerable portion of our bank stock has been employed for a like purpose; and, abstracting the exports of cotton, exclusively the production of the south, our exportations will not pay a tithe of the rapidly accumulating debt.

What does this state of things augur to our manufacturing and agricultural interests? This seventy-six millions of foreign merchandize has and will be spread over our country, and must and will be sold, though at a sacrifice to the holders; and supplant, in no small degree, the sales of domestic goods. Our manufacturers will consequently become cramped; their business will be contracted; many mills be stopped, and many failures ensue. The evils to the agriculturist will be, the loss of the market, to the manufacturer, of his provisions and raw materials, a diminution in their price, and a participation in the evils of another commercial panic.

Our anticipations may not be realized; yet the facts upon which they are founded, are such as should put every prudent man on his guard—as should render him cautious of running in debt, particularly for foreign merchandize, and as should induce him, in all cases where it is practicable without a great sacrifice, to give a preference to domestic over foreign productions. The patriots of our revolution could forego the use of foreign goods, and their wives and daughters the use of their favorite beverage, tea, for their country's good. The sons surely have not so degenerated, as to be unwilling to adopt, in part, to *maintain* their independence, that policy which their fathers employed to *achieve* it.

Academies and High Schools.

From the school returns of Massachusetts, it would seem that the tendency of academies and high schools, in the towns where they are established, has been seriously to impair the patronage, and lessen the benefits of the common schools, by compelling the districts, for want of funds, to employ inferior teachers at small salaries. "Where established," says the secretary of the board of education, "private schools and academies tend strongly to diminish the annual appropriations for common schools; they draw their ablest recruits from the common schools, and by being able to offer a higher compensation, they have a pre-emptive right to the best qualified teachers; while simultaneously the district schools are reduced in length, deteriorated in quality, and to the same extent bereft of talents competent for their instruction."

The same influence upon the character and usefulness of our common schools is felt in New-York, from the rapid increase of academics and select schools among us. These *high* schools are patronized and supported by the wealthy; and the effect is not only to withdraw their *patronage* from the common schools; but, what is of perhaps greater consequence, their *care* and *influence* also. And it has become a serious question, whether the character and usefulness of our academies are not impaired by an unreasonable multiplication of them—whether more good, to the pupils and the public, would not result from half than from the whole of them. They are designed to teach classical literature, science and the higher branches of an English education; but their multiplied numbers has so divided and cut up the public patronage, that even with the aid of the literature fund, but a small portion of them are able to obtain the library, the apparatus, or the teachers, which are necessary to carry out the objects of the establishment. The consequence is, that their teachings are more in name than in substance; with this further disadvantage, that as they profess to give higher qualifications of usefulness to the pupils than common schools, and are considered the exclusive avenues to the learned professions—to fame and fortune, they absolutely spoil many boys, by inflating without enriching their minds, who otherwise might have been more useful and more respectable, in the more humble, but not less honorable, employments of life.

Let us not be understood as wishing to disparage the higher branches of learning which are taught in classical schools. We are the avowed and decided advocate of the higher studies. But we would not teach them exclusively to the few, to the prejudice of the many. We would not unnecessarily multiply academies for the professions, already overstocked, to the prejudice of common schools, which are more particularly for the farming and mechanical classes. We would not pull down the high, but we would raise the humble to their level, by giving them those attainments which would serve to improve their condition in business and society. There is not a doubt in our minds, that the teachings of the higher branches of education, embracing the principles of natural science, chemistry and mechanics, would be of far more service to the community, if taught and applied to the arts of productive labor, than they can be to the learned professions.

Under this view of the subject, we consider Secretary Mann correct in saying, that high schools and academies, when multiplied to the extent they now are, are injurious to the cause of common school education. Were the patronage and influence which are now given to the high schools, brought to co-operate with the patronage and influence exerted in the school districts, and the munificent appropriations of the legislature, for competent teachers and district libraries, we have not a doubt that many of our common schools might be raised, in character, to the common standard of academies, and greatly to excel many of the latter in usefulness—because their benefits would be imparted to a whole community, to the producing, as well as to the non-producing classes. It is a principle which cannot too often be inculcated, that the prosperity and happiness of the individual, depends materially upon the intelligence, industry and thrift of the district.

Horticultural Report.

Report of the second exhibition of the Horticultural Association of the Valley of the Hudson.

The second semi-annual exhibition of the Horticultural Society of the Valley of the Hudson was held at Stanwix Hall, Albany, on the 25th and 26th of June.

The committee could scarcely have been more fortunate in the selection of a suitable exhibition room, as the lofty domical apartment, measuring 70 feet from the floor to the ceiling, and of corresponding width, when filled with fine exotics, plants, fine fruits and beautiful flowers, redolent with delightful odors, from the gardens of many of the members, afforded a truly charming *coup d' œil* to the eye of the spectator.

On entering the hall, the rich groups of verdure which encircled it, composed of the most beautiful exotics, afforded the finest possible back ground to central tables, where the numberless bouquets of choice cut flowers and the finest specimens of early fruit were exhibited. One side of the apartment was devoted to the display of the many excellent and well grown vegetables. One hundred and forty superb bouquets of cut flowers decorated the chandeliers, the columns, and various other parts of the room; and during the second day of the exhibition the numerous company of visitors assembled were entertained with the performances of a fine band of music. The middle of the central table was occupied by a beautiful "*Temple of Flora,*" from the Albany Nursery, the floor of which was paved with dahlias and other fine flowers, the columns enwreathed with a variety of phloxes, and the dome covered with a rich variety of roses and Paisley pinks. Among the most striking of the fine greenhouse plants, were some magnificent Roman myrtles, orange and lemon trees, with a great variety of other fine specimens from the Manor House, Albany, which were kindly contributed by Mrs. S. Van Rensselaer. We also noticed a very large specimen of yucca gloriosa, 10 feet high, with equally fine specimens of the India rubber tree, (ficus elastica,) fuchsia gracilis and protea argentea. The oriental cypress of the Levant, the nandina domestica of China, and the fragrant jasmines of the south of Europe, were also conspicuous for their size and beauty. An admirable variety of fine vegetables was contributed by the horticulturists of the counties bordering the Hudson, as well as from the neighborhood of Albany. Gentlemen distinguished for their zeal in horticultural and rural improvement were present from nine of the different river counties, all of whom expressed the warmest interest in the future prospects and success of the society. The early period at which the first semi-annual exhibition is held, necessarily prevents a large show of fruits, the autumnal exhibition being more especially devoted to pomology; but the cherries, strawberries and melons sent were highly deserving commendation.

At the meeting of the members, on the evening of the 25th, the annual election of officers of the association took place; when, the former president declining a re-election, the Hon. EDWARD P. LIVINGSTON, of Clermont, Dutchess co. was chosen president; A. J. DOWNING, Esq. of Newburgh, corresponding secretary; THEODORE ALLEN, Esq. of Hyde Park, recording secretary; and WM. THORBURN, Esq. of Albany, treasurer. A vice-president was also elected for every county on the river, and executive committees for each place where it is proposed to hold exhibitions.

The next autumnal exhibition of the association will be held in New-York on the 12th day of September next, when contributions are solicited from every section of the Valley of the Hudson.

CONTRIBUTIONS TO THE EXHIBITION.

From Mrs. S. Van Rensselaer, Manor House, Albany.—Euphorbia splendens, protea argentea, 8 feet high, lagerstræmia indica, diosma encoides, ericas, several fine species, ficus macrophylla, ficus elastica, daphne variegata, several beautiful geraniums; a number of fine large orange trees loaded with fruit of different varieties; jasminum of different sorts, a large century aloe, yucca gloriosa, fuchsia gracilis, calceolarias, splendid myrtles, &c. &c.—all in pots. Also, several beautiful bouquets of cut flowers, roses, pinks, &c. also a basket of ripe melons, the finest cucumbers, two varieties of strawberries, very large gooseberries, &c. All these were of the finest description, and reflect credit upon Mr. Leonard, the gardener at the Manor House.

Jas. Wilson, Albany.—Luxumburgh moss rose, scarlet moss-rose, white do., village maid do., La Furturelle do., Wellington do., two varieties new petunias, twelve varieties fine heart's ease, a splendid plant of Fuchsia Globosa, and a fine new South American calceolaria, in full bloom; one large orange tree, loaded with fruit, with many other greenhouse plants, and blooms of the following dahlias:—purple perfection, globe white, liberty, Durant's invincible, rose imperialis.

E. Holbrook, Hyde Park.—Bishop's orange strawberries, 4¾ inches in circumference; Keen's seedling and Hautboy's do. all of large size; white smith, crown bob, rifleman, and other gooseberries, extra fine; four fine heads cauliflower, eight do. early York cabbage, Newcastle, early and Egyptian kidney potatoes, fine ripe tomatoes, red top turnips, large early carrots, blood beets, and a fine bouquet of cut flowers.

Josiah Williams, Poughkeepsie.—Two cucumbers, 21 inches in length.

J. Buel & Co., Albany Nursery.—A beautiful variety of fine roses, pinks, &c. tastefully interwoven in the form of a temple of Flora. Also, a great number of plants, in pots, among which the following geraniums, in full bloom, were conspicuous, viz: Mary Queen of Scots, Dennis' Perfection, Macranthon, Droivede, Juliet, Lafayette, Wheelerii Americanum, Adelina, Teativanium, Ferronia, Capt. Cook, &c. &c. Also, a great variety of cut flowers, among which were splendid specimens of the different Chinese Peonias, double white, blush and rose scented. Fine specimens, in pots, of Sollya heterophylla, Lantana Selloroii, Fuchsia Thomsonii, Nerium Splendens, Crassula Coccinea, Cytisus, Argentea variegata, Erica, many species; Bouvardia triphylla, Myrtus flore pleno. Also, 12 stalks giant rhubarb, which weighed (without the leaves) 12¼ lbs.

Edward P. Livingston, Clermont.—Extra fine ripe melons; six very beautiful lemons. Fine specimens of the white oxheart cherry, with a beautiful bouquet, composed in part, of superb carnations, scarlet zinnias, and fine varieties of roses.

Theodore Allen, Hyde Park.—Extra fine gooseberries and cauliflowers, stalks of rye, eight feet long, and a variety of fine vegetables, consisting of lettuce, rhubarb, potatoes, turnips, beans and fine melons.

Messrs. *Downing*, Botanic Nurseries, Newburgh.—Specimens of the following cherries, viz: Yellow Spanish, China Heart, Black Tartarian, Downers late Red, American Heart and transparent. Also, a variety of fine hardy Roses, among which were Pallagi, Village Maid, Chatelaine, George the Fourth, La Cerisette, Diantheflora, Princess Louise, Felicite Perpelaette, Madame Despres, Moss of Moss, Hybrid Blanc, Roi des Hybrides, &c. A beautiful specimen of Amaryllis, with eight fully expanded flowers; bouquets of Verbena Tweediana and T. Major, Datura Arborea; several sorts of Pansy, and cut specimens of the following Geraniums, viz: Dennis' Perfection, Speculum Mundi, Miller's Adonis, Sir John Broughton, Queen of Pixies, &c. Dahlias:—Conqueror of Europe and Lilac Perfection.

Dr. Wendell, Albany.—A fine Fig Tree, eight feet high; Aucuba Japonica, and several varieties of Geraniums, in pots; four fine Cucumbers.

J. R. Stuyvesant, Hyde Park.—Very fine Cauliflowers; also, excellent specimens of early Potatoes, Beans, Cabbage and Tomatoes, with a fine bouquet of cut Flowers.

Mr. Fowler, Albany.—A few select Dahlias, with several bouquets of cut Flowers, Verbena Tweedinana and Ranunclus Marigold.

Mrs. Forsyth, Albany.—A beautiful bouquet of Roses.

Alderman Peters, Newtown, Long Island.—Fine White Heart Cherries.

Mr. Duane, Schenectady Co.—Prairie Grass, from the Mohawk Flats, 8 feet 2 inches high.

Francis Bloodgood, Albany.—Methven Strawberries, four inches in circumference; Green Peas and Cucumbers.

J. P. De Wint, Fishkill Landing.—Extra fine Mayduke Cherries and some fine early Beans.

Thos. Turner, Albany.—A bouquet of beautiful Dahlias and Moss Roses.

Chas. Gilchrist, Albany.—A specimen of Archduke Cherries, beautiful Dahlias, and other cut Flowers, and six Cucumbers.

Alex. Walsh, Lansingburgh.—A table of Silk Worms feeding; Filberts, of last year's growth; Sea Kale, Keen's Seedling Strawberries, Duke Cherries, early Potatoes and Cucumbers, Mushrooms, Seedless Barberry, and a variety of cut Flowers, among which were Paisley Pinks, Feathered Hyacinths, Delphinium Grandiflorum, Campanula Persifolia pl., Spirea Filipendula pl., Hoya Carnosa, Aconitum Napellus, &c. Vegetables—Potatoes, fine Cucumbers, Early York Cabbage and Turnips, with a specimen of a new fodder plant, called 'Esparsette.'

A. P. Heartt, Troy.—Plants in pots, new prolific Lime, Myrtle Orange and Sweet Orange, all in fruit; also, a splendid variety of cut Flowers, Roses, &c. &c.

George W. Warren, Troy.—Three fine Lemons, in pots.

Wm. Thorburn, Albany.—Three seven years' Pumpkins, grown in 1837, perfectly sound; also, some fine Paisley Pinks, in pots; seeds for sale by him.

John B. Hudson, Albany.—Six Heads very large Early York Cabbage, and some beautiful Heads of Sicily Lettuce.

John Crawford, New Scotland.—Stalks of Rye, eight feet one inch in length.

T. McBride, Albany.—A dish of large White Smith Gooseberries.

J. Whalon, Albany.—Fine Lettuce and Cucumbers.

Theo. Roessle, Albany.—One bunch Celery, one do Onions, four Heads Lettuce, and a wreath of Double Curled Parsley.

Alderman Bancroft, Albany.—Fine specimens of Wax Flowers, executed by his daughters.

Sidney Chapin, Albany.—A fine Pine Apple, growing upon its natural stalk.

The Society cordially invite all persons resident in the Valley of the Hudson, who feel an interest in the improvement of our Horticulture, to contribute specimens of Fruits, Vegetables, Flowers, and farm products of every description, to the Autumnal Exhibition to be held on the 12th of September next, in the city of New-York.

A. J. DOWNING, *Corresponding Sec'y.*
Newburgh, Orange county.

Agricultural Education.

This subject underwent an animated discussion in an agricultural meeting in Kent, (England,) in April.—The object of the meeting was to provide means for establishing an agricultural college in that county. The plan is, to raise £15,000, or about $66,000, by shares of £10 each, which is to be applied to the purchase of eight or ten acres of land, and erecting and fitting up a school and other requisite buildings for 300 or 400 young men. A contiguous farm of 600 or 800 acres is to be taken upon a long lease, and stocked, for experiments and practical operations in husbandry. It is proposed to employ nine teachers and other requisite officers; to board and educate young men at 25 guineas a year; and it is estimated that, after paying rent on the farm, salaries and contingent expenses, there will be a surplus of 450 or £500 per annum.

In the discussions which the subject underwent, B. F. Duppa, Esq. remarked as follows—

" In presenting myself for the purpose of explaining a plan for an agricultural college, I do so with more confidence, in consequence of that plan not only being generally approved but revised and added to by many of the chief agriculturists in this country; and it is a singular and important fact, that a want of the knowledge which it is proposed should be imparted there, is admitted in the strongest terms, chiefly by those whose acknowledged success in the practice of agriculture would point them out as living evidences, that no such institution was required. *Of all the occupations in which men engage for the purpose of gaining a livelihood by the application of capital, there is not one in which a large and varied stock of accurate knowledge is not only desirable, but so absolutely necessary, for obtaining the greatest return, as in farming.* The operations which a farmer has to perform, are not few and unvarying, as are those of the manufacturer, who, having once taken up his ground with prudence, proceeds, hot and cold, wet and dry, snow and frost, in the same manner; his machinery or tackling is the same throughout the whole year—it is confined to one spot, performs the same operations, and works upon the same materials, upon which its action always produces the same effects. The produce or the crop of the manufacturer is thus certain; and he only shares with the farmer in the variations of the market. But these are not the only points in which the manufacturers have the advantage; they live together in towns, so that whatever new invention is made, whatever improvement in process is discovered, all learn and adopt it simultaneously, or nearly so. This is not the case with the farmer; he necessarily lives apart—his occupation prevents him seeing much beyond what he does himself—so that it is only through hearsay and reading that successful experiments become known to him. Other counties can be rarely visited, while other countries can be scarcely so at all. The Belgians have made great strides in the practical improvement of agriculture, but how many persons are there in this room who have been to see what they have done? Belgium is but a few hours' voyage from Dover, and a rail-road transports the traveller from one part of the kingdom to another. Such are some of the difficulties of the farmer's position; what arrangements have been made to enable him to overcome them? Agricultural socities have been formed, at which there are exhibitions of produce, prizes are distributed, and ploughing matches take place. But much good as they have done, and are calculated to do, they go not to the root of the evil. No reward—no prize can bring more out of a man than he has in him. We want something which will sink deeper than this, something which will place into the minds and habits of people that which we desire to come out. The only thing I know of capable of effecting this, is an education well adapted to the circumstances and future prospects of the individual. And this, from all I can learn, and the farmers themselves have been my informants, it is impossible now to obtain. But are the manufacturers, who I have shown from their position to stand less in need of science than the agriculturists—are they idle on this head? have they been doing nothing? In most of the large manufacturing towns throughout the kingdom, great efforts are making to give knowledge a bearing upon the principles of the occupation of the place, not only to the manufacturer, but to the mechanic. At Manchester, at Liverpool, at Glasgow, at Edinburgh, in the potteries, in the mines of Cornwall, there are classes for mathematics, chemistry, mechanical drawing and mechanics. They teach the strength and strain of materials, pressure on embankments, floating, engineering, and all matters which the wants and occupations of the locality make desirable; and of the school of arts in Edinburgh, a certificate is given to all pupils who have passed through the mathematical, mechanical and chemical classes, and at an examination shown that they have duly profited. Thus these portions of the population are pushing forward, and while they are doing so, are we men of Kent to remain behind? God forbid! I rejoice from my heart at the exertions making elsewhere. It is only another reason to exert ourselves, if our own improvement, and the increased produce of the soil, are not of themselves of sufficient reward to hold forth. With a view then of enabling the yeomen and others connected with agriculture in this country, to give a superior and suitable education to their children, it is proposed to found a college of agriculture, by the united strength of the county, which shall be so constituted as to afford all the facilities for the religious, moral and intellectual training of a well conducted school, combined with the practical knowledge, practical skill, and the habit of close industry and attention, which can only be obtained upon a farm and in suitable work-shops."

" When the pupils have perfected themselves in the elementary branches of an English education, they will proceed directly," continues Mr. D. " to those departments which bear immediately upon their future professions; and these must be principally chemistry, mechanics, the philosophy of animals and plants,—all as applied to agriculture. In chemistry lies the secret of the manner in which manures act upon different soils, and soils upon each other. In mechanics lies the secret of economizing power of every description. In the physiology of animals and physiology of plants, lie the secrets of choosing and treating animals.—While in the physiology of plants lie the secrets of generating and rearing plants in the greatest perfection, and placing them in soils suitable to their respective natures. Besides intellectual instruction, it is proposed to endeavor to effect two other things, to give our young pupils skill and the habits of industry. It is proposed that they shall be practised in such of the arts as are subservient to agriculture; as carpentry, smith's work, building, surveying, draining and irrigating; that from an early period of life the boys shall be trained to the practical application of what they learn; and that while a portion of the day is devoted to the school room, another will be given to the work-shop, the garden and the field. It is scarcely possible to calculate the effect which such skill possessed by the farmer would have upon the whole race of artizans throughout the country districts. No farmer who could himself use the tools of the carpenter—no farmer who could himself shoe a horse in a proper manner,—would tolerate what was clumsy and unworkmanlike in the carpenter and the smith. The farmers would know what was right, and would have it done. * * * As for difficulties, there are difficulties in the way of everything that is worth attaining. Let us not shrink from them, but meet them fairly, and depend upon it they will yield to us."

" The Rev. W. L. Rham observed, that he had been requested to state to the meeting, what he had observed in similar institutions on the continent, and their effects upon the improvement of agriculture wherever they had been established. In England we had had for a long time little or no communication with the continent, and our farmers were entirely unacquainted with the improvements which had been made in other countries. But this was not the case on the continent. By means of institutions, chiefly supported by the government, where agriculture was taught in theory as well as practice, every work which appeared in England, of any value was examined, and if it contained any practical improvement in the mode of tilling the land, was immediately translated and distributed in a cheap form. In Austria, a book containing the elementary principles of agriculture, is, by command of the emperor, taught in every parochial school—as a subject useful and interesting to every class of men, whether practically engaged in the cultivation of the soil or not. In Prussia the establishment of an agricultural college at Moegelin, on the Oder, had been the means of training a great number of men in the best practices of agriculture; and while they learned to hold the plough, and to observe minutely its action, they had sufficient opportunity to discover defects, and suggest improvements where they were practicable. M. Von Thaer, who was long at the head of this institution, wrote a most valuable work on husbandry, which has been read and translated into almost every language; but for want of institutions in this country which directed men to every source of agricultural knowledge, it has never been translated into English, and till lately, was scarcely known. It is called 'Principles of Rational Husbandry.' The pupils of the school of Moegelin have been dispersed through the country, and have greatly improved the agriculture of Prussia. In Switzerland a school for training young men in a knowledge of practical and improved husbandry, has been established at Hoffwyl, near Bern, by a well known and justly celebrated individual, M. de Fellenburgh. Here general education is combined with agricultural instruction; and this institution is remarkable by having been established and maintained by an individual, without any assistance, excepting some trifling advances by the government of Berne, which have probably been replaced in a very short time. The labor of the pupils amply repays the expense of their maintenance and instruction. * * There is a celebrated school of agriculture at Roville, not far from Nancy, in France, where M. de Dombastles trains young men in the theory and practice of agriculture; and these, afterwards dispersed through the country, introduce improved practices, and will soon raise the agriculture of France to a level with that of the most improved countries; for it must be acknowledged, that, in consequence of the wars and revolutions which have for so many years distracted that fine country, agriculture has been wofully neglected, and was not to be compared with that of the surrounding countries."

" Sir W. B. Riddell eloquently supported the project, and stated that Lord Mensham, himself, Mr. Brett and Mr. Tuffnel, having joined Mr. Duppa, with a view to assist his arduous exertions, communications had been held with some of the first persons in the county, who had unanimously approved of such an institution, together with all persons interested in agriculture who had been consulted. The hon. baronet then read and referred to letters from the archbishop of Canterbury, the bishop of Rochester, Lord Bexley, Viscount Sidney, and Lord Sondes, who all concurred in their approval of such an institution. Earl Spencer, who is president of the British Agricultural Association, Lord Weston, Earl Brecknock, Lord Radnor, Duke of Richmond, Lord Chichester, Earl Winchelsea, and the Marquis of Lansdown, had also expressed their conviction of the utility of some such institution as was then proposed, as also had Mr. Lake, Mr. Bapchild, and several other eminent agriculturists.—Looking as he did to the immense number of persons who were interested in supporting it, in order to procure a suitable education for their children, not only in this but other counties, and even other countries; considering the number of persons, of all conditions of life, who are now sending their sons out to the colonies, he could not entertain a doubt of the success of the Kent Agricultural college."

" Mr. Brett called the attention of the meeting to the fact on which they were all agreed, viz: that there could be no doubt of the lamentable deficiency that existed of facilities for procuring scientific agricultural information. A perfect remedy for that deficiency was offered by this institution. A very large number of gentlemen had consented to take shares in the undertaking; indeed, raising the money was the smallest difficulty they had to contend with. It had been determined that this institution should not be dependent on persons of high station, property and influence; but should be supported by the yeomanry, and all persons connected with agriculture; and the proposed committee, whose duty it would be to prepare estimates, and lay them before a general meeting, contained a preponderant number of yeomen, being formed of twenty-five yeomen, fifteen other persons, five magistrates and five clergymen. At present the subscription list had been confined to Kent; but if it were desirable, many other gentlemen were anxious to support the proposed institution."

We ask of the reader an attentive perusal of the preceding extracts, and particularly those who wish to have sons educated in the principles and practice of an enlightened and improved agriculture. The subject is one of common interest to every class of the community; and although the sentiments here expressed come from "the men of Kent," they nevertheless have a general application, and are especially suited to our condition. And we beg our leading men to note the interest which is evinced in Britain by earls, dukes, bishops, lords, and baronets, in promoting the greatest interest of their country—its agriculture; and to ask themselves, if those men do not, by these noble acts, deserve more respect and more honor, than for the titles which they bear. We too have eminent men, who might be equally useful—we have our earls, dukes and lords, if not in name, at least in wealth, talent and influence, who might, if they would, give an impulse to agricultural education, which would speedily change and improve the intellectual, agricultural and social condition of our country, and render them a blessing to future ages. And since it has become fashionable abroad for great men, and the governments, to interest themselves in these matters, we hope to see the fashion followed here. It is almost the only fashion which we can adopt from Europe, that is suited to our republican institutions; and there is none which so eminently combines the *dulce* with the *utile*—the sweet with the useful.

The efforts to improve the condition of the agriculture of Europe, by imparting scientific as well as the best practical instruction to the young agriculturist, have generally emanated from, and have in all cases been ably seconded by the higher orders of society—by men of science, property and influence, and generally aided by the governments. These men all look to the soil, as we ought to view it here, as the great source of national and individual wealth; and that every advance which is made in its improvement adds to the means of their happiness. Land and labor are the great sources of public and private wealth. The more fertility we impart to the one, and the more intelligence we infuse into the other, the greater will be the return they make, and the greater our means of wealth and power. For it is wealth, rightly employed, that procures for us the substantial enjoyments of life, and that renders us independent, either as individuals or as a nation. Yet it is not a very few rich men, nor a very few wise men, be the aggregate of wealth and talent ever so great, that give prosperity and greatness to a nation. It is the general diffusion, among a whole people, among the rank and file of society, of property and knowledge, and the industry, enterprise, and independence which they beget, that renders a state truly respectable and great. The character and power of a state depend much upon the knowledge and virtue of the sovereign. The people are here sovereigns; and if we would foster and preserve our civil institutions, we must fit these sovereigns for the high duties which are allotted to them. Let us then endeavor to impart to their labors the light and life of science, and the stimuli of distinction and reward. How much more the appellation of great and good—how much more honorable and enduring the fame,—of those who concentrate their efforts and influence in promoting the welfare of a community—of a *whole* community—in endeavoring to multiply, permanently, the comforts, the virtues (for industry is not only a virtue, but the parent of many virtues)—and the happiness of the human family—than of those who concentrate their efforts in party strife,—who strive to keep down their fellows, and to riot upon the fruits of other's industry.

Change of Food.

There seems to be a natural disposition in man, in the brute, and in the vegetable, to a change or alternation of food, alike conducive to the gratification of the appetite and the promotion of health.

This propensity in man is apparent to all. That a change is conducive to health, is evidenced by the fact, that persons long confined to the same diet are much more liable to disease, than those who indulge in a variety. This is seen in long voyages, and in the army, where men subsist daily upon the same rations. If there is any exception to the rule, it is where the food is of the simplest kind, as the brose of the Scotch, the potatoes of the Irish, or the rice of the people of the tropics.

The general principle being admitted, or that even a change is not prejudicial to health, how important is it to our comfort, and economical in regard to expense, to multiply around us the fruits, vegetables, &c. which are the subjects of garden and field culture; and to select for this purpose the best varieties; and these are undergoing constant increase and improvement, by means of culture and fecundation. Every season brings to our notice new species and new varieties, particularly in garden productions, favorable alike to health and to innocent gratification. The tomato and the rhubarb, both of recent introduction to our gardens, are of this character.

"By means of new varieties," says Bishop, "the produce of our gardens and fields are not only increased in a ten fold degree, but the quality of the produce is increased in a still greater proportion, and the difference between varieties that have sprung from the same species, fit them for different purposes, different soils, situations and climates. Thus in edible plants and fruits, we are supplied with an agreeable change throughout the year, from a difference in varieties that have sprung from the same species. Nothing is more obvious, upon comparing original species with their varieties produced by culture, than that we, by means of the latter, enjoy a vegetable food far preferable to that of our forefathers; and as it is probably beyond the power of man, of cultivation, or of time, to determine the degree of excellence attainable by varieties over the species whence they have sprung, and as that degree is unknown, we are justified in regarding it as progressive, and to consider the production of a good variety as the sign or harbinger of a better."

The disposition of animals to change their food, is evidenced by their habits, and their disposition to pluck a variety of herbage, and to select that which is new to them. That a change is conducive, and indeed indispensable to health, has been proved by repeated experiments. Dogs and other animals, who have been confined to one kind of food, although of a kind naturally suited to their wants, have sickened and died. Sinclair cites a case of the effects of two adjoining pastures,—one containing only white clover, and a patch of orchard grass—and the other stocked with five or six kinds of grass, and among them the orchard grass. In the first, the sheep resorted for a change, to the orchard grass, which they ate to the stump, culms and all; and some time after this was exhausted, many of the sheep became affected with the red water, and some of them died. In the adjoining pasture, in which there were six or eight species of grass, the sheep were wholly exempt from disease. But Sinclair demonstrated by accurate experiment, that a multiplicity of grasses sown together, not only contribute to the health and thrift of the animals depastured upon it, but that the product was greater, considerably, and exceeded that of the best old pasture grounds. From these facts Sinclair and others argue, that we ought, in stocking down our grounds, to avail ourselves of all the grasses that we can procure, and that our soil will nourish. Groom observes, that out of more than 200 grasses suitable to England, only one genus, the rye-grass, has as yet received general culture; and that of 60 species of clover, only three or four have received attention. The presumption is, that many indigenous grasses, which have hitherto escaped the notice of our farmers, would be improved by culture to as great an extent as the wild carrot, parsnip, cabbage, potato, apple, plum, peach, &c.

That the vegetable is improved by a change of food, is not only evidenced by the natural law of alternation, witnessed in forests and in cultivated grounds, but by the improvement which takes place from a change of seed. It has become a well established principle, that a change of seeds, from one soil, and from one district to another, is highly advantageous. We have had this particularly verified in the potato, where foreign seed, of like variety and size as that raised on our farm, produced in the same field, one-third the largest crop. Growing from the same seed, without change, seems to be a sort of vegetable breeding in-and-in. The progeny seems to deteriorate in both cases, and ultimately to become worthless. Upon these principles we should not only recommend an alternation of crops, but a frequent change of seed, to ensure a healthy vegetable constitution and vigorous growth.

Geological Report.

We come now, in our examination of the third geological report, to the communication of Professor Emmons, of the second geological district, embracing the northern portion of the state.

"Considering agriculture," the Professor correctly remarks, "of the first importance to a state or community, we are gratified with every discovery which favors its prosecution and increases its products and profits.

"Next in importance are those which increase the quantity of the raw materials for the use of the arts, the manufacturing of which employs directly or indirectly a large portion of the human family. Upon the abundant and cheap supply of those materials, much depends for the prosecution of the great system of internal improvements, the profits and success of which are, in a great degree, dependent on the geological surveys now in progress.

"Last, though not the least in importance, are those discoveries of a scientific nature, which form the data on which natural phenomena are explained, and which constitute the basis on which may be founded the early history of the earth."

Porcelain clay, and *feldspar*, which are essential materials in all the finer kinds of pottery, or what is usually termed China ware, or porcelain, are found in this district; the porcelain clay in Athol and Johnsburgh, in Warren, and in Minerva, in Essex. The Professor expresses a high opinion of the quality of this clay, and his opinion seems to have been confirmed by Mr. Henderson, of Jersey city, an able artist, and a manufacturer of Liverpool ware.

Marble of different kinds and qualities is found in the second district. We extract the notice of the remarkable quarry at Glen's-Falls.

"One of the most valuable quarries which has been opened is at Glen's-Falls. Nature at this place has exposed the strata in such a way that the whole thickness of the limestone can be examined without the labor of artificial or expensive mining. The river has cut into the rock to the depth of at least 70 feet.

"The marble is extensively manufactured by two enterprising companies; it is therefore favorably known to the public, and has acquired a high reputation. For this reason it would be superfluous for me to give a particular account of its qualities. I take the liberty, however, to subjoin a letter which I have recently received from the agent of the Glen's-Falls company, in relation to the position of the marble in the quarry, and also of the quantity which has been manufactured, &c.

"The Hudson river at Glen's-Falls has worn a passage through the limerock to a vast depth, rising in some places seventy feet from its surface. The strata measure from one inch to ten feet. A short distance from the river, on the Saratoga side, lying on limestone, is found black slate. Succeeding this are found strata of marble; slabs have been sawed and used for fire-places. It is sound, and of good colour. Succeeding this on both sides of the river, are found fifty strata of limestone, composed in part of organic remains. Next in succession are found strata of gray marble, two and a half feet thick; it receives a fine polish, but the colour is not admired. A stratum of darker colour follows this which is six inches thick, though valuable only for stepstones. Then follows the black marble, which for brilliancy of polish and beauty of colour, perhaps, has no rival. The whole stratum is ten and a half feet thick. Veins of organic remains run at irregular distances from each other through the strata; these veins are from two to four inches thick, running ten and sometimes twenty feet, break off abruptly. Where these veins do occur, though they are not numerous, they rather mar the beauty of the marble. Who first discovered this marble is not known, and it is of little consequence to inquire. Numerous attempts were made to work it, but without profit, until the present company received it.

"The following exhibits the amount of stone which the Glen's-Falls company have prepared and sent to market during the last four years. The company run sixteen gang of saws, which are equal to about one hundred and sixty single saws.

In 1835, ...	2,157 feet, or	32,000 lbs.
1836, ...	19,800 "	278,500 "
1837, ...	23,400 "	333,900 "
1838, ...	25,000 "	352,500 "

"It is remarked farther by Mr. Roberts, the agent of this company, that the Glen's-Falls marble has gained a good reputation with most of the workers of marble in New-York, Boston and Philadelphia, as it regards its colour, the polish which it receives, and the ease with which it works; and that it is considered equal to any of the kind in this country.

"He states that they have got out shelves for mantles seven feet and six inches long, thirteen inches wide and one and a quarter thick, which sells for sixty-five cents per foot. The price for this kind of stuff has fallen, and at the present is worth from fifty to fifty-five cents per foot; that which is shorter, from thirty to forty."

"There are some considerations in relation to the marble business, which are necessary to be understood by those who are disposed to engage in it.

"1. The expenses of opening the quarry.

"2. The soundness of the layers which it is proposed to work.

"3. Their freedom from hard or flinty particles or masses, as quartz, hornstone, &c.

"4. A sufficient thickness in the several layers composing the bed; for unless there are a number of layers of sufficient thickness to work in juxtaposition, it will be necessary to remove a great mass of useless material. Small defects, such as checks, seams or cracks, or imbedded masses of flint, reduce the value of any piece materially. It is necessary therefore that there should be a general freedom from all the above defects, in order to make it a profitable business."

The species of marble termed *verd antique* is found in Moriah, Warrensburgh, Athol and Johnsburgh, of an excellent quality; and the Professor thinks it may yet form an article of export to Europe, where it is scarce and in great demand.

Peat is found it great quantities. A remarkable growth of it is found on the farm of Mr. Richards, in Warrensburgh, Warren county. It occupies a space of 60 acres, is 60 feet deep, of good quality and of easy access. This material, the Professor remarks, may be applied to four purposes, viz:

"1st. As a manure. To secure or obtain an important result, something more is necessary than simply to spread it upon the soil. It should be raised in the fall, spread in the barn yard, or placed in heaps and mixed with animal matter and lime. Placed under these circumstances it is exposed to the frost and the atmospheric agents, which produce in it incipient chemical changes necessary to convert it into the nutriment of plants. This is especially the case when lime is added to it, which forms a soluble salt, the *geate of lime*, with a portion of the vegetable matter. In the spring it is prepared for removal to the field, and may be spread upon the meadow for grass, or it may be used as a manure for corn, potatoes, &c. It will not answer a good purpose when employed without due preparation, especially when it is spread on meadows for grass; it then becomes dry, is insoluble, and of course unfitted for the nourishment of vegetables. The same remarks might be applied to the preparation of peat as are recommended under the head of preparation of the marly clays.

"2d. Peat, as is well known, answers a good purpose for fuel, and undoubtedly ranks next to coal for sustaining for a long time a high temperature. There is no substance which would remove so much suffering among the poor as the general introduction of this substance for fuel in our larger towns and cities. Its abundance and cheapness recommend it to the attention of the public, and if measures could be devised to bring it into use, in this state, many important results would follow.

"3d. Peat furnishes an abundance of carburetted hydrogen, and hence may be employed for producing gas light. Dr. Lewis Feuchtwanger, of New-York, has made known to the American public the experiments of Merle, a director of a gas light company in France. The advantages of peat for the production of gas are as follows: 1st. It is less expensive than gas from coal, oil or resin. 2d. The produce is nearly as much as from those substances. 3d. The gas is quite harmless and inoffensive, and has, in respect to healthfulness, great advantages over some of the other kinds of gas.

"4th. After it has been employed for gas it may be used for fuel, and it is equal to any charcoal."

As an article of fuel, the Professor thinks peat may be rendered of more value than coal; and he states that it has been advantageously employed in steam-boats, in propelling the engines.

Black lead is found in several localities in Warren and Essex. Several tons have been extracted and marketed.

Application of marls and clays to agricultural purposes.—The Professor's remarks upon this subject are so sound and beneficial, that we copy them entire.

"*Preparation of the marly and tertiary clays.*—In agriculture, as in all kinds of business, many things fall into discredit in consequence of misunderstanding the principle on which their use depends. For instance, the use of plaster on most soils is decidedly beneficial, but there is such a thing as an excessive use of it, and of persevering in its use too long, when its specific effects are imperceptible, and it becomes of no value whatever.

"The due preparation of soil is always an essential matter for the production of a good crop, or to produce a favorable result either in an experimental trial of any new variety of grain, or new mode of culture of those ordinarily raised. It is a matter of common observation, that one farmer succeeds well in his crops, while another does not, though his natural circumstances are equally favorable. Remarks of a similar nature may be made in relation to manures. One succeeds admirably in the use of marl, while another after a little trial, wholly discards it as useless, if not hurtful. This difference of opinion and practice, which is often the result of experiment, is owing to several obvious causes, such as the different modes adopted for securing the end proposed, and which arises from an imperfect or vague notion of the principles by which the desired result is to be produced.

"In the use of the clays, as the common, marly and tertiary, I have found a variety of opinions, each of which, it is pretended, are based on experience. One considers them hurtful, another as useless, while a third finds them, on trial, very useful. It is important to understand how such a diversity of opinions exists, when they are founded on experience.

"I conceive that there are two reasons for this. In the first place, the original character of the soil is such that the use of the clays, under no circumstances, would be proper, or followed with beneficial results. Clay already forms an abundant element in the soil, both for the aliment of the plant, and for the firmness of the soil. In the second place, it is not used in the right state or with due preparation. This leads me to the direct question, What is the right mode of using the clays, or what preparation do they require?

"1st. The great point to be attended to, is to secure a sufficient degree of fineness, that they may be incorporated with the soil, and form, strictly speaking, a constituent part of it. To attain this object, it is necessary that they should be raised in the autumn and placed in heaps, that they be exposed to frost and the atmosphere through the winter. To assist still further in the process of pulverization, it is better to mix them with barn-yard materials, straw, manure, and refuse of any kind, either animal or vegetable. This course being pursued with them, they should be spread as evenly as possible on green sward, that they may enjoy the further benefits of the air, moisture, &c. by direct exposure during the season. Besides, the grass in passing up through the layer will assist greatly in producing a comminuted state. The succeeding season it is in a state to be ploughed in, when it is duly prepared to become a constituent part of the soil; it is only in this way that the stiff and adhesive clays can be broken up and prepared for an incorporation with the other earths.

"Suppose a different course was pursued. Instead of raising the clay in the fall, it was raised and spread immediately in the spring, and ploughed into the soil: the result would be, that it would remain in masses in the earth, and unmixed, in which state it will continue for years with but little change, and instead of being a benefit, it would rather form an annoyance, and incommode both the farmer and his crops. From these remarks, it is clear how two farmers might disagree in their experience with the clays. One, by a suitable preparation of the material, finds a great advantage in their employment; another, by throwing them on or into his soil in lumps, perceives no effect on his crops, or is incommoded by the hard baked masses of clay which a hoe can scarcely divide asunder. It is true, that in time, those masses would disappear, and finally they would become incorporated with the soil, but several seasons would elapse before this would take place, and the result of the trial would be such as to discourage the further employment of the article; besides, I believe that clay or any other material is more readily broken down and pulverized when first taken from the bed than afterwards, when it has been exposed to the hardening influence of the sun during the warm season.

"The necessity of an intimate mixture of any substances intended to act as a manure, cannot be too much inculcated by the agriculturist.

"Most of the clays of this state are those which are marly, or which are combinations of clay and carbonate of lime. They are widely diffused, but their value is not highly appreciated. The time is not distant, however, when they will be esteemed as highly as plaster. They have even one advantage over plaster, that their effects are more lasting when they have had a due preparation.

"The practice of employing vegetable or animal substances in conjunction with marl, or the varieties of calcareous manure, has not prevailed to a suitable extent. It must be plain that carbonate of lime, or sulphate of lime, cannot support vegetation without other materials. It appears, however, that a large proportion of the food of plants exists in the earth in an insoluble state; and that it is by a chemical union of the calcareous matter and this insoluble vegetable substance that it becomes soluble, and fitted for the sustenance of plants in general; hence arises the mutual benefit of combining earths with vegetable and animal substances; and hence, too, the bad practice of continuing the mineral manures until the whole of the vegetable and animal matter is withdrawn from the soil; for by the increased activity of the growing vegetable, the soil is rapidly exhausted of its nutritious matter, and it is left comparatively barren, if the agriculturist ceases to apply vegetable and animal matter. There remains then but one course, that of supplying directly the necessary nutriment; but it is unquestionably better to maintain a sufficiency of vegetable matter always in the earth, and never suffer a soil to be exhausted or worn out by overtaxing its resources."

HAMILTON COUNTY,

Which, until recently, has formed the north part of Montgomery, although broken and mountainous, and as yet but a wilderness, is represented as affording a strong and productive soil, and an excellent country for grazing, raising stock, and for producing butter and cheese. The district comprised in the county of Hamilton is very similar to the Green Mountain range in Connecticut, Massachusetts and Vermont; alike adapted to the raising of fine cattle, and hale, stout, intelligent, independent men, whenever that bane to agricultural and mental improvement—the *lumber business,*—shall cease to be the principal occupation of its inhabitants. The county abounds in lakes and picturesque scenery. Cattle and dairy husbandry have now obtained a firm footing on the northern borders of the Mohawk valley. Farms there are in consequence doubling in value, and the farmers are becoming wealthy; and the proximity of Hamilton county to this district will not permit us to doubt but the example will spread northwardly; and that this new county will ere long attract the notice and the enterprise of the emigrant. The facilities of transporting to market the products of the soil, of the dairy, and domestic animals, hold out advantages to the cultivator which are not to be found in more remote districts. It is an unquestionable fact, that all kinds of animals, including the human species, possess more health, and display finer powers, on the hills and mountains, and in the intervening valleys, than they do on the plains and in the champaign country. Nor is this all—here abide, in their greatest purity, the social and household virtues; and, above all, here liberty loves best to dwell; and it is from the hilly and mountainous districts that she wings her last flight from any and from every land. Driven long since from the plains of Italy, the goddess loves yet to linger in the recesses of the Alps and Appenines, and to hold communion with the descendants of William Tell, and of other patriots of ancient days.

Internal navigation.—By means of the numerous lakes which dot the county, which are nearly upon a level with each other, and most of which are already connected by streams, in part boatable, a channel of internal communication may be opened, at comparatively trifling expense, between the head waters of the Hudson, and the streams which flow into Lake Champlain and the St. Lawrence river. And when we consider that the region abounds in ores, limestone, marble, and the finest timber in the state, it does not require a great stretch of credulity to believe, that the present generation will not pass away ere the county of Hamilton will be in a great part settled, cultivated, and made to develop its resources of wealth and happiness. Lying off from the great thoroughfare of travel, it very seldom attracts the notice of the traveller and the emigrant; and Prof. Emmons has rendered a public service by bringing it out from the shade, in developing its resources, and pointing out the facilities of a water communication, the expense of which will not be much greater, in the end, than a turnpike. to expedite to market the iron, the lumber, the marble, &c. of this extensive district.

CLINTON COUNTY.

This is another county of our state posssessing much good soil, and a climate as mild as its parallel in New-England, which lying off from the great thoroughfares, has not met with the notice from emigrants to which its position and fertility entitle it. It is not only a grazing, but a grain district. The extensive iron and other manufactories within its limits, and upon its borders, will for a long time afford a ready and profitable market for its surplus agricultural products; and when these fail, the lake upon its border affords the ready means of transporting it to Montreal or to Albany, as prices may invite. The agricultural capabilities of this county have in a great measure remained dormant, by reason of the lumber trade, an impediment to improvement which is fast disappearing. Under a better,—under the new system of husbandry, the lake towns may be rendered highly productive in grain, roots and grass,—and those lying in the interior, in cattle and their products. But let us hear the Professor. He says,

"Whoever has travelled during the summer from Port-Kent to the Canada line, along the main road, cannot have failed to remark the excellence of the soil and the favorable make of the country for agricultural purposes. Probably there is no better soil in the state than that of Peru, Chazy and Champlain. It is composed of a due intermixture of the tertiary clays and sands, which nature has sometimes intermingled in the proper proportion to constitute the best for agriculture; in other cases, they are placed in juxta position, prepared to the hand of the husbandman to make that mixture which, in his judgment, shall best promote his interests. Of the richness of the soil, and the favorable nature of the climate, we have an unfailing test, also, in the thrifty growth and healthy state of the apple, and other fruit trees. In a cold soil and a windy district, they are uniformly stinted and covered with parisites, which gives them really a gloomy aspect; but in a good soil and temperate climate, they always look flourishing and green, and free from that sombre appearance they wear when their limbs and twigs are covered by a parasitic growth of lichens."

Sand stone, for glass, *iron ores* and *black marble,* are found in this county. The ores are principally in the southwest section of the county. The iron made from them is of a superior quality.

WARREN COUNTY,

Is strictly a mountainous district; but is sufficiently productive, the report assures us, to answer all the ends of the husbandman. Its mineral productions have already been partially alluded to: and we do not find in the report of this county any suggestions particularly beneficial to agriculture.

Mr. Colman's Second Report.

MANURES.

Under this head the commissioner has given us a short chapter—too short—and has omitted what was most wanted, his own matured opinions. It is a subject of the first importance to agricultural profit. The results which he has cited, of various applications, as gypsum, ashes, marl, &c. serve rather to bewilder than to guide the novice.

The preliminary inquiries in regard to gypsum are, to what soils, and to what crops it is beneficially applied? It certainly operates beneficially upon some soils, and upon some crops; and it is certainly of little or no benefit upon other soils and other crops. For ourselves we are disposed to hold to the theory of Sir Humphrey Davy, till we have a better one to follow; first, because it seems to us the most rational; and secondly, because we think we have found it verified in practice. Davy's opinion was, that gypsum is a necessary element in certain plants; (as a few drops of pepper-mint were wont to be in olden times in a *mint* sling;) that without it, the plant cannot, any more than the sling without the mint, attain its distinctive character, or rather develop its natural volume; that many soils naturally contained enough gypsum to supply the demands of the crop; that other soils were replenished with it in the yard manures which were carried on to them—(the manure containing gypsum)—and that where it did not so exist in the soil, its application would be of certain efficacy to all crops which are found to contain it on analysis. Davy found gypsum in the ashes of clover and lucern, in the ratio of four bushels of this mineral in the crop of an acre. It is a rational philosophical conclusion, that this gypsum must have been derived from the soil; it could not have been imbibed from rains nor from the atmosphere, under any known natural laws;—and the conclusion from these premises is, that unless it had previously existed in the soil, or been artificially supplied, the clover and lucern would have been either diminutive in growth, or deficient in their natural qualities. We do not know what farm crops give gypsum on analysis; but from an experience of twenty years, we have come to the conelusion, that it is beneficial on all *dry* soils, sands, gravels and clays, generally, with the exceptions indicated below, to broad-leaved crops, as clover, lucern, corn, potatoes, peas, beans, buck wheat, &c. and that is of little or no direct service to narrow-leaved plants, as wheat, rye, barley, timothy, &c. It is *not* beneficial in wet grounds, nor within the influence of the marine atmosphere. Its beneficial effects have been greater upon poor soils, especially sandy ones, than upon rich soils, provided the poor soils contained enough organic matters, in a soluble state, to feed the crop. Under this view of the matter, and from the fact that gypsum is not soluble is less than 500 parts of water,—we have adopted the practice, recommended, we think, by Taylor and Peters, of sowing it broadcast upon fields designed for our corn and potatoe crops, before the last ploughing or harrowing, that it might be rendered soluble in due time, by the moisture of the soil; and have scattered it in March or April upon our grass grounds, that it might be carried into the soil by the vernal rains, and be more readily taken up by the roots of the grasses. It is an undisputed fact, that when gypsum is applied late to the surface, and dry weather ensues, it is often inoperative, at least for the season.

One case is cited by the commissioner, of a potato crop, plastered by putting a table spoonful *on the seed in the hill,* giving twice the yield of an adjoining piece which had received no plaster, but in other respects similar treatment with the plastered piece.—This strengthens our theory, and is in conformity with our practice, only that we wet our seed potatoes in the cart, and strew the gypsum upon them there.

The prejudicial effects of ashes are mentioned, when applied to wet soils, as are their beneficial effect upon dry soils. Without being leached, Chaptal remarks, wood ashes are too active; but after having been deprived by the action of water of nearly all their salts, they will produce great effect, particularly upon moist lands and meadows, in which they not only facilitate the growth of useful plants, but if employed for several years they will free the land from weeds and rushes. Wood ashes, he continues, possess the double property of amending a wet and clayey soil, by dividing and drying it, and of promoting vegetation by the salts they contain. Here too we want more light to guide our practice. Ashes do not properly constitute any portion of the positive food of plants. Their efficacy consists in the mechanical amelioration which they afford to the soil, and their chemical effects upon the organic matters, or the materials of vegetable food, which are there deposited. We give to animals condiments and stimulants, to aid the processes of digestion, or at all events some of the human family are in the habit of taking them to excess. These, when duly administered, as the daily use of salt to our farm stock, tend to aid and assist the digestive processes—and to convert the food into healthy chyle, blood and flesh. The soil is the stomach of vegetables; and alteratives and stimuli applied there, are often as beneficial in promoting vegetable nutrition and health, as they are in animal economy. Lime, marl, ashes, gypsum, &c. constitute these alteratives and stimuli. But we lack, though we hope the lacking will not long continue, we lack the same scientific investigations, in regard to the digestive processes of the brute and the vegetable stomachs, that we possess in regard to the digestive processes of the human stomach; before we are able fully to understand the laws which must ever govern in these matters, we must know the constituents of our soils, if we would know what they lack, or what they contain in excess, prejudicial to fertility. We have all the elements of fertility, and the capacity of searching out and applying, and of profiting by them. Industry is enjoined by the holy pen, as one of the principal terms of our temporal happiness.—When applied to the body, it gives us health, and the means of gratifying our animal appetites. When applied to the mind, it lightens the labors of the body, leads to high intellectual enjoyments, and benefits society.

In regard to ashes, the commissioner has failed to note whether they were leached or unleached, or to state in what manner they were applied. Unleached ashes contain potash, an active and powerful fertilizing material upon most soils, if properly applied; and when thus applied they seldom fail to benefit a dry soil. Drawn or leached ashes contain far less of alkali, yet upon some soils they are highly beneficial, particularly upon the seaboard, where their fertilizing properties have been ascribed to the influence upon them of the marine atmosphere, or muriate of soda.

Marl, too, has proved inefficacious in Berkshire; rather, we apprehend, from the imperfect mode of applying it, or from applying it in excess—a shovel full to a hill of potatoes. We have the analysis of the marl thus used. This demonstrates to us the importance of correct punctuation; for according to the text, it contains but 1.2 in 100 of carbonate of lime. It reads and is pointed thus: It contained "of soluble geine 2.6 of insoluble, 3.4 of phosphate of lime, 1.2 of carbonate of lime, 86.2 of granitic sand, 5.0 of water of absorption 1.6." This reminds us of a notice once sent to the pulpit. It was read thus: "A man having gone to sea his wife, desires the prayers of the congregation." The mistake was in placing the comma after *wife*, instead of putting it after *sea*. The comma, in the commissioners report, has given to his *marl* 86.2 of granitic sand, and but 1.2 of carbonate of lime.

But with regard to the application of marl, great errors have prevailed—exposure to atmospheric influence, in a pulverized form, and afterwards a thorough intermixture with the soil, seem to be indispensable requisites to its beneficial operation. See notice of Prof. Emmons' report, in another column.

Having thus made, we fear, too long a chapter, out of Mr. Colman's too short one, we proceed to notice his remarks upon

FARM BUILDINGS,

In which we deem our brother Yankees generally deficient, both as regards economy, comfort, and taste. The commissioner noticed but one stone house in Berkshire, where the best materials, in stone, lime and sand, abound for their construction; though he intimates that they may be constructed cheaper than wood. A substantial stone fabric, with a basement kitchen and window shutters, is twice as economical, in the end, where the materials abound, as a wooden one, and ten times more comfortable. And we would have the roof project, as recommended by our correspondent Mr. Ashburner, four to six feet beyond the walls. We have seen such houses in Ulster, which have stood more than a century, *nearly as good as new*. Stone houses are the warmest in winter, coolest in summer, least liable to take fire; and if well ventilated in summer mornings, and the shutters closed during the day, the apartments are always healthy and agreeable, and free from flies and musquitoes, two formidable enemies to the *siesta*, or after-dinner repose.

The commissioner, like our thriving Dutch farmers, seems to have regarded barns with more interest than he does dwelling-houses; and really, after all, barns are the best criterion of the character of a farming community. Where these are capacious, well filled, and in good order, the dwelling, though small, is seldom out of order, or the family in want of the necessaries and comforts of life. The commissioner recommends that barns be constructed on the sides of hills, that teams may be driven in above, and the manure sheltered from the weather below. We should prefer the Pennsylvanian mode of using the basement story for farm stock; and of depositing the manure in a concave yard, which would hold the liquids, and become a depository for the refuse litter. Dung, and especially horse dung, is apt to become fire-fanged, and seriously injured by being deposited in a dry place in mass. And if in the yard, blended with the dung of neat cattle and litter, no injurious fermentation, or wastage, would take place before it would be wanted for the hoed crops, and to which it is always best applied.

> "In Lanesboro'," says the report, "in one of the neatest establishments which I ever witnessed, there was a little contrivance connected with the doors, the convenience of which was admirable. The doors were none of them swung upon hinges; but run upon small wheels, and were made to slide in by the side of the wall. These wheels or trucks were attached to the upper end of the door, by a small wooden ledge, by which the door was suspended. The door when opened was entirely out of the way. It could be opened a greater or less distance at pleasure. There was no groove at bottom to become filled up with dirt, and obstruct the opening of the door; and there was no occasion of clearing away any snow or accidental obstruction from other matters, which might be accumulated in front, in order to open it. There were also none of the usual troubles of the door being lifted from its hinges, or being slammed and broken by the wind. It was but a small affair, but accomplished much convenience; and is of a piece with every other part of this neat and exact establishment."

THE SHAKER ESTABLISHMENTS

In Berkshire, receive high commendation from the commissioner, as models of order and neatness; a compliment not withheld by any one who visits them. A magnificent circular stone barn, belonging to the society at Hancock is described, three stories high, ninety-six feet in diameter, and capable of stowing three or four hundred tons of hay. All the hay is deposited in the centre, around which is the drive-way, in which several teams may be unloading at the same time. The carts pass into the second story, and the cattle are lodged in the lower one. The society manufacture all their woollen fabrics from their own wool, and carry on the broom making business on an extensive scale.

EXPERIMENTS AND IMPROVEMENTS.

This chapter consists of various experiments in raising and feeding out farm crops, destroying insect enemies, &c. The results are not sufficiently uniform, or the experiments were not conducted with sufficient accuracy, in many cases, to enable us to draw from them profitable conclusions. Indeed many of the results are contradictory or unsatisfactory. They consist of,

1. *Experiments with the potato.*—Several are detailed to ascertain the most economical mode of using seed, and in feeding them to stock. The commissioner remarks that, in his opinion,

> "If a large crop is desired, the seed should be planted in drills, the rows being about two and a half or three feet apart, and the sets placed not less than a foot apart in the rows, that they may be mainly cultivated with the plough. They should not be planted deep; and they should be kept clean. In general few plants are cultivated in a more slovenly manner. Under good cultivation few plants afford more valuable food to an acre. They are, however, I believe, an exhausting, and not an ameliorating crop. They return little to the soil; and the most universal experience is that wheat does by no means so well after potatoes as after Indian corn."

We think that medium sized seed should be preferred; that new seed, grown on a different soil, should be employed every two or three years; that when cultivated in hills a single whole tuber may be used, but when planted in drills, the seed should be cut,—that unfermented manure should be spread broadcast for the crop, and ploughed under; that they should be fed raw to neat cattle, horses, &c. and cooked for swine.

2. *Carrots.*—The product of this crop is stated at from 600 to 1000 bushels an acre. The expenses of the crop are stated from four to nine cents per bushel. The commissioner recommends deep and frequent ploughings, sowing upon ridges two feet broad, the plants thinned to 8 or 12 inches, and that they be harvested with the plough. With the products and expense of culture stated, the carrot is unquestionably a very profitable crop. Their intrinsic value, for every kind of farm stock, may be safely stated at 18 to 25 cents per bushel.

3. *Ruta baga.*—The weight of opinions in Berkshire seems to be decidedly in favor of this root, as a profitable crop, and as an economical food for farm stock; yet there are some who think little of the crop. Every new article of culture has strong obstacles to encounter, before its value can be fairly graduated. It has first prejudices and old habits to combat. There are too many that are always prepared to reject and ridicule whatever they do not themselves originate or introduce. In the second place, the culture of a new crop is often imperfectly managed, and unnecessarily expensive; and many reject a good thing merely because their first efforts are unsuccessful. And there is no class of people who draw more hasty conclusions in these matters, or who are more pertinacious in adhering to old habits, than farmers. The turnip culture had the same prejudices to encounter in Britain that it meets with here; yet still it triumphed there, and it will triumph here—for our soil and climate are as congenial to its growth as the soil and climate of Great Britain and Germany; and it can be made as useful here, in farm economy, as it has been made in Europe. No one *now* doubts its important advantages in British and German husbandry.

We think the commissioner underrates the value of this root, when he says "they are by no means as nutritious as potatoes, especially those kinds of potatoes which are most farinaceous; and they are not comparable to the carrot, or parsnip, or sugar beet for feeding stock." The inference that the common reader would draw from this sentence, would be that the ruta baga is the least *profitable* of all the root crops; and we think precisely the reverse of this to be the case; and for these substantial reasons: 1st. Because they give the greatest average product; this being about four times as great as in the potato. 2d. Because they occupy the ground the shortest time, and are cultivated and harvested, with proper tools and management, with far less expense than other root crops. And 3dly. So far as accurate experiments have been made, their fattening properties are as great, or greater, for neat cattle, as either those of the potato or beet, pound for pound. For proof of the latter fact, we refer to the experiments made under the direction of the Highland society, as noticed in the report upon root culture, in our March No.

There are many other experiments recorded, and results and conclusions stated, which are of but secondary importance; for instance, one gentleman found no benefit from applying lime to his wheat crop; but neither the condition of the lime, nor the quantity are stated; another thinks ploughing in seed wheat better than harrowing it in; another thinks he finds great benefit in harrowing his fields eight or ten days in succession, after the wheat has been sown; another finds that grass is much better after corn than after potatoes, &c. &c. A case is stated of wheat being raised for 20 years in succession in Chelmsford, at the rate of 20 to 30 bushels the acre, with but a single failure; and what is remarkable, the soil, on analysis, was found to contain neither carbonate of lime nor alkaline salts, though the sulphate and phosphate of lime were detected in very small proportions. The commissioner, we think, presumes too much upon this and other facts, in concluding that there is "no difficulty, under proper management, of cultivating wheat in the primitive soils of New-England.

A case is cited, in which the application of lime to wheat, when the dew was on, was supposed to have saved the crop from the ravages of the grain-worm.

AGRICULTURAL SOCIETY.

This society is very justly commended. Says the report,

> "It is remarkable, that in every part of the county, among the farmers themselves, who, as a class of men, are generally distrustful of the advances of such associations, and seem in such matters oftentimes as well skilled as their oxen in the art of 'holding back,' its utility is universally acknowledged, and a strong interest felt in its success. They are every where disposed, in this good matter, to pull together; and it would, as it seems to me, be difficult to find what is technically termed, an 'off ox' in the team."

This was not always the case. The farmers of Berkshire, twenty and twenty-five years ago, were generally as shy, and as mulish, in regard to encouraging the society, as they are every where else, where the benefits of such institutions are not appreciated. It is to the persevering efforts of a few worthy individuals, professional and mercantile as well as agricultural, that the agricultural society of Berkshire has become what it is—an institution of great and palpable usefulness—and that all now cherish and feel proud of it. *All* now agree, that the best effects have resulted from its labors. "It has every where excited and cherished," says Mr. Colman, "a spirit of generous emulation; and men of the highest distinction in the county for education, character, political standing and wealth, give their time and their zeal to its excellent objects."

Like efforts and perseverance, from half a dozen individuals, will produce like benefits, and ultimately the like unanimity in public feeling in its support, in any other county, that it has produced in Berkshire; and there will redound to those who take and keep the lead, the high consolation, of having been instrumental in effecting a great public good, and of having overcome opposition and prejudice, by the exercise of a kind and generous philanthropy.

> "Agriculture, in all its moral aspects," the commissioner very justly and appropriately remarks, "recommends itself to the regard of every good mind. Emulation in this business awakens none of the bad passions, which are so often engendered by rivalry in other departments of life. One man's success in agriculture never injures his neighbor; but always tends to the general benefit. There is in agriculture no monopoly of improvements and advantages; and every effort, discovery, experiment or invention, by which the improvement of the art is advanced, and its productiveness increased, is a direct, substantial and permanent benefit to a town, to the country, and to the world."

> "COMPARATIVE VALUE OF HAY, VEGETABLES AND CORN.
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> "I wish briefly to draw the attention of farmers to the value of hay, compared with other crops, for the feeding of stock. An acre of hay yields one ton and a half of vegetable food. An acre of carrots or Swedish turnips, will yield from ten to twenty tons; say fifteen tons, which is by no means an exaggerated estimate. It has been ascertained by experiment, that three working horses, fifteen and a half hands high, consumed at the rate of two hundred and twenty-four pounds of hay per week, or five tons one thousand and forty-eight pounds of hay per year, besides twelve gallons of oats each per week, or seventy-eight bushels by the year. An unworked horse consumed at the rate of four and one-quarter tons of hay in the year. The produce, therefore, of nearly six acres of land is necessary to support a working horse by the year; but half an acre of carrots, at six hundred bushels to the acre, with the addition of chopped straw, while the season for their use lasts, will do it as well, if not better. These things do not admit of doubt. They have been subjects of exact trial.
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> "It is believed that the value of a bushel of Indian corn in straw and meal, will keep a healthy horse in good condition for work a week. An acre of Indian corn which yields sixty bushels, will be ample for the support of a horse through the year. Let the farmer, then, consider whether it be better to maintain his horse upon the produce of half an acre of carrots, which can be cultivated at an expense not greatly exceeding the expense of half an acre of potatoes, or upon half an acre of ruta baga, which can be raised at a less expense than potatoes, or upon the grain produce of an acre of Indian corn, or on the other hand, upon the produce of six acres of his best land in hay and grain; for six acres will hardly do more than to yield nearly six tons of hay and seventy-eight bushels of oats. The same economy might be as successfully introduced into the feeding of our neat cattle and sheep.
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> "These facts deserve the particular attention of the farmers who are desirous of improving their pecuniary condition. It is obvious how much would be gained by the cultivation which is here suggested; how much more stock would be raised; how much the dairy produce might be increased; and how much the means of enriching the land, and improving the cultivation, would be constantly extending and accumu-

lating. But when we find on a farm of two hundred acres, that the farmer cultivates only two acres of potatoes, one acre of ruta baga, and perhaps a quarter of an acre of carrots, we call this 'getting along,' in the common phrase; but we can hardly dignify it with the name of farming. I am aware that labor of a proper kind is in many cases difficult to be procured, and with our habits, as difficult to be managed.—Farming, likewise, can in few situations be successfully managed, unless the farmer has capital to employ, equal at least to one year's manure and one year's crops. A large portion of our farmers, also, from the nature of their habits and style of living, are so prosperous and independent, that they have no occasion to extend their cultivation beyond what it now is, in order to meet their wants; and to incur all the trouble, vexation and risk of employing more labor, expending more capital, and increasing their cares.

"But it is not fair to produce such instances as any examples of profit or unprofitableness of husbandry, when carried on, as all other branches of business, to be successful, must be carried on, with intelligence, skill, industry, enterprise; and all the capital and all the labor which can be advantageously employed in it. I will not, however, anticipate such general views of the subject, as I propose to take in the retrospect of the whole survey.

"*Apples.*—I should recommend strongly to the farmers of Berkshire, the cultivation of apples. The orchards are comparatively few, and many have been neglected from the best of motives, an unwillingness to favor the facilities of intemperance. But the value of apples for fatting pork and beef, and even for milch cows, so well established by innumerable experiments, and some cases rated as highly as potatoes, recommends them most strongly to increased attention and universal cultivation. The borders of our fields may be lined with them; the road sides may be planted with them; they may be scattered over our pastures, with little or no injury to the crops or the pasturage, if properly arranged."

Brick and Tile Machine.

A machine for manufacturing brick and draining tile is figured and described in the Farmers' Magazine.—The brick machine will mould 24 bricks per minute, 1,440 per hour, and, taking ten hour's work, would give 14,400 per day. A good moulder, with three or four attendants, will make 4,000 bricks per day. The machine, with the same hands, will make 15,000; with this advantage, that the latter will not require half the time to dry, in consequence of the compression which the clay undergoes, and that when burnt they weigh three pounds the heaviest—the mould brick weighing 5 lbs. and the machine bricks 8 lbs. The tile machine will make 10,000 drain tiles a day, with one man and two boys, and 20,000 flat tiles for the drain tiles to lay upon, both 15 inches long. Under the old mode, a man and two boys made but 1,000 drain tiles per day, 12 inches long. The tile made by machine is also much stronger than those made by the old mode, and they are capable of being made from much stronger clay. This machine promises important benefits, wherever tile draining is practised, and will greatly lessen the expense. We should like to see it introduced into this country, with the attendant benefits of under-draining. Draining tile are manufactured in this city, but the price ($15 per thousand,) is such as to deter many from using them. With the machine in question, we are inclined to think they would be afforded at half the present price.

The Pie Plant

Is now coming into extensive use, though three years ago, there was little or no demand for it in our market. There are several varieties of the Rhubarb now employed for culinary purposes, among which are two which have been recently introduced, viz. the *Giant* and the *Tobolsk*, the latter first last spring. The leaf stems of the giant grow to a great size, twelve stocks exhibited by us at the late Horticultural Show weighing twelve and a quarter pounds. We think it makes a pie, if used before it is too old, as fine as any of the varieties. The quality of the Tobolsk we have not yet ascertained.

Early Rising

Is conducive alike to health, to pleasure and to profit—we mean to the farmer. To health because it gives exercise when the atmosphere is most cool, pure and bracing. To pleasure, because nature is then in her most lovely garb, and the birds most full of song. To profit, because the two morning hours effect more in labor, and avert more mischief, than four hours at midday. Early rising, and exercise in the open air, are the best stimuli for our meals, the best anodyne for sound sleep, the best solace for care, and the best evidence of thrift. "*Come boys,*" is the best reveille upon the farm. The farmer who rises late, is generally behind his work; while he who rises early keeps before it.

Comparative value of large and small Turnips.

We have frequently alluded to the fact, that the ruta baga is the only cultivated root, that increases in nutritious properties as it increases in size. Sinclair found, on analysis, that a root of the common turnip, measuring seven inches in diameter, afforded only seventy-two grains and a half of nutritious matter, while the same quantity of a root which measured only four inches afforded eighty grains, or double what the large one gave. The largest root of the Swedish turnip afforded 110 grains, while the middle sized or smaller roots gave but 99. The Swede is stated to have grown to weigh 60 lbs. exclusive of tops and tails, in Van Dieman's Land.

The Army Worm,

A letter from our correspondent at Quincy, Ill. advises us, is making great ravages in that section of the country. We can neither give the history of this new enemy, nor prescribe a mode of destroying them. They are in a measure unknown east of the Allegany mountains. Yet, while penning this notice, our friend Rob. White, jr. of Shrewsbury, N. J. has called upon us, and informs that the army worm appeared in his neighborhood last season, and that this season its ravages have been alarming. When it enters a field it sweeps vegetation almost clean, eating the leaves and even the beards of wheat without disturbing the grain, and divesting the corn wholly of its foliage. Every attempt to check its progress, as trenches, &c. had proved abortive.

The Farmer is Neglected and Forgotten,

In the strife for office, the thirst for popularity, and the eternal contest for charters of all kinds. No reports of any value, no bounties or premiums for new agricultural productions, which might add millions to the wealth of a state, are even thought of for a moment. Because we ask for the least we get nothing. An agricultural school cannot be established, because it might give more power to the dominant party; a pattern farm cannot be established, because it may increase patronage. Where and when is this to end, if we do not take up the matter ourselves, and urge it strongly upon those who call themselves the public servants?—*Correspondent of the American Farmer.*

Miscellaneous Items.

Baldwin's Portable Press—For hay, cotton, &c. is spoken of in the American Farmer, with high commendation, and is likely to save one-third the cost that is now required in the common hydraulic and screw presses. One great advantage of this new press is, that it is portable, and may be placed alongside of the hay-rick, or in the meadow. A common carpenter can make one at a cost of $20 to $25. It will express cider, it is said, without grinding the apples. The address of the patentee, or proprietor, is not given.

An Improved Corn-Sheller, is announced in the same paper, by Wm. Carmichael, of Wye, Queen Ann county, which will shell fifty bushels an hour, by hand or horse power. A two horse power costs $55.

Cerography, is the term applied to a new mode of engraving, for the common letter-press, of maps, music, &c. which promises greatly to reduce expense. The New-York Observer contains a well delineated map of Connecticut, ten by twelve inches, with the names and divisions of towns and counties, and the rivers, roads, &c. as fair as many copper-plate maps, worked off upon the common news press. The editor claims the invention as his own. From what we can judge from the sample, it is likely to prove a very valuable discovery.

Diminution of Neat Cattle in Vermont.—It appears from official returns, that the number of cattle in Vermont underwent a diminution, between 1832 and 1837, of more than 40,000 head; and that in the same period the number of sheep was increased one million. In regard to the exclusive sheep husbandry, Mr. Coleman gives the following relation, as an evidence at least of the inconvenience, which is liable to result from it.—"Two years since, some of the best families in the county of Berkshire were without bread of any kind for a time, from the impossibility of obtaining it. They were persons, for example, who worked for the large wool farmers. They asked for money for their labor; but money was not to be had, because of the clipping of wool, owing to the derangements of business, had not been sold. They asked to receive their pay in grain; but the wool farmers had abandoned all cultivation, for the wool husbandry. They asked for their pay in pork; but the farmers who raised no grain, could raise no pork."

Improvement in Pin-making.—In Britain, pin-making is divided into seven different processes, and the pins, ere they are fit for market, pass through seven sets of hands. Babbage shows, that one-half the expense of manufacturing is saved by this division of labor. Messrs. Stourm, Jillson & Co. of Poughkeepsie, by a new invented machine, have reduced the manufacture almost to a single process. "The wire of which the pins are made," says the Poughkeepsie Journal, "is taken into the machines, and the process of making the pins, with solid heads, all from the wire, is completed by the machines, leaving nothing remaining to be done, except the washing and placing them upon papers. One man will attend two machines, and each machine will turn out 100,000 pins in eleven hours. The proprietors have now two tons on hand, of a quality far superior to all others."

Extirpation of Garlick.—Thomas E. Bond, in the American Farmer, says he has wholly destroyed the wild onion, in fields which have been over-run with it, by first cultivating them in corn, and, after the corn was gathered, ploughing the field again, and leaving it exposed the succeeding winter in the state the plough had left it. The same gentleman says, that *St. Johnswort,* another troublesome weed, may be killed by a single ploughing in the early part of June, when it is in blossom, provided the ploughman, by means of a heavy chain attached to the plough, in the usual way, covers the plant effectually. If completely covered it will die.

A sale of Durham Cattle, belonging to Messrs. Gratz & Cooper, took place near Lexington, Ky. on the 14th June. Three males sold for $900, $280 and $760; and seven females for $601, $630, $631, $700, $861, $446 and $1,050—average $685.90—as stated in the *Franklin Farmer.*

Bloody Murrain.—It is stated in the *Franklin Farmer,* that this complaint has been cured, in its last stage, by simply giving the animal two doses of sugar of a pound each, mixed with water.

Salt your Fruit Trees.—A writer in one of our exchanges, mentions a decaying plum tree that stood in the midst of an asparagus bed, which, on dressing the bed copiously with pickle, began to revive and became healthy and fruitful. He accordingly recommends the free application of salt to such trees—presuming it will produce a similar effect.

Whitewash for all Buildings, inside or out.—Take clean lumps of well burnt lime, slacked. Add one-fourth pound whiting or burnt alum pulverized, one pound of loaf sugar, three quarts of rice flour made in a thin well boiled paste, and one pound of cleanest glue, dissolved as cabinet makers do. This may be put on cold within doors, but hot outside. This will be as brilliant as Plaster of Paris, and retain its brilliancy for many years. The east end of the president's house in Washington, is washed with it.—*Cincinnati Chron.*

Whitewash is one of the finest things in the world to promote health and cleanliness. It also covers up a multitude of dirt, as a cloak conceals the rents in an old garment. Some farm houses look black and unsightly, while the crevices in the wood admit the rain. Perhaps they are not worth painting—but a coat of whitewash, which costs but a few hours of labor, with water and lime, does the work. They look fresh and clean, and during a year the wash is soiled but little. We commend a coat of this to every man who has an unpainted house, both on the score of beauty and taste, as well as for cleanliness and the preservation of his building.—*Northampton Cour.*

Stopping a leak.—The best thing for stopping a leak in a cask is whiting beaten up with common yellow soap. If this mixture be well rubbed into the leak, it will be found to stop it after every thing else has failed.—*Farm. Cabinet.*

Short-Horned Cattle.—Never think of buying short-horned or Durham cattle, until you are prepared to keep them well. They need an abundance of fresh pasture, and therefore to be frequently changed from one pasture to another, in succession, and plenty of food and good shelters in the winter. Thus provided for, they are valuable stock. But neglected in these respects, they are little better than native cattle.—*Franklin Far.*

Productive Cows.—A short-horn, belonging to Mr. Wolbert, Philadelphia, gives daily 27 quarts of rich milk, upon ordinary feed; from which 14¾ lbs. of butter were made in a week. A cow belonging to Mr. Gowan, of Germantown, gave an average of more than 28 quarts of milk per day, for a week.

THE BUDGET.

Culture of the Strawberry.—R. Mansfield will find an answer to his inquiries in the Cultivator for August, 1838. August is a good season to transplant the strawberry.

Disease of Dutton Corn.—George H. Patrick, of Kanawha C. H. Va. states in a letter to us, that his Dutton corn, when about two feet high, showed symptoms of disease and death; that on taking up some plants he found, on applying the magnifying glass, a small green bug upon the roots, some of which were literally covered with the insect; that his other corn did not seem to be affected; that the seed of the Dutton corn came from us; and he inquires whether it did not become impregnated with the ova of the insect during its soft milky state, the same as the pea—and whether the contagion, or insect, is not likely to spread to his other corn. We are unable to explain the matter. Nothing of the kind has ever appeared in our crop, or has before ever come to our knowledge. The ova could not have been deposited in the seed, but why the animalcula attacks only one variety we are unable to guess.

Mr. Patrick adds—"The root culture has just commenced with us. Many are putting in small lots of mangold wurzel, parsnips, &c. and will put in, in due time, ruta baga. The Cultivator and the formation of our agricultural society, with premiums offered to the amount of five hundred dollars, has given us such a spirit of improvement in agriculture, that I am much in hope, with your assistance, we shall not return again to the old mode of cultivating the soil." We beg Mr. P. not to forget his good intentions.

Manual Labor School.—We are requested by a correspondent, to notice a select classical manual labor school, which has been established at Montvue, post-office Middletown, Frederick co. Va. by the Rev. John Lodor. The manual labor may be voluntary, and is intended as a healthful exercise, and as a means of defraying the expense of tuition.

The Rohan Potato.—In reply to the inquiry of Mr. Harris, of Orange C. H. Va. we state, that this potato should be *cultivated* like other potatoes; that the *seed,* that is balls, should be gathered when they have matured, be dried, preserved from frost, and sown in the spring, in a bed of fine mould, and taken care of like other plants.

Price of Animals, &c.—A correspondent at Columbus, Miss. writes as follows:—"I perceive you have commenced inserting advertisements. I wish you would impress upon those who offer articles of any kind for sale, the propriety of stating the price. I am aware that many do not like to make their price public; but those abroad could often make up their mind about what is offered by knowing the price; that is, many would know if their means would allow them to purchase." The drawings, &c. of sheep teeth, sent us by a correspondent, were inserted in our second volume, p. 188.

Acknowledgments.

"The District School as it was," from the author.—This is an excellent picture, delineating, in vivid colors, the defects of the old system of instruction.

An assortment of thirty kinds of Cape Bulbs, in fine order, from Jonathan Edwards, Esq. of Troy, collected in South Africa, by the Rev. Geo. Champion.

From Dr. A. Walcott, of Clinton, Ct. through W. C. Wilcox, a box of "*Patent Restorative*," for the purpose of restoring to the earth its original fertility. This article, Mr. Wilcox informs us, "has lately been discovered and manufactured by Dr. W. after a series of observations and trials. For one acre of grain or grass, two bushels of the preparation would be sufficient; Indian corn would require three bushels—to be sprinkled on the surface after ploughing and harrowing."

Chenango Potatoes from J. G. Buswell. These potatoes are old acquaintances. We received a barrel from a friend in Lancaster county, Pa. in 1827, under the name of Mercers, cultivated and liked them. We sent a barrel to Boston, in 1828, containing samples of Mercers, Pinkeyes, and Kidneys or Foxites, and our late friend Fessenden, then editor of the N. E. Farmer, pronounced the Mercer to be best. Yet as they then had not *got their name up*, no one would buy them, and we discontinued their culture—for those who raise for market must suit the taste of their customers, and not their own. We are glad to recognize our old acquaintance, and feel pleased that they have come into deserved favor.

A highly finished scythe snath, the donor's name mislaid and not remembered.

Prof. Jackson's Geological Reports, from Mr. Webb, of Boston.

"*Agricultural*" and "*Horticultural*" Razors, from A. Walsh, Esq. of Lansingburgh.

☞ Agreeable to our proposition, we shall issue our next No. on the 15th Aug. and shall insert in it the essays and diagrams on farm dwelling-houses.

CORRESPONDENCE.

The Sugar Beet—Queries.

Guilford, near White-Post P. O.
Clark Co. Va. July 3, 1839.

Judge Buel—Sir—I have recently become a subscriber to, and a constant reader of your valuable and interesting paper, the Cultivator, and as I desire information respecting the culture of the sugar beet, I am sure it will give you pleasure, thus to promote improvement, by diffusing useful knowledge.

A member of my family being about to commence farming, on what we consider here as a small scale, a farm of 200 acres, which, in ordinary seasons, will produce five or six barrels of corn, or twelve or fifteen bushels of wheat to the acre, wishes also to combine with it, the culture of the sugar beet, if, after inquiry, it shall be advisable to do so. It is limestone land, of a light soil, and the cleared parts much exhausted by excessive cultivation, until the last thirty years, when it changed hands, and since then has been gradually improved to the state above mentioned. The part in woods contains black oak, white oak, hickory, walnut and ash. From this description of our lands, you will, perhaps, be able to decide whether they are adapted to the sugar beet.

In a letter, published in the National Intelligencer, a few months ago, from Mr. Ellsworth, the commissioner of patents, he stated that an acre of good land would produce twenty tons of the sugar beet, which would make 3,600 lbs. sugar, worth seven cts. per lb. Now if our lands would yield the half or a fourth of that quantity, it would be infinitely better for us to go to making sugar at once, instead of raising corn and wheat at a heavy expense, while the seasons are so precarious, and the prices so fluctuating.

You stated, in a report on "root culture," in the March number of the Cultivator, for 1839, that "from the high state of perfection and of profit, which the business has arrived at in France and Germany, that the culture of this beet will soon be extensively gone into in this country, for the purpose of making sugar." In this opinion, sir, I fully concur, but how to obtain the information which is requisite to enable us to begin a business so entirely new here, is the difficulty I desire to remove. Will you, then, or some of your correspondents, do me the favor to say,

1st. What is the best time and mode of preparing land for the sugar beet?

2nd. Whether it is best to sow it broad-cast, or in drills, when land is cheap and labor dear, and what would be considered a reasonable crop, from land rich enough only to produce six or seven barrels of corn per acre?

3d. How many acres in beets can one hand cultivate, supposing him to have little else to do?

4th. What is the best way of preserving them in winter, where there are no root houses for the purpose?

5th. Do you know of any individual, or company, in New York or Pennsylvania, or even nearer to me, that is engaged in the manufacture of sugar from the beet?

6th. Can you inform we what such a manufactory would cost, and whether it is worked by water, steam or horse power?

7th. What is the practice in France or Germany, amongst those who cultivate the sugar beet, in regard to its manufacture? Does the farmer make his own sugar, or are there public establishments, like our mills, and the manufacture of the beet a distinct occupation from the raising of it? Since the plan of kiln drying the beet has been adopted, it would, I presume, bear transportation to market as well as other products.

8th. Is there any French or German work, (translated into English,) on the subject, in the book-stores of New-York or Philadelphia, that you can recommend?

Any information, not embraced in the above interrogatories, which may be deemed pertinent to the occasion, will be, I assure you, sir, most thankfully received, by your very ob't. and humble serv't,

JAMES M. HITE.

ANSWERS.

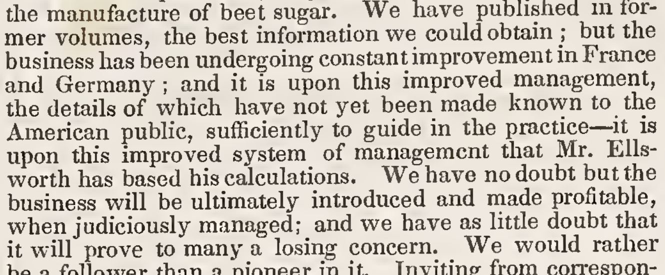
We are not practically acquainted with the beet culture or the manufacture of beet sugar. We have published in former volumes, the best information we could obtain; but the business has been undergoing constant improvement in France and Germany; and it is upon this improved management, the details of which have not yet been made known to the American public, sufficiently to guide in the practice—it is upon this improved system of management that Mr. Ellsworth has based his calculations. We have no doubt but the business will be ultimately introduced and made profitable, when judiciously managed; and we have as little doubt that it will prove to many a losing concern. We would rather be a follower than a pioneer in it. Inviting from correspondents a more general answer to Mr. Hite's queries, we will content ourselves for the present, with responding briefly to some of his inquiries. And,

1. The best time and mode for preparing land for the beet, is to apply manure to the previous crop, and to deposite the seed immediately after the preparation is completed, upon the fresh turned soil.
2. The seed should be sown in drills—to save labor. A reasonable crop would be from five to six hundred bushels.
3. A man can tend half as much ground in beets as he can in corn.
4. The beets *have been* preserved in the manufactory in France. They *may* be preserved in pits. If dried, they may be preserved wherever they can be kept dry.
5. We can give no particular reference.

To the other three inquiries we can give no satisfactory answers; but the coming six months, we hope, will afford us the means of being more explicit in the matter. We will not withhold from Mr. Hite, our impression, that the climate of Virginia is not well adapted to the culture of the sugar beet—that it is too far south—the root in the south of France being far less rich in saccharine matter than that grown in the northern departments. We do not pretend to determine the beet zone; but we are inclined to think, that upon our Atlantic border, it is north of 42°.—*Cond. Cult.*

Plan of an Improved Gate.

[Fig. No. 21.]



Plattekill, 6 *mo.* 24, 1839.

Respected Friend J. Buel—As I was perusing the last number of the Cultivator, I observed the description of the revolving gate. I think that I shall be doing good rather than hurt to send thee a description of one of those that I erected last summer; they are new with us and may be with you. I find them to surpass all others that I have ever seen; and I doubt not but what thy correspondent will acknowledge with me after he has seen them fully tried. I think it is a duty that we owe to one another to impart instruction, and at the same time be willing to receive it; and I hope that none will forget that we may live and learn all our days. As I have taken the Cultivator for two years past in company with another gentleman, I may say that I feel highly thankful for the knowledge and many benefits that I have received from the pages of that most noble paper.

It is made as follows: set three posts, 6 feet 6 inches high, of an equal distance apart, one extending along the fence in the direction that would best suit for the gate to slide. I send thee a drawing of this gate, to enable thee to understand it the better: *a a a* posts, *b* crosspiece nailed fast to the back and middle posts for the gate to roll upon, (*c* crosspiece); when the gate is slid open, it will rest upon the point of the crosspiece *b*; then the crosspiece *c* is at full liberty to be taken out: *d d* cleats which are nailed thoroughly on each end of the slats, and extend to a sufficient height to straddle the crosspieces, in which is inserted the rollers *e e*, which are made of cast iron with us, which are preferable to wood; *f* cleat which is nailed on the middle post after the gate is hung, with sufficient pieces of wood, or what some carpenters style furring inserted, to admit the gate to slide with freedom; *g g g g g* slats, the ends of which are admitted to extend an inch through the front cleats, for the purpose of striking into some mortice which is made in the front post: or else by nailing on cleats. I made them by nailing on strips of inch boards; *h* hook to hook it fast if needful; I never have found it necessary. The above represents a gate partly open.

I hope that no person will raise any objection to these gates till he has tried them; then I think he will have none to give.

Any farmer can make one with the aid of an axe, saw, hammer and nails, in six hours' time. They are very simple, and cost not more than one-quarter that of ordinary gates, and many advantages that I might mention. Thine most respectfully,

STEPHEN TABER.

Early Rising.

Hon. J. Buel—Dear Sir—As your paper has a very extensive circulation, I desire to present before your numerous readers, a few arguments in favor of early rising. The couplet of the sage, so long familiar to the community generally, contains much more truth than men *practically* believe:

> "Early to bed and early to rise,
> Will make one healthy, wealthy, and wise."

Many who have pursued this course, have enjoyed much better health and other comforts than many others who have pursued an entirely different course. The reasons for this may be very obvious to those who have reflected upon it with only a little attention, especially if their practice has been in accordance.

In the first place, our Creator has hung out the sun from the heavens, for the benefit of his creatures. If we lie in bed after his precious rays shine around our habitation, we deprive ourselves of much comfort, which we might have enjoyed in the sublime and beautiful sight of beholding the trees and distant hills, first enlightened by his golden beams. Besides in the spring and summer seasons, especially in country places, where *farmers* generally reside, those who sleep until after the sun has arisen, lose most of the pleasure and benefit which they might have by listening to the inimitable songs of the feathered tribes.

Again—the *farmer* and *gardener* need to be early abroad to prevent the intrusion of many enemies upon their crops, or to banish them soon if they appear. Some have never seen, for instance, the cut worm, in the very act of his depredations; but after the sun has risen, they have often had painful demonstration, while standing by their fallen plants, that such an enemy is in existence. Had they been in their garden or field as soon as the dawning day, carefully watching by the side of their plants, it is at least possible they might have been convinced *how* the work was accomplished.

Again—many complain that their vines are destroyed by the little striped bugs, and before they have opportunity to destroy them, they take wing and fly away, ready to return again at their own convenient time. I would say to such, be at your post a sufficient time before the sun makes his appearance, and you may secure many of them from futher depredations.

Once more—many plants may be essentially benefitted by stirring the dirt around them every morning, while the dew is on. Their growth may be promoted, and often the effects of drought prevented, and many other benefits obtained. Some plants, it is true, may receive more benefit to be hoed when the dew has disappeared, but enough may be benefitted to occupy an early hour. Will you make the experiment? Will you in future rise early?

The Season, Crops and Insects in South-Carolina.

Oakley Farm, Chester District,
S. C. June, 27, 1839.

Judge Buel—We are suffering here severely from drought. The whole spring has been dry—our gardens are burnt up, without having yet given us anything; from 6 beds of peas planted in succession, I have not had half a dozen messes; our corn is in a most deplorable state, now tasseling-out—wilted and must soon perish if we do not get rain in a few days. We have had but one rain to wet the earth below the furrow of a shovel plough since the 8th of May,—and very little all April. We have, notwithstanding, made good crops of wheat for us, where it is not generally sown as a market crop,—and commonly put in very carelessly for family use.

Though we are not yet afflicted with the "grain worm," nor much injured by the Hessian fly; a pest has appeared among us within the last two years, which from their prodigious numbers and destructiveness threaten to be even a more serious evil to us. They are called chinchbugs in Va. though they have no resemblance to our domestic pests but their disgusting smell. They are nearly the shape and size of the small black flour weevil; can fly, but take to their wings reluctantly; have no mandibles, but a proboscis with which they penetrate the stalks of plants near the joints, and suck them to death. They have destroyed my oat crop totally: I shall not make the seed sown; my white May wheat (harvested 28th of May) came to maturity too early for them, and was but slightly injured; but my white bearded wheat (harvested 12th of June) was seriously injured by them,—many ears not having a single grain filled in them. Bad as this is, it is nothing to what followed; for as soon as the small grain was cut, they took to our corn fields in such myriads as is inconceivable to any but those who have witnessed them; I have seen some of my corn so perfectly black with them for two feet up, no particle of green was to be seen but 5 or 6 inches of the tips of the leaves; and they hung to the under parts of them in knots like little swarms of bees. It takes them only one or two days to destroy the corn; from such an attack I saw no remedy but burning them up, corn and all; and by promptly doing so in that part of the field into which they first migrated in such immense numbers, hope I have saved the rest of it from total ruin—though patches of corn in some of my other fields have been totally killed. This is indeed a long letter about a little thing, and just to ask you, sir, if you know anything about them, and what would be the best remedy against them? and trusting you will excuse the trouble of this, I remain, respectfully,

W. S. GIBBES.

New Husbandry, &c.

Mocksville, N. C. June 18, 1839.

JUDGE BUEL—Dear Sir—In recommending the new system of husbandry to our farmers, I meet with two objections to it; one is, that we have too much cleared land to manage our farming in that way; and the other is, that when a man is in debt, and is obliged to have a certain amount of money from his crops every year, he can't enter upon that plan, as his crops would be lessened for some years, and therefore he could not meet his engagements. I think the first objection is very correctly answered in the March number of the Cultivator for this year, in your reply to the inquiry of John Ogilvie, of Virginia, as to Agricola's farm; and I would like to know your opinion, as to how long it would be before a man's crops would yield the same return, under the new plan, that it now does under the old, the same amount of labor and capital being employed in both cases, taking it for granted that his crops would be less at the start in consequence of his tending so much less land, a small part only of which he could manure the first year.* I can add my testimony in favor of Green's straw cutter. I have procured one, and it performs first rate; every one is pleased with it who has seen it perform.

I soaked a part of my seed corn this year upon your plan; it came up well, and grows more rapidly than that which was not soaked, and was scarcely touched by birds or squirrels, while that which was not soaked and planted along side of it, was taken up badly by them. I don't think soaking seed corn is so necessary in our climate, as it is in a more northern one.

Will Irish potatoes intermix, by planting different sorts along side of each other?† The above is at your disposal. Enclosed are $11, for as many copies of the Cultivator for this year. Accept my acknowledgements for the box of potatoes and corn, which came safe to hand; the Rohans were perfectly sound, the others were a little damaged. Respectfully, C. HARBIN.

Queries and Answers Subjoined.

Michigan, June 14, 1839.

Mr. BUEL—Dear Sir—Being somewhat anxious to obtain something like answers to the following questions, or queries, and being sure that I cannot resort to a source from which I shall be more likely to gain the information I so greatly desire, and believing them to be within the design of your invaluable paper, I am encouraged to ask the favor of your honor.

In rearing a nursery of fruit trees, is it best to sow the seeds in beds, and transplant the trees, or should they be sown where they are to remain until fit for the orchard? *Answer—Sow in beds and transplant.*

What distance from each other should they stand in the nursery? *Ans.—One foot in the rows, and the rows three feet apart.*

Can all or any of the various kinds of fruit trees, be raised from the scions by cutting, as for grafting, dipping the ends cut in melted pitch, &c.? *Ans.—No fruit trees, that we now recollect, will grow well from cuttings, but several of the fruit shrubs, as the quince, currant, gooseberry, &c. will grow from cuttings. The roots of most fruit trees, as the plum, apple, pear, &c. if made into cuttings, will grow, if properly buried.*

Will the trees from the stone of the peach, plum, cherry, apricot, &c. produce fruit of the same quality as did the trees on which they grew? *Ans.—Very seldom. The seeds cannot be depended on to produce like the parent plants.*

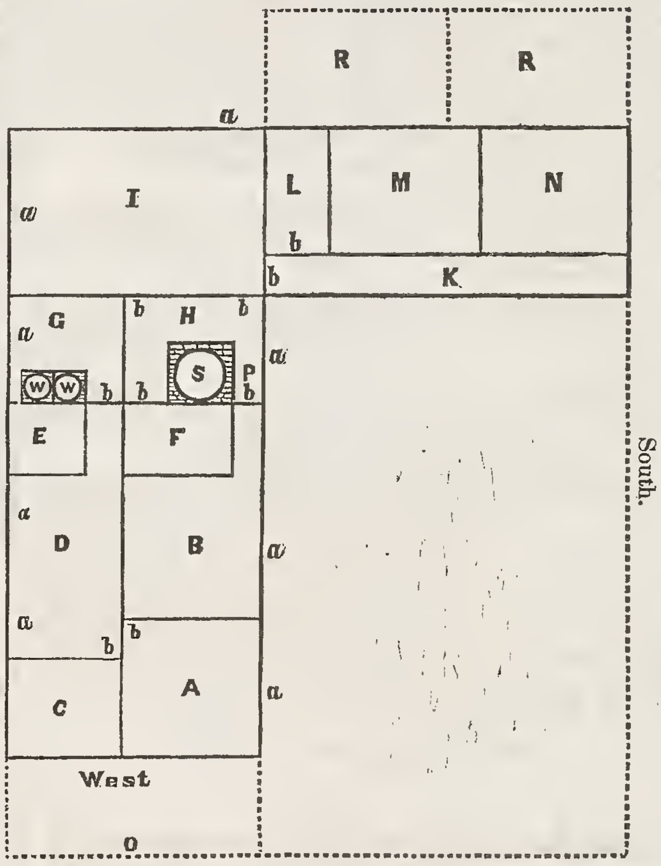
Which is the best time, (fall or spring,) to remove trees, say from the state of N. Y. to Michigan or Wisconsin, and how early in the fall, or how late in the spring, may they be taken up for that purpose? *Ans.—We have sent them at both seasons, in autumn generally by the way of New-Orleans, and in spring by way of the Ohio canal or Chicago. They may be removed, in autumn, so as to reach Cleaveland or Detroit before the 1st November, and in the spring as soon as the canals are navigable, say the 12th April.*

What are the names of the choicest apples, pears, &c. known in your section of the country, and where can either or both scions and trees fit for orchards of such choice fruit be had? *Ans.—A list of good pears will be found in the May No. of the Cultivator. A list of apples and other fruit will be forwarded to our correspondent, when we know his address. Address J. Buel & Co. nurserymen, Albany.*

An answer or an opinion relative to the above, or to any part thereof, will be very thankfully received by at least one SUBSCRIBER.

Ground Plan of an Out-Building.

[Fig. No. 21.]



In this plan, the dotted line O, represents the west fence, or line of the road, which runs north and south, or nearly so; the house west of the kettles is of brick, and two stories high; that part east of the kettles, of wood, and is only one story; the wing that runs south, is covered with a shed, the use of which may be described in some future communication, as what I have here sketched is all intended to represent cellars and piggery. The ground rises gently from the road to the centre of the building spot, and then falls rapidly, so as to give a chance for the hog-yards, R, R. In the figure, A, is a cellar 14 by 15, for garden sauce and ruta bagas. B, potato cellar, same size, with communications to empty potatoes by window *a*, from cart body to cellar, with access through door *b* to swill kettle S. C, Ice cellar. D, Meat cellar, &c. E, Brick cupboard, flat stone for bottom and top. F, Ashery, communicating with kitchen fire-place above, flat stone covering top and bottom of this also. G, Wash cellar. H, Swill room. I, Wood room, communicating directly with wood room above. K, Alley, 4 feet wide, where we feed hogs and pass out door at south end of shed. L, Meal room, 8 by 14, where hog meal is kept, and communicates by a tube or tunnel with the meal room above, so as to carry hog meal from door yard in front of the shed, into the meal room in the shed, and pass it through the floor into the hog meal room. M, N, Hog-pens, 14 by 16; here we have Heaton's plan for feeding hogs, with a slight variation. O, Fence. P, Lead pipe, furnishing cellar and kitchen with water, and thus passing out at east of cellar, through window *a*, from which we water our hog-yards. R, R, Hog-yards, with doors hung at top, so that hogs open them and their own heft shuts them; heighth of doors 2½ feet. S, Swill kettle. W, W, Wash kettles. *a*, *a*, &c. Cellar windows, with cast iron sash. *b*, *b*, &c. Doors.

Perhaps it will be proper here to state, that we adopted a new plan in building our cellar wall, which was this:—We in the first place commenced a very thick wall of split granite, and after carrying it to the heighth of four feet, or half the depth of the cellar, we made an offset or jog of five inches, which carried the face of the wall five inches further back, on the upper than on the lower section or half of the wall; that is, five inches farther towards the bank. On the offset, (for so I must call it, not being master of our language sufficiently to apply a better name,) we commenced a course of brick, leaving a space of one inch clear between the lining and wall, and carrying it quite to the top of the underpinning, where it was thoroughly connected and bound to the underpinning, which is of hewn granite; and the top of the lining, together with the underpinning, presented a surface of 17 inches wide, which was sufficient to receive the wall of the house, which was 12 inches, leaving 5 inches on which the floor timbers rest. Thus we have placed an effectual barrier against that enemy of cellars *Jack Frost*, and this, too, with but single glazing, giving the light of the sun free access to our cellars in all seasons, and making the swill room so warm that swill will not freeze in the coldest weather; and even our hog-pens are so warm, (being walled on the west side of the pig or hog-pen alley, and at the north likewise, and the east and south well boarded, accompanied with self-shutting doors, for the ingress or egress of the swine,) that it requires severe cold weather to freeze the swill even in the troughs. The two story or brick part of the house extends from the west end to the line separating the three kettles from the brick cupboard and ashery, or smoke-house, where the east end of the brick part commences, at the bottom of the cellar, carrying with it the flues for the kettles, together with the smoke of four fire places in the lower story and two in the upper, and this all in two chimneys, so that these with two small ones at the west end of the house, accommodates our whole farming establishment as to chimneys. W. C.

Fairlie, Orange co. Vt. June 22, 1839.

On the Application of Manures.

Fredericksburgh, Va. June 18th, 1839.

J. BUEL—Dear Sir—In your paper for the present month, I have read the following intimation; "*a subscriber wishes Mr. Garnet's opinion of the best method of applying manures to land;*" and presuming that I am the person meant, I avail myself of the earliest opportunity to evince my willingness to gratify him. But as no man's mere opinion on such subjects, is worth any thing without the facts and reasons upon which it is founded, I shall take it for granted, that he desires to hear both, and will therefore state them together.

Whether your subscriber means by the term "*manures,*" all things commonly so called, or only putrescent substances, I have had but one opinion for a long time, in regard to their application, and this has been confirmed by all my subsequent experience, each year adding something to the great mass of consantaneous facts. When my attention was first turned to this subject, some thirty-five or forty years ago, I had adopted, but without examination, the notion then most common amongst us, that it was best to let all putrescent manures be well rotted first, and next, to bury them deep, either by the plough, spade, or hoe. This notion, like the common law, was so old, that "the memory of man extended not to the contrary;" but happily for us all, the revolution had broken the entail of opinions as well as of landed estates, and left us at liberty to think and act for ourselves. The natural consequence of this increased freedom was, the introduction of many new practices in the arts, as well as in government; and agriculture came in for some small share of these benefits. Among them, was the application of putrescent manures to the surface, and in a much less fermented state than had ever been tried before. But so dreadfully afraid were the first experimenters of the formidable laugh of that once numerous family, "The Goodenoughs," that they made their trials, as it were, by stealth; and consequently, the results remained, for a long time, unknown, except to a few. I happened to be among the number, and could not long resist the evidence of my senses, although I must confess, that at first, it seemed to me a sort of sacrilege, even to doubt, and still more to act, in direct opposition to an opinion which, for aught I know, had descended from Triptolemus himself. By degrees, however, my courage waxed stronger and stronger every year, until I felt myself brave enough to commence the following experiment, which several old farmers in whose veracity I perfectly confided, had assured me they had often tried, and always with the same result, as that which I am about to report in my own case.

I began penning my cattle late in the spring, and continued it until frost, in pens of the same size, moved at regular intervals of time, and containing the same number of cattle during the whole period. These pens were alternately ploughed, and left unploughed, until the following spring, when all were planted in corn, immediately followed by wheat. The superiority of both crops on all the pens which had remained unploughed for so many months, after the cattle had manured them, was just as distinctly marked as if the dividing fences had continued standing: it was too plain to admit even of the slightest doubt. A near neighbor, a young farmer, had made the same experiment, on a somewhat different soil, the year before, but with results precisely the same. Similar trials I myself have made and seen made by others with dry straw, alternately ploughed in as soon as spread, and left on the surface until the next spring. In every case the last method proved best, as far as the following crop would prove it. The same experiment has been made by myself and others of my acquaintance, with manure from the horse-stables and winter-farm pens, consisting of much unrotted corn offal; and without a solitary exception, either seen by me, or heard of, the surface application, after the corn was planted, produced most manifestly, the best crop. Upon these numerous, concurrent, and undeniable facts my opinion has been founded, that *it is best to apply manures on the surface of land;* and "I guess," (as brother Jonathan would say,) that it is not likely to change, unless indeed, I should hear a still greater number, equally well authenticated, on the opposite side; although I must say, that up to the present time, I have not heard a solitary one. True it is, that I have read many ingenious, fine spun arguments in opposition to the opinion which I hold in common with numerous other agriculturists, but no proofs whatever have accompanied them, and therefore I must remain an infidel, until they are sustained and corroborated, by such facts, as should always be deemed indispensable to establish any practice whatever, in any of the various branches of husbandry. To collect these facts is a slow, and most tedious process, not very flattering to that pride of opinion which delights in speculative theories of our own elucidation, and sickens at the mere thought of the labor necessary to make, to watch, and to record accurate experiments in agriculture. In no other way, I think, can we account for those differences of opinion as to matters of practice, which are often found among our brethren, where all the facts are on one side. But to refuse to believe in that which we cannot explain, unless in some way that tickles our own vanity, gave rise to the sect of sceptic philosophers, and it is to be feared, will keep up the breed as long as the world stands. Let me not be here misunderstood. Far be it from me to object to theory and speculation, provided the sole object in concocting and maintaining them, be to arrive at truth. As this should be the aim of all, I am in favor of the utmost latitude of discussion in the honest pursuit of it. But I do, and will forever protest against that practice which is far too common amongst us, of regarding plausible and apparently scientific conjectures, so much more than the actual results of experiments fairly and accurately made, as not unfrequently to indulge our fancies with the former, even in direct opposition to the latter. Take, for example, the two conflicting creeds as to the best mode of applying manures, and test them by the uniformly concurring results of the several experiments which I have stated. All these results undeniably prove, that the surface application was best; although the kinds of manure differed considerably. And what have we in opposition, any facts whatever? Not one; and only the conjecture, that the evaporation from surface spread manure must carry off the greater and best portion of the food of plants therein contained. But that such evaporation cannot thus act, seems to me to be unquestionably proved by every fact I have mentioned: for, *if it did*, then the land of summer cow-pens ploughed up as soon as removed, would, in every case, have produced better crops, than that of the *unploughed*, instead of doing it in none. Similar results too must have followed in the other cases I have stated, although I have never seen nor heard of their doing it in any. The effects however, which *really have taken place*, (facts though they undeniably are,) happen to contradict, as plainly as we see the nose on a man's face, certain preconceived fictions, or ingenious theories, if you please to call them so—quoad manures—in the propagation of which much paper and ink has already been consumed, much head-work is still employed; and what is to be done? Shall all this labor, all the ponderous volumes elaborated by it, all the cogitations in support of those theories, which are now taking the rounds in our agricultural papers—shall all be discarded as things serving only to show how much fonder men are of their own speculations, than of facts the occurrence of which brings them no credit for remarkable talents? Or, shall we still cling to these theories, maugre the facts, merely because we have already shed so much ink, and spent so much time in laborious efforts to sustain them? I can answer only for myself by saying, that I will ever abide by facts in preference even to my own opinion, whenever they conflict with each other. But in regard to the subject now under consideration, I believe there is a perfect accordance between them. Your subscriber however, may possibly think that I have "jumped too speedily to my conclusions;" I will therefore, respectfully offer to him such explanation of the operation of surface spread manures, as has been satisfactory, at least to myself. Should it prove so to him, I shall have gained my object in complying with his request.

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* We mean explicitly to state, that if a man has one hundred acres of ordinary land, which he wants to plant in corn, and but three hundred loads of manure to put upon it, he had better bestow his manure and his labor upon twelve, than upon the one hundred acres. His labor will be lessened two-thirds at least, his products will be greater, and the eighty-eight acres, which is left to rest, instead of being further run down, will be in some measure renovated by the herbage which grows and decays upon them. The herbage of an acre will *keep alive* ten sheep, will *keep in good condition* six, and will *fatten* four. Would the owner, who was in haste to convert his sheep into mutton, and to realize the avails in cash, find it most profitable to feed his acre with ten, or six, or four sheep? So with corn, it will live without manure, upon poor lands; it will grow without manure, upon lands which are in tolerable order; but it will only give a remunerating, or a very profitable crop, when highly fed, or manured. Bordley rated the average product of corn, upon the eastern shore of Maryland, at 15 bushels an acre. We say, that the average product here may be raised to 80 bushels per acre. Charge the crop with us $25 for the 25 loads of manure; estimate the grain at 75 cents per bushel, and the expense of culture at $15. The one hundred acre corn farmer then expends $1,500 in labor, and gets $1,145 for his crop—loss $355. The twelve acre corn farmer expends $180 for labor, $273 for manure—total $555—and gets for his corn—12 multiplied by 80 is 960—he gets for his crop $720—nett profit $165—thus showing a difference in the nett profits of the twelve acres, highly manured, of $520, in a single season, upon the data of calculation we have assumed, over the one hundred acres planted without manure. Mr. Harbin will see from this estimate, although it may be termed an extravagant one, that a maize crop would yield, immediately, a far better return "under the new plan, than it does under the old."—*Cond. Cult.*

† They will not.

My belief, founded on the facts already stated, *is*, that all the fertilizing substances of manures are soluble in water, and will remain uninjured themselves, and useless to plants until the solution begins, whether they be deposited *on* or *under* the earth's surface. I also believe, that this solution is caused by every fall of rain, and is immediately absorbed by the subjacent soil, which absorption results from two causes; first, the principle of gravity, and secondly, the stronger attraction of the earth than of the atmosphere, for every substance in solution which constitutes the food of plants. Moreover, that the earth never parts with this food, when thus absorbed, to any thing but the plants themselves; for it is *their* peculiar aliment, and not that of the atmosphere, whose existence, for ought we know to the contrary, is entirely independent of it, although its agency seems essential to the health and vigour of all plants. If this were not the fact; if, (for example,) the earth did give the best and greatest portion of this food to the atmosphere; or, if it escaped from surface spread manure, before gravity and attraction could impart it to the earth, then the evaporation which is supposed to be the medium of conveyance, and which is known to be constantly going on from the soil, would, in process of time, certainly render it barren, even without any cultivation whatever. Yet neither total nor partial barrenness is ever known to be produced by any other cause, than incessant culture without manure. That evaporation does take off something from manure while in a moist state, is proved by the offensive smell which constantly exhales from it until it is entirely dry. This smell is excited by a gas which is said by some, to contain the most valuable portion of the food of plants. But admit the fact, where is the proof this portion being lost? I say there is none. On the contrary, we have what I think a conclusive reason for believing, that this food is immediately given by the atmosphere to the tops of plants, as more suitable to them than to their roots. My reason for this belief is, the result of the following experiment which I have known to be repeated several times. All the bark was taken off from around the body of certain young trees, in a ring about three inches wide, for the purpose, in the first case which I saw, of ascertaining whether this process would not kill the tree. But to the surprise of us all, not more than a year or two elapsed, before that part of the body above the ring became obviously larger than the part below, and this difference in size increased every year afterwards, as I had frequent opportunities of noticing.

Another reason why I believe, that manures act better, if spread on the surface of land, than when buried under it in the customary manner, *is*, that in the first case, the rain water carries the dissolved substances no deeper than the roots of most of our cultivated plants always grow, unless they are forced out of their natural course; and there these substances remain fast held by the earth's chemical affinity, until the stronger attraction of the spongioles of the roots begins to act upon them. But in the second case, that is, where manure is ploughed under as soon as spread, all the food of plants contained therein, being placed at once quite as deep as their spongioles naturally grow, and this too, before the rains begin to dissolve it, the subsequent solutions caused thereby, necessarily sink still deeper, and generally beyond the reach of the plants for whose nourishment they are designed. In no other way can I account for the long noticed and invariable superiority of crops produced by surface spread manure, to those produced by that which was ploughed in. To me there appears to be but this alternative, either to deny the facts already stated, which I myself have often witnessed, or to explain them, (if we must theorise on the subject at all,) in some such way as the one which I have just offered to your subscriber, and to such others of our brethren as may choose to examine it. Permit me further to add, that on this subject nature herself seems to offer us a useful lesson, if we were not too wise in our own conceits to be taught by such an instructress; for I know not a single exception to *her* practice of depositing on the earth's surface, all the putrescent substances of every nature and kind, which appear designed to preserve her fecundity.

In close connexion with this subject, there is one other matter on which I will take the liberty to express an opinion, although your subscriber has not asked for it. This is, in regard to the best state in which manure can be applied. So far as my own experience enables me to judge, an experience confirmed by that of many others in whose practical knowledge of the subject I have great confidence, I believe that the fresher it is, the better; for in such state, so much less will suffice, than in any more advanced stage of putrefaction, that time, labor, and value are all saved in the application: while none of the alledged "*burning*" ascribed to the manures being "*too hot*," ever occurs, if the quantity used be lessened in proportion to its freshness. This injury to plants, if I mistake not, is always caused by *excess* in the quantity, and not by the *quality* of the manure we apply to them, although the two things are often confounded, and thereby contribute to the perpetuation of error in regard to the nature and operation of all fertilizing substances. There is not, I believe, an agriculturist of any experience in our country, who has not had frequent opportunities of witnessing numerous facts to prove the correctness of these opinions. But, as I before remarked, we are all vastly fonder of our own fancies, than of facts in opposition to them; and consequently pass all such without notice, or, when too strong and obtrusive to be entirely disregarded, we spare no labor nor pains to force them, as far as we possibly can to subserve some previously conceived notion which our silly pride forbids us to abandon. This obstacle to the progress of all improvement, but especially in husbandry, is one of the most pernicious of our besetting sins; and *but for this*, it seems to me impossible that any controversy should still exist in regard to the best manner and state in which to apply manures to land. Two or three years, at most, would have been amply sufficient to establish the most beneficial practice, if all those whose special interest it is to ascertain it, would have diligently and impartially resorted to comparative experiments, accurately and assiduously made for the purpose, rather than to speculating and theorizing about it. But it can never be too late to make such experiments. Let me therefore, most earnestly, but respectfully recommend to your subscriber, who has done me the honor to ask my opinion, as well as to all others who may still have doubts on the subject, forthwith to commence making trials of the different methods of applying manures, and also of the different states in which it is applied. The opinions of experienced men are certainly well worth consulting, in regard to all matters connected with their respective trades, professions or callings; but we should never implicitly take them as guides for our own practice, any longer than until we can have leisure to test their correctness by actual experiments. When a number of these concur in producing the same uniform result, it is a matter of very little comparative importance, how others may endeavor to account for the fact, as the fact itself is the all important thing, especially in every practical art. But this war between speculation and practice, between nature's own doings, and our fanciful ways of accounting for them, is destined, I fear, never to cease, so long as such a thing remains in the world, as pride of opinion. Let a man once commit himself so far, either in speaking or writing, as publickly to deliver what he considers an argument in support of his "ipse dixit," and there are a hundred chances to one that he persists in it to the day of his death.

In thus complying with your subscriber's request, I may perhaps have said more than either he or you expected or wished. If I have done so, I must rely for my excuse, on the proverbial garrulity of old age, unless your own kind feelings will suggest a better. I remain, dear sir, yours very respectfully,

JAMES M. GARNETT.

On Road Making.

South Lee, Mass. June, 1839.

Judge Buel—Sir—The improvements in the science of road laying and building, in the March number of the 6th volume of the Cultivator, I highly approve of, so far as it is carried; and if no better system is proposed you will make such use as you please of the following suggestion: Let the road in its construction imitate or copy the rail-road as near as practicable; that is, keep the wheels level, and go with an inclined plane from one bar or breakwater to another, and make the bars as seldom as the safe keeping of the road will admit; but when necessary, make them efficient, with permanent materials with from two to three feet rise, according to the levelness or pitch of the ground, always making provision for both wheels to rise simultaneously, never allowing the travel to sink from the summit of the break, below the natural descent of the land; and also never allow an oblique bar to be made on the travel, for that throws the load upon one wheel or side, which racks or strains the vehicle, jeopards a high load, strains the animals, discomposes the passengers and deranges the whole concern; whereas, when a road is built as above, should accidents happen from restive animals or other causes, you are far less exposed to upsetting than when oblique breaks are in the formation of the road. Having realized the folly of the general practice in road building, and witnessed the vast amount of funds wasted by thoughtless road commissioners, or surveyors of our highways; and where the experiment has been made, I have seen it conclusively demonstrated, that from fifty to seventy-five per cent have been wholly thrown away by unscientific overseers; therefore I approve of large districts being apportioned to men of liberal minds, in building as well as in locating our common highways, as a means to avoid the evil consequences which often arise from a limited selfishness, which operates to the mutual disadvantage of the taxpayer and the traveller. Yours, &c. A RECENT SUBSCRIBER.

Heavy Sheep.

Spout-Run, June 14, 1839.

Hon. J. Buel—Dear Sir—Since your readers are chiefly agriculturists, the following notice may be somewhat interesting in the Cultivator.

When the sheep at Spout-Run were sheared, on the 18th of May, a yearling ram and five of the ewes were weighed, as follows: ram 174 lbs. his fleece 5 lbs; 1st ewe, 196 lbs. fleece 5 lbs; 2d ewe, 174 lbs; 3d ewe, 190 lbs. fleece 7 lbs; 4th ewe, 164 lbs. fleece 5 lbs; 5th ewe, 164 lbs. her fleece 5 lbs; only two are considered at all above the average weight of the flock. The wool was clean washed, otherwise the fleeces would have weighed from 7½ to 11 lbs. and the ewes were all suckling lambs. These two considerations taken in view, it is believed to be the greatest exhibit of weight of carcass and fleece made in the United States by a flock of ewes. These sheep have been raised and improved by my friend, Mr. Ths. H. Burwell, of Spout-Run, Clark county, Va.—Respectfully yours, &c. A SUBSCRIBER.

The Farmer should Read and Think.

Schenectady, May, 1839.

J. Buel—Dear Sir—We learn from the most skilful anatomists, that the brain of all vertebral animals is of rapid growth and increase, from conception to birth, when the brain of all such animals in the scale below man, is complete and full as at maturity of age. Some evidence of this may be observed from their activity and facility of helping themselves to food, &c. With men it is otherwise, which may also be observed from his inability to do any thing for himself in infancy.

The brain in man, is also of the same rapid growth from conception, but is not complete at birth. It continues the same rapid increase in volume and improvement, till the seventh year of age, when it is also complete, and is fully developed, as at mature age, with little increase to seventy years. All the increase and volume of the brain after birth in man, is wholly wanting in all other animals. This fact shows plainly the beneficence of the great Creator, in bestowing on man greater gifts than on any of his creatures.

When the brain has become complete in man, at his seventh year, it is like a large blank book full of leaves, ready to receive impressions. He now becomes a moral being, with capacity for intellectual improvement, as well as physical. He is now to learn his relations to his God, as the great and beneficent giver; to himself, as the immediate field of operation; and to his neighbor, as the comfortable and convenient fellow associate, in the mutual uses and improvements of the immense good gifts of the great Creator in the relations here, and of the infinitely greater gifts and provisions for a better existence hereafter, beyond our vision, but of full and perfect faith.

From all these blessings, it must be evident to every rational and reflecting man, that all these superior gifts were intended to be improved and accounted for, like the talents bestowed by the "man travelling into a far country, who delivered to his servants his goods. To one he gave five talents, to another two, and to another one —and who, after a long time, returned and reckoned with them."—Mathew xxvi. 14, &c.

Can man, on whom such great bounties have been conferred, fulfil all his duties, by folding his arms in idleness? If he be rich in the good gifts of Providence —in wealth, health and intellect, shall he say that he has enough, as an excuse for indolence and ease? We read, "to whom much is given, of him much will be required;" and it will be with the highest justice, too.

But, farmers in general, have chosen to degrade their own occupation, by calling it a life of drudgery and ignrance—thinking it enough if they know the horse from the ox, can plough, sow their seed, swing the axe, the scythe and the cradle in harvest. They should recollect, that the first and most honorable employment appointed by God to man, was to dress the flower-garden, and till the ground. And shall man despise this noble employment, under such authority and profit, and call it degrading? He does so, and it is because he is idle, and ignorant of the great gifts, of almost infinite uses of application in science, in the performance of the various duties of the good husbandman.

To be a good and profitable farmer, requires the man to be as scientific, as to be the good and skilful physician. He is to learn and understand that all vegetables must feed, as well as all animals do. He should learn how they feed, and on what aliment they thrive most rapidly.

When the farmer has acquired sufficient knowledge in botany and chemistry for profit, to guide him in his husbandry, he will know that all living substances, that is, all organic bodies possessing the gift of life, whether of the animal or vegetable kingdom, must derive their sustenance from organized matter, that is, from animal or vegetable bodies in a state of decomposition after death. The earth is a scene and foot-path for locomotives, in seeking their food and pleasure. It is the footstool and support of the vegetable tribe. No animals or vegetables can derive nutriment from other living organized bodies. The stomach of no living animal has any digestive power over any living animal or vegetable in it. But, so soon as life is extinct, all animal and vegetable matters, become food, to digest and nourish all living organized bodies, both animal and vegetable.

Although the human stomach has no digestive power on living matter, yet its own gastric secretions will digest even its own, the same stomach that secretes it, so soon as the subject is dead. The living principle protects all living bodies from decomposition and digestion. But the moment the living principle has departed and become extinct, it is subject to both decomposition and digestion. So the vegetable feeds on decomposed animal and vegetable matter, as does the animal kingdom.

All the nourishment of animals and vegetables is derived from organized matter, that is, from matter once possessing the living principle, and that has suffered death, or the cessation of the living principle. The air, water, lime, alkali, caloric, silex, phosphorus, carbon, light, oxygen, hydrogen, nitric and electric fluids, and the thousand other fluids and gases yet beyond the knowledge of man, all lending their aid in promoting animal and vegetable life and growth, the earth being the vehicle and support.

What a wide field is here opened to the vigilant and intelligent farmer! And will the husbandman continue to waste his leisure hours of morn and eve, and rainy days in idle talk and sleep, when his profession suffers so great loss from his ignorance?

If the farmer would begin to read, he would soon acquire a taste for reading more; and his thirst for science would urge him to notice that most valuable injunction, "gather up the crumbs that nothing be lost." How many crumbs of time are lost to the farmer, which, if employed in reading, would make him intelligent and honorable among men, and skilful in his occupation. Can all this useful knowledge of the growth of vegetables be understood by the self-sufficient, but ignorant farmer?

To become a scientific and successful husbandman, requires more knowledge in natural science, than to be the most improved mechanic. Although the skilful mechanic must learn the principles and rules of his operation from the laws of nature, by reading, and the application of industry, yet his task is more easy, because more visible and tangible.

The husbandman, although he cannot perfectly understand the process by which his vegetables increase in growth, yet he sees that they have grown and produced a rich load, and he reaps the most bountiful harvest from his improved and scientific cultivation. The numerous reports of scientific farmers, recorded in the Cultivator, prove this.

The principles of husbandry must be the same every where; but different soils and different climates require a diversity of treatment and culture. All these man must learn by science and experiment; for that law, that he "shall eat his bread by the sweat of his brow," has not been repealed. Nor will Divine Wisdom ever repeal that law, because it is not for man's good to be idle. If he were not obliged to labor, he would soon perish in filth and sloth, and not learn gratitude to God, who gives him all things richly, in goodness and mercy.

I must defer saying more till another opportunity, as this will occupy too large a space in your useful Cultivator, to the exclusion of more interesting matter. Respectfully. DAVID TOMLINSON.

Whitington New White Wheat.

Albany, July 13th, 1839.

Mr. J. Buel—Dear Sir—In the month of March last, I received from my brother Geo. C. Thorburn, two bushels Whitington New White Spring Wheat; from the high recommendation the wheat received at the Liverpool Agricultural Society of England, and its fine appearance, (a large white plump grain,) I was induced to recommend it to our farmers, and would not sell over two to four quarts to any one person, (except in a few instances,) in order to give this wheat a wide circulation through our country. I have reason to fear, it is a *winter wheat.* From the circulars sent from England *with the wheat*, I sold it in *good faith* as a *spring grain;* I never gave it any other recommendation than its appearance, and the testimony of the grain in England. In the April or May number of the Cultivator you made an extract of the qualities of the wheat, from an English work, and from your notice of it, I received orders from all parts of our country, for a few quarts of the wheat. No one regrets the disappointment more than myself, and I here disclaim any intention of practising a deception on the public, and am willing to render every satisfaction in my power. Respectfully yours, &c. W. THORBURN.

BY THE CONDUCTOR.

In the December number of the London Farmer's Magazine, we saw advertised, "*the Whitington New White Wheat*, for winter or *spring* sowing, which obtained a medal at the Liverpool Agricultural Meeting in 1836." We received a sample of the most handsome wheat we ever saw, which purported to be the Whitington; in consequence of which, and of its being represented to be a spring wheat, we sowed one bushel, early in April. But it evidently is a winter grain; as only an occasional plant shows an indication of producing seed at this time, July 15. We are satisfied that the Messrs. Thorburns, as well as ourselves, have been imposed upon, by the foreign advertisements and circular which accompanied the wheat from London. We purpose to mow ours, in the hope of getting a crop from it in 1840.

Observations on Magnesia as a Manure.

Considerable prejudice exists, I believe, against the use of magnesian limestone as a manure. This originated in the experiments of Mr. Tennant, who, on examining a lime long known to the farmers at Doncaster, in England, as injurions to their crops, found that it contained magnesia. In order to certify the truth of his examination, he mixed some *calcined* magnesia with soil, on which he sowed different seeds; and the result was, that they either died or vegetated in a very imperfect manner, and the plants were never healthy.

I have taken this statement from Sir Humphrey Davy's Agricultural Chemistry; and you will find that while he concedes the correctness of Mr. Tennant's opinion, he at the same time gives sufficient reasons for believing that magnesian limestone, or carbonate of magnesia, may prove fertile. One of the most fertile districts of Cornwall, the Lizard, is a district in which the soil contains mild magnesian earth.

Still, the prevailing opinion down to the present day has been unfavorable to magnesia, and this in the face of the well known fact, that most good soils contain a suitable proportion of it. It has lately been announced by Professor Giobert, that in the vicinity of Castellmonte, (in Italy, I presume,) this earth is abundant in the soil which is most fruitful. And he adds, that there are numerous localities in Piedmont, of a similar description. He hence infers, that native carbonated magnesia is not injurious to vegetation; and again, that in consequence of the solubility of magnesia, in an excess of carbonic acid, this substance may exercise a fertilizing power similar to carbonate of lime.

If these facts be correct, it is reasonable to suppose, that magnesia is taken up by plants, and an Italian chemist named Abbene, has actually detected it in the ashes of such as had grown in magnesian soils.

The practical deduction from these observations is the following:—If the magnesia in the soil, or the magnesian limestone, after being burnt, appears too caustic, add compost sufficient to furnish the needed carbonic acid. And the sterility of magnesian soil is to be attributed to its cohesion and want of proper mixture of other ingredients, rather than to the peculiar earth.

These observations are condensed from a French periodical of January, 1839, in the hope, that they may be found useful to some of your readers. T. R. B.

Extirpation of Garlic.

Montculm, Va. June 21st, 1839.

J. Buel, Esq.—Sir—The extirpation of wild garlic has been regarded rather as an object to be desired by the agriculturist, than one to be successfully accomplished. An experiment, made by myself, not with that view, however, will at least point out one mode by which this unpleasant plant may be destroyed. In one-third of a field of about twenty acres, it had become very thickly set. In the summer of 1836, the wheat grown on this part of the field was so filled with it, that I was induced to keep it separate from the rest, to prevent its injuring the sale of the whole. The next spring, 1837, I planted the field in corn, and in the fall, having a large number of hogs to fatten, and no time or labor to spare to gather corn for them, I turned the whole of them into this field. (This is sometimes done in this part of Virginia.) They remained here till they had nearly consumed all the corn, when they were removed into small pens and fed. I then turned all my store hogs into the field, to finish what was left, where they remained till late in December. In the mean time, as their food decreased, I commenced feeding them once, and afterwards twice a day, during the winter. They were permitted to have access to the field for half the winter. My feeder, in December, told me that they were eating the garlic. In the spring, I sowed the field in oats and clover. The oats were good; the clover was destroyed by the burning drought of last summer; thus leaving the field entirely naked. I then determined, (last fall,) although the fourth crop in succession, to sow it in wheat, which I did, and this spring in clover and timothy, a full quantity of each. Now, sir, I have, in the last fortnight, repeatedly and carefully searched for the garlic, and found two stalks only, where thousands stood before. The garlic is now in full bearing, and may be easily detected.

It is manifest that this method of destroying this pest will not generally answer. But the idea may be improved on. If a farmer have but one field of corn, and garlic prevails in it, he may gather nearly the whole of it, and instead of seeding it, as is the usual practice, let him turn in all his hogs, that are to be kept over to the next year, and they will soon get hold of the roots, &c. He will then put in a spring crop with grass seed. So well satisfied am I with the result, in this case, that I shall pursue the same plan in respect to two other fields, in which there is a good deal of garlic. It will occur to you, that the ground being light and mellow, from the recent cultivation of the corn crops, the hogs have no difficulty in finding the bulbs, which they will not attempt in a field well set in grass or stiffened with a sod, although abounding in garlic, and this for two reasons: they have a plenty to eat, and with less labor. Yours, &c. JAS. McILHANY.

EXTRACTS.

Diseases of Sheep.

The surgeon who operates upon the human system, is presumed to know, and ought to know, something of anatomy, in order to enable him to discover the seat and cause of disease, that he may more readily apply the needful remedy. The structure of the brute is nearly as complicated as that of man; and the same degree of professional skill is often as necessary in managing rightly the diseases of the one as the other. There are more quacks in the veterinary art, than in the profession of surgery; and it therefore stands the intelligent breeder in hand, to qualify himself to become, in some measure, his own cattle doctor. To aid him in this useful study, we make the following extract. A vast many sheep are lost by diseases of the foot. The nature and seat of these diseases, are pointed out with such plainness, and the modes of prevention and the means of cure are so briefly described, that any intelligent sheep master may make the whole subject familiar to his mind, and be able to practise with confidence and success upon his flock.—*Conductor.*

[*From the Library of Useful Knowledge, Farmers' Series.*]

DISEASES OF THE FOOT.

The dreadful and too frequent disease termed foot-rot belongs to the present chapter. There are two varieties of it, or rather there is a disease of the foot, properly speaking, and of the fetlock and pastern-joints.

DISEASE OF THE PASTERN, OR BIFLEX CANAL, AND FETLOCK-JOINTS.

The fetlock of the sheep, like that of the ox, is a very complicated joint. There are two pastern-bones in each leg, articulating with the canon or shank-bone. The leg bone itself is double in the fœtus, but the cartilaginous substance between the two portions of it is afterwards absorbed, and they become one large bone. The lower bones, however, continue separate, and each division has its own ligaments and tendons, and is covered by its own integument. The whole of the fetlock-joint is weakened by this division, and each of the pasterns below is also materially weakened.

At the portion of the skin immediately over the point of bifurcation of the pasterns, there is found in the sheep and in the goat a small orifice called the biflex canal, because it is common to both of the pasterns. It is formed by a fold of the skin, and immediately within the skin it bifurcates, and a canal or tube runs down on each side over the inner face of the pastern, reaching to the coronary ligament at the commencement of the hoof. It contains a great number of follicular sebaceous glands, which secrete a yellow strong-smelling mucous fluid. At the bottom, this canal curves upon itself and terminates in a blind pouch or cul de sac. The superior orifice, always open, is marked by a little tuft of hairs growing from it, and often agglutinated together by the perspiration of the part, or by the adhesive discharge from the canal. The function or use of this singular pouch has never been satisfactorily explained. It may answer two purposes—it may contribute to the suppleness, or freedom of motion of the pasterns, and enable them to adapt themselves to the irregularities of the ground and share the weight of the animal equally between them, or it may secrete a bland and evaporating fluid, which will be in contact with the pastern and joints of the foot in cases of sprain and injury.

Whatever may be the function of the canal it is sometimes the seat of considerable disease, which has been confounded with foot-rot, and which " in common parlance," is here described as a variety of it.

An accumulation of this sebaceous fluid in the biflex, intergidital canal, or the introduction of foreign bodies into it, such as dust, dirt, or gravel, may cause a considerable degree of local inflammation, and which may be communicated to the neighboring parts. Diseases of this canal are of most frequent occurrence when the flock is turned on hard, dry, or sandy pastures. Heavy and fat animals are, as might naturally be supposed, most subject to its attacks; sometimes in every season of the year, but oftenest when the weather is hot and dry. The great number of sheep that have been attacked by it at the same time, and especially as it has been so generally confounded with foot-rot, have excited the suspicion that it is infectious. There does not, however, appear to be any ground for this supposition.

The inflammation is first discovered by the lameness of the sheep, which probably leads to an examination of him, when the part is found to be hot and tender, with some enlargement. If the animal is neglected, the swelling will, probably in a few days, reach the pastern and the coronet below, and the fetlock and the leg-bone above, and to this will follow ulceration of some part of the biflex canal, which will speedily become a source of great annoyance and mischief. The pus penetrating inferiorly will find its way under the coronet, and produce quittor, or even loss of the hoof on the affected side; sometimes ulcers will appear about the fetlock.

Generally speaking, the disease attacks only one foot, and then the sheep goes about on three legs. If both fore legs fail, he must be content to crawl about on his knees. The biflex canal is found in all four feet, but it is comparatively seldom that the hind feet are diseased. The poor animals evidently suffer a great deal, for they scarcely feed—rumination is suspended—fever is established, and, in some bad cases, the sheep pines away and dies.

Before the disease has gone so far as this, the proprietor, acting humanely and wisely, should send the animal to the butcher. The note at p. 524 has already explained the once common opinion respecting this complaint—namely, that it was caused by a worm that had eaten its way into the leg, the hole through which it had entered being still visible. According to this doctrine, the only means of cure lie in the removal or destruction of the worm.

The treatment in the early stage of this disease consists in the extraction of any foreign bodies that may have insinuated themselves into this canal, and in fomenting the part and the whole of the foot. These lotions should be followed by a poultice enveloping the whole foot and the greater part of the leg—an emollient poultice at first, and until the discharge of purulent, and perhaps fetid, matter is staid, and then an astringent one. A decoction of oak bark will form a good liquid for the poultice. In very bad cases, local bleedings (scarifications) round the coronet are practised with considerable advantage. Any tendency to gangrene is combatted by a solution of the chloride of lime.

A cure, however, will not often be accomplished by these means, except where there is no actual disorganization of the biflex canal. If that should have taken place it will be necessary to lay it open or remove it, and when it is dissected out, thickened by inflammation and with its singular natural tortuous form, the older shepherds will readily be forgiven for endowing it with life and the power of producing almost irreparable mischief. The French strongly recommend the removal of this singular reservoir, but that will not always be necessary. The orifice into the canal may be somewhat enlarged, and a probe-pointed bistoury thrust into that division of it which is most or alone affected, or a small seton needle may be introduced, and brought out just above the coronet. Either of these operations, and especially the latter, will usually succeed. The wound, if the bistoury has been used extensively, should be daily dressed with digestive ointment for a while, and which should be afterwards changed for the tincture of myrrh; the old butyr of antimony not being forgotten if the case seems to require it.

FOOT-ROT.

Foot-rot is a disease always at first, and usually throughout its whole course, confined to the foot. The first indication of foot-rot is a certain degree of lameness in the animal. If he is caught and examined, the foot will be found hot and tender, the horn softer than usual, and there will be enlargement about the coronet, and a slight separation of the hoof from it, with portions of the horn worn away, and ulcers formed below, and a discharge of thin fetid matter. The ulcers, if neglected, continue to increase; they throw out fungous granulations, they separate the hoof more and more from the parts beneath, until at length it drops off.

All this is the consequence of soft and marshy pasture. The mountain or the down sheep—the sheep in whose walk there is no poachy ground, if he is not actually exposed to infection by means of the virus, knows nothing at all about it; it is in the yielding soil of the low country that all the mischief is done.

In attempting to explain this, the author cannot do better than to have recourse to much of the beautifully graphic description of the healthy foot of the sheep and the changes which it undergoes, as given by his talented and excellent friend, Professor Dick, of Edinburgh.

The foot presents a structure and arrangement of parts well adapted to the natural habits of the animal. It is divided into two digits or toes, which are shod with a hoof composed of different parts, similar in many respects to the hoof of the horse. Each hoof is principally composed of the crust, or wall, and the sole. The crust extending along the outside of the foot, round the toe, and turning inwards, is continued about half-way back between each toe on the inside. The sole fills the space on the inferior surface of the hoof between these parts of the crust, and being continued backwards becomes softer as it proceeds, assuming somewhat the structure of the substance of the frog in the foot of the horse, and performing, at the same time, analagous functions. The whole hoof, too, is secreted from the vascular tissue underneath.

Now this diversity of structure is for particular purposes. The crust, like that in the hoof of the horse, being harder and tougher than the sole, keeps up a sharp edge on the outer margin, and is mainly intended to resist the wear-and-tear to which the foot of the animal is exposed. The soft pasturage on which the sheep is occasionally put, presents little, if any, of that rough friction to which the feet of the animal is naturally intended to be exposed. The crust, therefore, grows unrestrained until it either laps over the sole, like the loose sole of an old shoe, and serves to retain and accumulate earth and filth, or is broken off in detached parts; in some cases exposing the quick, or opening new pores, into which particles of earth or sand force their way until, reaching the quick, an inflammation is set up, which, in its progress, alters or destroys the whole foot.

The finest and richest old pastures and lawns are particularly liable to give this disease, and so are soft, marshy, and luxuriant meadows. It exists to a greater or less extent in every situation that has a tendency to increase the growth of the hoofs without wearing them away.

Sheep that are brought from an upland range of pasturage are more particularly subject to it. This is very easily accounted for. By means of the exercise which the animal was compelled to take on account of the scantier production of the upland pasture, and also in consequence of the greater hardness of the ground, the hoof was worn down as fast as it grew, but on its new and moist habitation the hoofs not only continued to grow, but the rapidity of that growth was much increased, while the salutary friction which kept the extension of the foot within bounds was altogether removed. When the nails of the fingers or toes of the human being exceed their proper length they give him so much uneasiness as to induce him to pare them, or if he neglects this operation they break. He can pare them after they have broken, and the inconvenience soon ceases, and the wound heals. When, however, the hoof of the sheep exceeds its natural length and thickness, that animal has no power to pare them down, but there long continues a wound, irritated, and induced to spread, by the exposure of its surface, and the introduction of foreign and annoying matters into it.

The different parts of the hoof, likewise, deprived of their natural wear, grow out of their proper proportions. The crust, especially, grows too long; and the overgrown parts either break off in irregular rents, or by overshooting the sole allow small particles of sand and dirt to enter into the pores of the hoof. These particles soon reach the quick, and set up the inflammation already described, and followed by all its destructive effects.

There is another circumstance which tends to produce disease in an overgrown hoof. The length to which the crust grows, changes completely the proper bearing of the foot, for being extended forward, it takes the whole weight of the superincumbent parts. By the continual pressure on this lengthened part, inflammation cannot fail of being set up. The progress of the disease is not equally rapid in every instance; sometimes it goes to a certain extent, and the foot to a considerable degree recovers. All the feet may not be equally affected; the fore ones, however, are always the most liable to disease, on account of the additional weight which they carry. Sometimes there is only one foot affected, and that is sure to be a fore one—sometimes only one hoof of one foot, and occasionally one speedily heals while the other continues to get worse and worse.

In the first stage of the disease there is often found nothing but a little overshooting of the edge of the crust, and which is bent in upon the sole, or the edge of the crust is forced asunder from the sole and a wedge of earth is introduced which presses upon the sensible substance beneath; but at other times the edge of the crust continues to grow until it envelopes the whole of the sole. It is seldom that there is inflammation enough excited to throw off the whole hoof at once; but it separates at different parts, and at each part of separation there is new horn formed; this although soft and unhealthy, and not capable of sustaining pressure, covers, and to a certain degree, protects the sensible parts beneath. By degrees, from increased and long-continued irritation, the parts are no longer able to secrete even this weak horn, but granulations of proud flesh sprout out, and then the work of destruction proceeds in good earnest.

This is the usual progress of the disease, but at other times inflammation seems to be set up at once over the whole of that division of the foot, and there is considerable swelling about the coronet, and matter is formed and breaks out, and sinuses run in various directions, and the whole of the hoof is gradually detached. The upper part of the space between the hoofs becomes inflamed and swelled, the whole of the inner surface of the pastern is sore and raw; ulceration commences—it eats deeply—it spreads on every side—it spreads upwards—and the toes are separated from each other almost to the opening of the biflex canal. That canal becomes inflamed—proper inflammation of it is added to that of the sensible parts beneath the hoof—the mucous follicles which it contains, and of which mention has been made, pour out a large quantity of sebaceous discharge, which flows over the fore part of the foot and between the hoofs, and assists in the accumulation of filth by its adhesiveness. In some cases, as has appeared when the diseased state of this canal was examined, the malady commences here. Inflammation of the biflex canal produces much enlargement of the neighboring parts, and the motions of the foot are interfered with, and inflammation and disorganization spread on every side. As these increase, and also the discharge by which they are accompanied, dirt and gravel, and pieces of grass adhere to the ulcerated surface, and insinuate themselves between the pasterns, there soon become one uniform mass of disease.

The ulceration of foot-rot will not long exist without the addition annoyance of the fly. Maggots will multiply on every part of the surface and burrow in all directions. To this, as may be readily supposed, will be added a great deal of constitutional disturbance. A degree of inflammatory fever is produced. The animal for a while shifts about upon its knees, attended by some faithful companion that abandons it not in its utmost need; but at length the powers of nature fail, and it dies from irritation and want.

This is a dreadful account, and yet, after all, the disease is more manageable than could well be imagined, if it is attacked in its earliest stage and treated with proper decision. It will seldom be necessary, or indeed proper, to adopt any means for the purpose of abating inflammation before the radical mode of cure is adopted. Poultices and emollients will only weaken the parts, and cause the fungous granulations to increase with tenfold rapidity.

The foot must be carefully examined, and every portion of loose and detached horn pared off, even though the greater part, or almost the whole of the hoof may be taken away. The horn once separated from the parts beneath will never again unite with them, but become a foreign body, and a source of pain, inflammation, and fungous sproutings. This, then, is the first and fundamental thing—*every portion of the horn that is in the slightest degree separated from the parts beneath must be cut away.* A small, sharp, curved-pointed knife, or a small drawing knife, will be the best instrument to effect this.

If there are any fungous granulations they must be cut down with the knife or a pair of sharp curved scissors, unless they are exceedingly minute, and then the caustic about to be mentioned will destroy them. The whole foot must be thoroughly cleaned, although it may occupy no little time, and inflict considerable pain on the animal. The after expenditure of time, and the suffering of the patient, will be materially diminished by this decisive measure.

The foot should then be washed with a solution of chloride of lime, in the proportion of one pound of the powder to a gallon of water. This will remove the fœtor, and tendency to sloughing and mortification, which are the too frequent attendants on foot-rot. The muriate or butyr of antimony must then be resorted to, and by means of a small stick with a little tow tied round one of its extremities, applied to every denuded part: lightly where the surface has a healthy appearance, and more severely where fungous granulations have been cut off, or there are small granulations springing up.—There is no application comparable to this. It is effectual as a superficial caustic; and it so readily combines with the fluids belonging to the part to which it is applied, that it quickly becomes diluted, and comparatively powerless, and is incapable of producing any deep or corroding mischief. So far as these foot cases are concerned, it supersedes every other application. The change of colour in the part will accurately show to what portions it has been applied, and what effect has been produced.

If the foot has been in a manner stripped of its horn, and, especially, if a considerable portion of the sole has been removed, it may be expedient to wrap a little clean tow round the foot, and to bind it tightly down with tape, the sheep being removed to a straw-yard, or some enclosed place, or to a drier pasture. This last provision is absolutely necessary when the sheep is again turned out; for if the foot is exposed to the original cause of disease, the evil will return under an aggravated form.

The foot should be dressed every day; each new separation of horn removed; and every portion of fungous submitted to the action of the caustic, with a degree of severity proportioned to the necessity of the case. The new horn should likewise be examined. If it appears to be healthy and tolerably firm, nothing should be done to it; but if it is soft and spongy, the caustic must be lightly applied. The sooner the bandage can be removed, and the sheep turned into some upland or thoroughly dry pasture, the better will it be for the foot, and the health of the animal generally.

The worst cases of foot-rot will readily yield to this mode of treatment, provided the bone has not been exposed, and there are no sinuses running either into the joints or deep-seated parts of the foot, or of the pasterns above. All superficial mischief will be readily repaired, and more speedily than could have been thought possible; but there is always a considerable degree of uncertainty, when the horn being removed, the ulcerations are found to be deep, and certain sinuses or openings betray the existence of greater mischief within the foot. The case will, at all events, occupy a considerable time, and give no little degree of trouble; and it will be for the owner to consider whether he had not better destroy the sheep if he is in tolerable condition, than to run the risk of his pining away, and ultimately sinking under long-continued and increasing suffering.

The sheep that has been attacked by foot-rot should not be suffered to rejoin his companions while there is the slightest discharge from any part of the foot. This goes on the supposition that the foot-rot may not only be produced by the causes that have been mentioned, but that the discharge from the sores and sinuses is of an infectious nature. Some valuable writers, and Professor Dick among the number, have denied the infectiousness of foot-rot. They find sufficient reason for the spreading of this disease through a whole flock, from all the animals having been exposed to the same exciting cause; the feet of all of them having been macerated by the soft and damp pasture on which they have trodden, and the internal part of the foot being thus denuded and injured.

There cannot be a doubt on which side the preponderance of evidence lies, and the question would not have been entered into at so great length were not the settlement of it so essentially connected with the interest of the sheep-breeder. It is produced in certain individuals of the flock, by the process of maceration and softness which the hoof undergoes on the moist surface of certain pastures; but once set up, an ichorous and venomous fluid is secreted, by which the disease is too surely and rapidly spread. "In all situations where it has obtained a footing," says Mr. W. Hogg, "we find it beginning in a particular place, and, if unopposed extending wherever there are sheep to be affected by it."

It has been said that the manner in which the contagion is conveyed has not been satisfactorily explained. There is no necessity, however, to have recourse to any epidemic influence, or to any constitutional affection produced by feeding on the grass on which the virus has been deposited. The account that has been given of the state of the foot, its degree of maceration, the opening of all its pores, the frequent laceration of the horn, and the absolute exposure of a greater or less portion of the sensitive substance of the foot, the frequent inflammation, and sometimes ulceration of the thin skin which covers the coronet,—all these circumstances afford means more than sufficient for the absorption of the virus and the production of the disease.

Some persons have imagined that foot-rot is propagated by means of animalculæ which are bred in the virus of the part, and falling on the pasture, attack the feet of other sheep. They have gone so far as to describe this insect, and to give it a name—*the pulex penetrans*. The author of this work has often sought for it in vain; and the sources of contagion are numerous and satisfactory enough, without any gratuitious supposition of this kind.

The establishment of this cause of the disease leads to an evident and an effectual mode of prevention; the removal of every sheep that begins to halt, and before the secretion of the virus has commenced. It is bad policy to let the poor animals crawl about the pasture on their knees, day after day; and the sheep-owner will severely suffer for his folly. How long a pasture may be considered to remain tainted it is impossible to decide; but a heavy rain or sharp frost would probably wash the virus away, or destroy its power. The sheep that are removed should not be permitted to return until their feet are perfectly healed, and have been well washed.

The previous habits of the sheep would have a more decided influence in the production of foot-rot. Supposing different lots of sheep were taken from a dry upland pasture, and placed on a moist and richer soil; the consequence would be that the hoofs of all would be macerated and softened, and exposed to injury, but that injury would be proportionate to the pressure upon and the wear of the foot. That was a very interesting account which was given by Mr. Black, p. 532, of the progress of foot-rot among certain sheep of different kinds, that had been turned into one of the parks. The black-faced sheep were first affected, and to the greatest degree; next in degree was a cross between the black-faced and the Cheviot; then the Cheviot, and, last and least of all, the Leicester breed. "I was at a loss," says he "to account for this peculiar liability in the different breeds, while all were exposed to the same circumstances; but by carefully watching the flock, I found that the black-faced got up from their lairs the earliest in the mornings, and from their being accustomed to roam from the hill to the glen at the approach of daylight in search of their food, continued from habit to wander through the park before they began to feed. The other breeds possessed this disposition precisely in the order in which the disease appeared. Consonant with this is the common remark, that Southdown sheep, removed from their native downs to low and moist pasture, are peculiarly subject to foot-rot. A most useful conclusion will naturally be drawn hence, as to the kind of sheep that should be selected for different soils and pastures.

As the foot-rot proceeds from the distorted form of the hoof, and the irregularity of the pressure, more than from the simple wearing away of the softened horn, it might be useful, and especially on suspected ground, to pare the feet of all the sheep twice in the year—in October or November, and April or May, taking advantage of a wet day or two, when the horn will be more than usually soft. If there should be the slightest appearance of unsoundness at these periodical parings, the proper applications should be made to the feet.—The sheep might occasionally be folded on some bare and hard spot, or driven twice or thrice in the week a little way along the road. Prevention would in this, and many other cases, preserve the animal from disease and torture, and the owner from expense and loss.

Of the Nature and Action of Manures.

[*From Chaptal's Chemistry applied to Agriculture.*]

Under the general head of manures are comprehended all those substances which, existing in the atmosphere or combining with the soil, can be drawn in by the organs of plants, and contribute to the progress of vegetation.

Manures are furnished by various bodies belonging to the three kingdoms of nature. Those most commonly employed are the results of decomposed vegetable substances, and some animal matters.

The salts, which likewise serve for manures, are imbibed by the pores of plants, and serve to stimulate vegetation.

By comprehending all these substances under the generic name of manures, too extensive a signification is given to the word. I divide manures into two classes; and in order to deviate as little as possible from the customary mode of expression, I shall call those nutritive manures, which supply plants with nourishment, and all those which excite the organs of digestion stimulating manures. These last are, strictly speaking, the seasoning; the spices, rather than the food.

1. OF NUTRITIVE MANURES.

The nutritive manures are those which contain juices or other substances, which, being dissolved in water, or otherwise divided to the most minute degree, are capable of being drawn into the organs of plants. All the vegetable and animal juices are of this description.

These substances are rarely employed in their natural state for the aliment of plants. It is generally considered preferable to allow them to putrify or ferment;* the reason of this is simple. Besides the decomposition resulting from this operation, which renders the substances more soluble in water, the gases produced by it, such as the carbonic acid, the carburetted hydrogen, azote, and ammonia, furnish food for plants, or stimulants for their organs of digestion. It is not, however, well to prolong this decomposition too far; for if it be completed, there will remain only some fixed salts, mixed with those earths and juices which have resisted its action. Besides, the effect of manures, which have been entirely decomposed, is almost momentary, lasting but for a single season; whilst those which are employed before arriving at this state, continue to exert an influence for several years. In this last case, the decomposition, retarded by the separation of the manures into small portions, continues to go on gradually in the earth, and thus furnishes vegetation with its necessary aliments for a long time.

The excrements of animals, formed by the digestion of their food, have already undergone a decomposition which has disorganized the principles of their aliments, and in a greater or less degree changed their nature. The strength of the digestive organs, which varies in each species of animal, the difference of food, and the mixture of the digestive fluids furnished by the stomach, modify these manures to a very considerable extent.

The excrements of some animals, as of pigeons, fowls, &c. are employed without undergoing any new fermentation, because they consist mostly of salts, and contain but few juices. Fields are often manured with the excrements of sheep, collected in the sheep-folds, or scattered, as in parks, by the animals themselves upon the soil; but in general the dung of horses and of horned cattle is made to undergo a new fermentation before being applied as manure.

The most general method of producing the fermentation of the dung of quadrupeds, is, in the first place, to form upon the ground of sheep-folds and stables a bed of straw or dry leaves This bed is covered with the solid excrements of the quadrupeds, and impregnated with their urine. At the end of fifteen days or a month, it is carried to a place suited for fermentation, and there formed anew, care being taken every day to spread upon it litter and the scatterings of the racks. The formation of these beds, contributes much to the healthfulness of the stables and to the cleanliness of the animals.—When from a scarcity of straw, the beds cannot be made of sufficient thickness, or renewed often enough, a layer may be formed of lime or gravel, broken fine and covered with straw. These earths will imbibe the urine, and when they are penetrated by it may be carried into the fields to be buried in the soil. The nature of the earth, upon which beds are formed in sheep folds or stables, should vary according to the character of the soil which is to receive them, because, by attention to this, the soil may be improved as well as manured.—For argillaceous and compact earths, the layers should be formed of gravel and the remains of old lime mortars; whilst those of fat marl or of clayey mud should be reserved for light and dry soils.*

In some countries where good husbandry is much attended to, the floors of the stables are paved and slightly sloping, so that the urine flows off into a reservoir, where it is fermented with animal and vegetable substances, and used to water the fields at the moment when vegetation begins to be developed.

The art of fermenting dungs with litter is still very incomplete in some parts of France. In one place they let it decay till the straw is completely decomposed; in another they carry it into the fields as soon as it is taken from the stables. These two methods are equally faulty. By the first nearly all the gases and nutritive juices are dissipated and lost; by the second, fermentation, which can take place only in masses, will be but very imperfectly carried on in the fields, and the rains can convey to the plants only that portion of the nourishment afforded by the manure; which they can obtain by a simple washing.

The most useful art perhaps in agriculture, and that which requires the most care, is the preparation of the dung-heaps. It requires the application of certain chemical principles, which it is not necessary for me to explain, since it is sufficient to point out to the agriculturist the rules by which he should be governed in his proceedings, without requiring of him an extensive knowledge of the theory upon which they are founded.

Solid substances, whether animal, vegetable, or mineral, do not enter into plants unless they are previously dissolved in water, or are drawn in with that fluid in a state of extreme division.

Animal and vegetable substances which are by their nature insoluble in water, may, by being decomposed, form new soluble compounds, capable of furnishing nourishment for plants.

Animal and vegetable substances deprived by the action of water of their soluble particles, may, in the course of their decomposition, form new compounds susceptible of being dissolved. Of this I have given instances in speaking of mould.

That which renders the art of employing dung-heaps difficult, in proportion as it is useful, is, that some methods which are adopted occasion the loss of a part of the manure. In fact when the clearings of the farm-yard are carried fresh into the fields, and applied immediately to the soil, vegetation is undoubtedly benefitted by the salts and the juices contained in them; but the fibres, the fatness, the oils, remain inactive in the earth; and their final decomposition is slow and imperfect. If, on the contrary, the collections of the farm-yard be heaped up in a corner of it, the mass will speedily become heated, carbonic acid gas will be evolved, and afterwards carburetted dydrogen, ammonia, azote, &c. A brown liquid, of which the colour deepens gradually almost to black, moistens the heap, and flows upon the ground around it; all is by degrees disorganized; and when the fermentation is completed, there remains only a residue composed of earthy and saline substances, mixed with a portion of blackened fibre, and some carbon in powder.

In those places where they do not allow fermentation to arrive to this degree of decomposition, they still lose, by mismanagement, a considerable part of their manure.

The most common method is, to deposite in a corner of the farm-yard the dung and litter, as it is drawn from the stables, adding to the mass every time these are cleared, and allowing it to ferment till the period of sowing arrives, whether it be in spring or autumn, when it is carried upon the fields requiring it.

This method presents many imperfections. In the first place, several successive layers being formed, no two of them can have undergone the same degree of fermentation; in some it will have gone on for six months, and in others but for fifteen days. In the second place, the heap, being exposed to rains, will, by frequent washings, have parted with nearly all its salts and soluble juices. In the third place, the extractive portions of the lower and central parts of the mass, the mucilage, the albumen, and the gelatine, will be entirely decomposed; and, lastly, those gases which nourish plants, if developed at their roots, will have escaped into the air; and Davy has observed, that, by directing these emanations beneath the roots of the turf in a garden, the vegetation was rendered very superior to that in the vicinity.

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* The arguments of Count Chaptal in favor of partially fermenting manures before they are applied, seem to rest wholly upon the supposition, that the fibrous and woody parts of vegetables do not readily become soluble in the soil. This conclusion will be correct according to circumstances. The refuse vegetable matters of common farm crops, as straw, stalks, &c. will decompose if burned in the soil, without any admixture, but with greater facility if mixed, as they are in the cattle-yard, with the dung and urine of animals, materials that have already undergone decomposition, according to the Count's showing, "which has disorganized the principles of their aliments, and in a greater or less degree changed their nature." And if these are not decomposed the first year, they are not lost, but, like the bone and the horn, they continue to impart their fertilizing influence for years. But if fermentation is permitted to go on in the yard, what *do* we lose? Why, according to our author, we lose the gases produced by it, "such as the carbonic acid, the carburetted hydrogen, azote and ammonia, [which] furnish food for plants, or stimulants for their organs of digestion." Under the fermenting process, we lose most of the active and valuable portions of the manure; under the mode of applying them in an unfermented state, we save these volatile properties, and ultimately lose nothing. The writer sets out with the proposition, that fermentation *should* precede the application of dung; but his arguments go conclusively to show, that fermentation should not precede its application. We suspect an error has here been committed, either in the translator or the printer; and that the proposition, like the proof, should stand in favor of unfermented, or but partially fermented manures—and not in favor of their being allowed to putrify or ferment.—*Cond. Cult.*

* These processes involve too much labor for our farmers; they innovate too much upon their customary habits; and are, withal, we think unnecessary, in the present state of our husbandry. A capacious concave cattle-yard will form the cheapest, if not the best, bed for a compost for dung, urine and litter; and fermentation will have sufficiently progressed in April or May, when the mass should be taken to the field, and buried by the plough, for the hoed autumnal ripening crops, to afford a full benefit to the crops.—*Cond.*

How long should dung-hills be allowed to ferment; and what methods ought to be pursued in forming them? This question leads us to cast a glance upon the nature of dunghills; and it is not till after having ascertained the difference amongst them, that it can be answered.

The principal parts of vegetables which are employed as manure, contain mucilage, gelatine, oils, sugar, starch, extractive matter, and often albumen, acids, salts, &c. with an abundance of fibrous matter, insoluble in water.

The different substances afforded by animals, including all their excretions, are gelatine, fibrine, mucus, fat, albumen, urea, uric, and phosphoric acids, and some salts.

The greatest part of the substances, constituting animals and vegetables, are soluble in water; and it is evident that in that state they can be employed as manures without previous fermentation; but it is necessary, that those which contain much insoluble matter should be decomposed by fermentation, because by that process their nature is changed, and they form new compounds, which, being capable of solution, can pass into the organs of plants.

Messrs. Gay-Lussac and Thenard have obtained, by an analysis of the woody fibre, oxygen, hydrogen, and especially more carbon, than from any other part of the plant, and they have determined their several proportions. We know that fermentation carries off much carbon; it is then evident that, by causing the fermentation of the vegetable fibre, the principle which forms its distinguishing characteristic will be gradually diminished, and that it will no longer be a body insoluble in water. It is in this manner that woody plants and the driest leaves are converted into manure.

But as all the solid parts of plants contain fibres which cannot be rendered soluble in water, but by a long period of fermentation; and as it is in the fibre that carbon, a principle so necessary to vegetation, chiefly exists, the fermentation of plants is indispensible to the procuring of the best part of their manure.

The custom of appropriating some crops whilst green to the manuring of the ground, may perhaps be objected to; but I have observed, that in that case the plants are buried in the earth at the time of flowering; and whilst they are succulent, and their fibres soft, and but little formed; and that warmth and the action of the water in the earth was sufficient to decompose them; this would not take place if the stalks were dried and hardened by the formation of the grain.

The dung of quadrupeds may be mixed advantageously with the earth at the time of being taken from the stable, if it contain no litter, but if it does, it appears to me better to cause it to undergo a slight fermentation, in order to dispose the straw or leaves of which it is composed to become manure.

It is necessary, in producing the fermentation of dung and litter, to use certain precautions by which the inconveniences arising from the usual mode may be avoided.

Instead of heaping up in large masses the collections of the barn-yard and stables, and allowing them to rot uncovered, and exposed to the changes of weather, they should be placed under a shed, or be at least protected from the rain by a roof of straw or heath. Separate layers should be formed of each clearing of the stables, cow-house, and sheep-pens. These layers should be from a foot and a half to two feet in thickness; and when the heat, produced in them by fermentation, rises in the centre to more than 95°, or when the mass begins to smoke, it should be turned, to prevent decomposition from going too far.

Fermentation should be arrested as soon as the straw contained in the heap begins to turn brown, and its texture to be decomposed. To do this, the mass may be spread, or carried into the fields, to be immediately mixed with the soil; or there may be mixed with it mould, plaster, turf, sweepings, &c.

When the dung is not of the usual consistency, as is the case with that of neat cattle during the spring and autumn, it ought to be employed immediately, as I have already stated; but if it be impossible to apply it to the fields whilst recent, it should be mixed with earths or other dry and porous substances, which may serve as manures for the fields destined to receive it.

Upon nearly all our farms the dung of quadrupeds is exposed to the open air, without the protection of a shed, as soon as it is removed from the stables; and is thus washed by the rains, which carry off all the salts, urine, and soluble juices, and form at the foot of the mass a rivulet of blackish fluid, which is either wholly evaporated or lost in the ground. In proportion as fermentation advances, new soluble combinations are formed, so that all the nutritive and stimulating principles of the dung gradually disappear, till there remain only some weak portions of the manure, intermingled with stalks of straw which have lost all their goodness.

To remedy as much as possible an abuse so injurious to agriculture, it is necessary at least to dig a deep ditch to receive all the juices which flow from the dunghill, in order that they may be used in the spring upon the corn or grass lands; or they may be preserved to water the grass lands with, after the first mowing. A large cask, fixed upon a small cart, and which can be filled by means of a hand pump, is sufficient for this purpose. Beneath the tap of the cask must be fitted a narrow chest about four feet long, with the bottom pierced with holes, through which the liquor may be scattered. This mode of watering, when used after mowing, produces wonderful effects upon the crop of the following year.

Before deciding upon the question, whether dung and litter should or should not be made to ferment, it is necessary to take into consideration the nature of the soil to be manured. If this be compact, clayey and cold, it is better that fermentation should not have taken place, as two effects will be produced by the application of the manure in an undecomposed state. In the first place it will improve the soil by softening and dividing it, so as to render it permeable by air and water; and in the next place it will, whilst undergoing the successive processes of fermentation and decomposition, warm the soil.* If, on the contrary, the soil be light, porous, calcareous, and warm, the thoroughly fermented manure or *short muck*, as it is called by farmers, is preferable, because it gives out less heat, and instead of opening the earth, already too porous, to the filtrations of water, it moderates the flow of that fluid. Long experience has made these truths known to observing, practical farmers.

When it is required to apply dung to any particular kind of soil, it is necessary that it should be used according to a knowledge of its qualities. The dung of animals bearing wool is the warmest; next, that of horses; whilst that of cows and oxen contains the least heat of any.

Soft or fluid animal substances change the most easily; and the progress of their decomposition is rapid in proportion to the diminution of the quantity of earthy salts contained in them. Their decomposition produces an abundance of ammonial gas. This circumstance distinguishes them from vegetable substances, the decomposition of which gives rise to the production of that gas, only as far as they contain a small portion of albumen. It is particularly to the development of ammonial gas, which, combined with gelatine, passes into plants, that we can attribute the wonderful effect produced upon vegetation by certain dry animal substances, of which we shall speak presently.

Next to the dung of animals, of which I have just spoken, the urine of horned cattle and of horses is the most abundant manure which can be used in agriculture; and it is not without regret that I see every day so little pains taken to collect it. I have already observed, that in those countries where agriculture is conducted with the most care and skill, all the stables are floored, and the bottoms of them gently sloping, so as to conduct all the urine into a reservoir, where the remains of rape seed, flax, wild cabbage, human excrements, &c. &c. are thrown into it to undergo fermentation. In the spring, when vegetation begins to be developed, this fermented liquor is carried into the fields to water the crops.

There are few animal substances of which the nature varies as much as that of urine; the quality of food, or the state of health, produces a sensible change in it.—The urine of animals is more or less abundant and active in its qualities, in proportion as their food is juicy or dry. Those which live upon dry fodder give less urine than those which are fed upon green herbage; but that of the first contains a greater quantity of salts than that of the last; and that which is produced directly by drink, contains less animal matter than that which is secreted from the blood by the urinary organs. There are different states of individuals, which may explain satisfactorily the disagreements in the results which have been given, by the numerous analyses which have been made of this fluid.

Mr. Brandt has found the urine of a cow to contain,

Water,	65
Phosphate of lime,	5
Muriate of potash and ammonia,	15
Sulphate of potash,	6
Carbonate of potash and of ammonia,	4
Urea,	5
	100

Messrs. Fourcroy and Vauquelin have extracted from that of the horse,

Carbonate of lime,	11
Carbonate of potash,	9
Benzoate of soda,	24
Muriate of potash,	9
Urea,	7
Water and mucilage,	940
	1,000

An analysis of human urine by M. Berzelius afforded,

Water,	933
Urea,	30.1
Uric acid,	1
Muriate of ammonia, free lactic acid, lactate of ammonia, and animal matter,	17.4
	981.5

The remainder is composed of sulphates, phosphates, and muriates.

It may be seen from these analyses, that there is a wide difference in the urine of various animals, but that all contain salts which enter into plants, with the water by which they are held in solution; and draw in at the same time those animal portions, which, like urea, are easily soluble, and can be decomposed without difficulty.

Amongst the principles contained in urine, there are some salts undecomposable by the digestive organs of vegetables; such are the phosphate of lime, the muriate and the sulphate of potash. These can serve only to excite and stimulate the organs; but the urea, the mucilage, the uric acid, and other animal matters, must be considered as eminently nutritive. Urine in its recent state should never be employed as manure; it acts with too much force, and has a tendency to dry the plants; it should therefore be either mixed with water, or allowed to ferment.

Urine is very useful for moistening all those substances which enter into compost; it increases the fertilizing properties of each one of them, and facilitates the fermentation of those which need to be decomposed before yielding their nutritive qualities.

Urine, when combined with plaister, lime, &c. forms a very active manure for cold lands.

Bones have, at the present time, become in the hands of the agriculturist a powerful agent in fertilizing the soil. These parts of animals are principally composed of phosphate of lime and of gelatine. Those bones which are most usually employed, contain about equal quantities of phosphate and gelatine. The bones of the ox yield from fifty to fifty-five per cent of gelatine; those of the horse from thirty-six to forty; and those of the hog from forty-eight to fifty.

The bones of young animals contain more gelatine than those of older animals, and have a less compact texture. The bones of the feet of the elk, the roe-buck, stag, and hare afford, upon analysis, from eighty to ninety per cent of phosphate.

When bones are to be employed as a manure, they should be ground fine, and thrown into a heap to ferment. As soon as this action shall have commenced, so as to give out a penetrating odor, the mass should be spread upon the earth, and be afterwards mixed with it; or it may be thrown upon the seed, and buried in the ground with it. When seeds are sown in furrows, it is a good method to place some of the ground bones in the furrows with them.

In some countries the fat and the greater part of the gelatine are extracted from bones, by boiling them in water, before selling them for agricultural purposes.—But by this operation they are deprived of a great part of their fertilizing powers. Upon carefully observing the appearance of a mass of bones under fermentation, I found the surface of a part of them to be covered with a thin coating of an unctous substance, sharp and biting to the taste. This appeared to me to be formed by the combination of gelatine with ammonia; this last being always developed during the decomposition of all animal substances. The observations of M. D' Arcet, to whom we are indebted for a very valuable work upon gelatine, support this opinion.

It is possible, that, when the ground bones are employed without having been first submitted to the commencement of a fermentation, the gelatine is gradually decomposed in the ground, and the same result at length produced; or, we can conceive that water, acting upon the bones, will dissolve the gelatine, and transmit it to plants; and in both these cases the influence of the bones upon vegetation is very great, whether it be considered as a purely nutritive manure, or in the double connexion of a nutritive and stimulating substance.

When bones are calcined in a close vessel, they yield oil and carbonate of ammonia; the proportion of the phosphate is not sensibly diminished; but the gelatine is decomposed. There remains after the operation from sixty-six to seventy-two per cent, of the weight of the bones employed. This residue, broken and pulverized with care, is of great use in the process of refining sugar. After having been used in this process, and become impregnated with ox blood and animal carbon, I have found it to be one of the best manures which I could employ for trefoil and clover. It should be scattered with the hand upon the plants, when vegetation begins to be developed in the spring.

Some of the dry parts of animals, as the horns, hoofs, and claws, approach closely to bones in the nature of their constituent principles; but the proportions of these vary prodigiously. In such parts, gelatine constitutes the largest portion; and for this reason they are more esteemed as manure than the bones. M. Merat-Guillot has found but twenty-seven per cent of phosphate of lime in the horn of a stag, and M. Hatchett, by an analysis of five hundred grains of the horn of an ox, gained only one-fifth part of earthy residuum, of which a little less than one half was phosphate of lime.

The clippings and parings of horns form an excellent manure, of which the effect is prolonged during a succession of years, owing to the difficulty with which water penetrates them, and the little tendency they have to ferment.

A very good manure is likewise formed from wool. According to the ingenious experiments of M. Hatchett, hair, feathers, and wool are only particular combinations of gelatine with a substance analagous to albumen; water can only dissolve them by means of fermentation, which takes place slowly, and after a long time.

One of the most surprising instances of fertile vegetation that I have ever seen, is that of a field in the neighborhood of Montpelier, belonging to a manufacturer of woollen blankets. The owner of this land causes it to be dressed every year with the sweepings of his work-shops; and the harvest of corn and fodder which it produces, are astonishing.

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* A virtual admission, that the vegetable litter of the yards will undergo fermentation in a compact, clayey, cold soil; of course this process will the more readily take place on a porous, light and warm soil. Whence, then the economy of fermentation in the yard, at the expense of the volatile and more valuable parts of the manure? If fermentation will warm a cold soil, it will equally benefit a warm one, which we intend for our corn crop, and where the grand desideratum, in our northern climate, is to accelerate the growth and maturity of the crop.—*Cond.*

It is well known, that the hairs of wool transpire a fluid which hardens upon their surface, but which possesses the property of being easily soluble in water.—This substance has received the name of animal sweat; the water in which wool has been washed contains so much of it, as to make it very valuable as a manure.

I saw, thirty years since, a wool merchant in Montpelier, who had placed his wash-house for wool in the midst of a field, a great part of which he had transformed into a garden. In watering his vegetables, he had used no other water than that of the washings; and the beauty of his productions was so great, as to render his garden a place of general resort. The Genoese collect with care, in the south of France, all they can find of shreds and rags of woollen fabrics, to place at the foot of their olive trees.

According to the analysis of M. Vauquelin, this animal sweat is a soapy substance, consisting of a base of potash, with an excess of oily matter, and containing, besides, some acetate of potash, a little of carbonate and of the muriate of the same base, and a scented animal matter.

The dung of birds is another very valuble manure; differing from that of quadrupeds in the food's being better digested; in containing more animal matter, being richer in salts, and affording some of the principles which are found in the urine of four-footed animals.

The dung of those sea-fowls, which are so numerous in the islands of the Pacific ocean, and of which the excrement furnishes an important article of commerce with South America, as, according to the accounts of M. Humboldt, they import into Peru fifty shiploads of it annually, contains, besides a great quantity of uric acid partly saturated by ammonia and potash, some phosphate of lime, of ammonia and of potash, as well as some oily matter. Davy found the dung of a coromant to contain some uric acid.

The good effects resulting from the use of pigeons' dung, in our country, has caused it to be carefully collected. One hundred parts of this, when fresh, yielded to Davy twenty-five parts of matter soluble in water, whilst the same, after having undergone putrefaction, gave but eight; whence this able chemist concluded with reason, that it was necessary to employ it before being fermented. This is a warm manure, and may be scattered by the hand before covering the seed; or it may be used in the spring upon strong lands, when vegetation appears languid.

The excrement of the domestic fowl approaches nearly in its qualities to that of the pigeon, without, however, possessing the same degree of power. It contains also some uric acid, and may be applied to the same purposes as pigeons' dung.

In the south of France, where they raise many silkworms, they make great use of the larvas, after the silk has been spun from the cocoons. They are spread at the foot of the mulberry and other trees, of which the vegetation is in a languishing condition; and this small quantity of manure reanimates them surprisingly. Upon distilling some of these larvas, I found more ammonia than I have ever met with in any other animal matter.

Night soil forms an excellent manure; but farmers allow it to be wasted, because it is too active to be employed in its natural state, and they know not how either to moderate its action, or to appropriate it during different stages of fermentation to the wants of various kinds of plants.

In Belgium, which has been the cradle of enlightened agriculture, and where good modes of cultivation are continued and constantly improved, they make astonishing use of this kind of manure. The first year of its decomposition, they cultivate upon the soil to which it is applied, oleaginous plants, such as hemp and flax; and the second year sow the land with corn. They likewise mix water with urine, and use it to water the fields in spring when vegetation begins to unfold. This substance is likewise dried and scattered upon fields of cabbage.

The Flemings value this kind of manure so much, that the cities set a high rate upon the privilege of disposing of the cleansings of their privies; and there are, in each one of them, sworn officers for the assistance of those who wish to make purchases. These officers know the degree of fermentation suited to each kind of plant, and to the different periods of vegetation.

We shall find great difficulty in bringing this branch of industry to the same degree of perfection amongst us, that it has arrived at in Belgium, because our farmers do not realize its importance, and have a repugnance to employing this kind of manure. But could they not collect carefully all these matters, mix them with lime, plaster, or gravel, till the odor was dispelled, and then carry the whole upon the fields?

Already, in most of our great cities, the contents of the privies are used for forming *poudrette;* this pulverulent product is sought for by our agriculturists, who acknowledge its good effects; let us hope, that, becoming more enlightened, they will employ the fecal matter itself, as being more rich in nutritive principles, and abounding equally in salts; they can easily govern and moderate the too powerful action of this, by fermentation, or what is still better, by mixing with it plaster, earth, and other absorbents, to correct the odor.

As dunghills are the riches of the fields, a good agriculturist will neglect no means of forming them; it ought to be his first and daily care; for without dung there is no harvest. The scarcity of dunghills, or what is the same thing, the bad state of the crops, sufficiently proves the prejudices, by which the peasant is everywhere governed; and the habitual blindness with which he proceeds in his labors. In our country many of those who cultivate the land, know only the kinds of straw which are suitable for furnishing manure, and in a dunghill of litter, consider them as acting the principal part, whereas they are only feeble accessories.

According to the experiments of Davy, the straw of barley contains only two per cent of substance, soluble in water, and having a slight resemblance to mucilage; the remainder consists entirely of fibre, which can be decomposed only after a long time, and under circumstances calculated to facilitate the operation.

I do not believe that there is in the whole vegetable kingdom, an aliment affording so little nutriment, either for plants or animals, as the dry straw of grain: serving only to fill the stomachs of the latter; and furnishing to the former but about one hundredth part of its weight of soluble manure.

Weeds, leaves of trees, and all the succulent plants which grow so abundantly in ditches and waste lands, under hedges, and by the road side, if cut or pulled when in flower, and slightly fermented, furnish from twenty to twenty-five times more manure than straw does. These plants, carefully collected, furnish to the agriculturist an immense resource for enriching his lands. Besides the advantage arising from the manure furnished by these plants, the agriculturist will find his account in preventing the dissemination of their seeds, which, by propagating in the fields, deprive the crops of the nourishment of the soil. The turf, that borders fields and highways, may be made to answer the same purpose, by cutting it up with all the roots and the earth adhering to them, rotting the whole in a heap, and afterwards carrying the mass upon the fields, or what is still better, by burning it, and dressing the land with the products of the combustion.

If straw did not serve as beds for animals, and did not contribute, at the same time, to their health and cleanliness, it would be better to cut the ears of corn and leave the stalks in the fields; since they serve only as absorbents of the true manures.

It is always said that barn-yard manure, besides its nutritive virtues, possesses the advantage of softening hard lands, and rendering them permeable by air and water. I do not deny the truth of this; I even acknowledge that it owes this property almost entirely to the straw which it contains; but the same effect would be produced by burying the straw upon the spot.

[*Remainder in our next.*]

Young Men's Department.

Self-Culture.

BY W. E. CHANNING, D.D.

(*Concluded.*)

Among the best people, especially among the more religious, there are some, who, through disgust with the violence and frauds of parties, withdraw themselves from all political action. Such, I conceive, do wrong. God has placed them in the relations, and imposed on them the duties of citizens; and they are no more authorized to shrink from these duties than from those of sons, husbands, or fathers. They owe a great debt to their country, and must discharge it by giving support to what they deem the best men and the best measures. Nor let them say, that they can do nothing. Every good man, if faithful to his convictions, benefits his country. All parties are kept in check by the spirit of the better portion of people, whom they contain. Leaders are always compelled to ask what their party will bear, and to modify their measures, so as not to shock the men of principle within their ranks. A good man, not tamely subservient to the body with which he acts, but judging it impartially, criticising it freely, bearing testimony against its evils, and withholding his support from wrong, does good to those around him, and is cultivating generously his own mind.

I respectfully counsel those, whom I address, to take part in the politics of their country. These are the true discipline of a people, and do much for their education. I counsel you to labor for a clear understanding of the subjects which agitate the community, to make them your study, instead of wasting your leisure in vague, passionate talk about them. The time, thrown away by the mass of the people on the rumors of the day, might, if better spent, give them a good acquaintance with the constitution, laws, history and interests of their country, and thus establish them in those great principles by which particular measures are to be determined. In proportion as the people thus improve themselves, they will cease to be the tools of designing politicians. Their intelligence, not their passions and jealousies, will be addressed by those who seek their votes. They will exert, not a nominal, but a real influence on the government and the destinies of the country, and at the same time will forward their own growth in truth and virtue.

I ought not to quit this subject of politics, considered as a means of self-culture, without speaking of newspapers; because these form the chief reading of the bulk of the people. They are the literature of multitudes. Unhappily their importance is not understood; their bearing on the intellectual and moral cultivation of the community, little thought of. A newspaper ought to be conducted by one of our most gifted men, and its income should be such as to enable him to secure the contribution of men as gifted as himself. But we must take newspapers as they are; and a man, anxious for self-culture, may turn them to account, if he will select the best within his reach. He should exclude from his house such as are venomous or scurrilous, as he would a pestilence. He should be swayed in his choice, not merely by the ability with which a paper is conducted, but still more by its spirit, by its justice, fairness and steady adherence to great principles. Especially, if he would know the truth, let him hear both sides. Let him read the defence as well as the attack. Let him not give his ear to one party exclusively. We condemn ourselves, when we listen to reproaches thrown on an individual and turn away from his exculpation; and is it just to read continual, unsparing invective against large masses of men, and refuse them the opportunity of justifying themselves?

A new class of daily papers has sprung up in our country, sometimes called cent papers, and designed for circulation among those who cannot afford costlier publications. My interest in the working class induced me sometime ago to take one of these, and I was gratified to find it not wanting in useful matter. Two things however gave me pain. The advertising columns were devoted very much to patent medicines; and when I considered that a laboring man's whole fortune is his health I could not but lament, that so much was done to seduce him to the use of articles, more fitted, I fear, to undermine than to restore his constitution. I was also shocked by accounts of trials in the police court. These were written in a style adapted to the most uncultivated minds, and intended to turn into matters of sport the most painful and humiliating events of life. Were the newspapers of the rich to attempt to extract amusement from the vices and miseries of the poor, a cry would be raised against them, and very justly. But is it not something worse, that the poorer classes themselves should seek occasions of laughter and merriment in the degradation, the crimes, the woes, the punishments of their brethren, of those who are doomed to bear like themselves the heaviest burdens of life, and who have sunk under the temptations of poverty? Better go to the hospital, and laugh over the wounds and writhings of the sick or the ravings of the insane, than amuse ourselves with brutal excesses and infernal passions, which not only expose the criminal to the crushing penalties of human laws, but incur the displeasure of Heaven, and, if not repented of, will be followed by the fearful retribution of the life to come.

One important topic remains. That great means of self-improvement, Christianity, is yet untouched, and its greatness forbids me now to approach it. I will only say, that if you study Christianity in its original records and not in human creeds; if you consider its clear revelations of God, its life-giving promises of pardon and spiritual strength, its correspondence to man's reason, conscience and best affections, and its adaptation to his wants, sorrows, anxieties and fears; if you consider the strength of its proofs, the purity of its precepts, the divine greatness of the character of its author, and the immortality which it opens before us, you will feel yourselves bound to welcome it joyfully, gratefully, as affording aids and incitements to self-culture, which would vainly be sought in all other means.

I have thus presented a few of the means of self-culture. The topics, now discussed, will I hope suggest others to those who have honored me with their attention, and create an interest which will extend beyond the present hour. I owe it however to truth to make one remark. I wish to raise no unreasonable hopes. I must say then, that the means, now recommended to you, though they will richly reward every man of age who will faithfully use them, will yet not produce their full and happiest effect, except in cases where early education has prepared the mind for future improvement. They, whose childhood has been neglected, though they may make progress in future life, can hardly repair the loss of their first years; and I say this, that we may all be excited to save our children from this loss, that we may prepare them, to the extent of our power, for an effectual use of all the means of self-culture, which adult age may bring with it. With these views, I ask you to look with favor on the recent exertions of our legislature and of private citizens, in behalf of our public schools, the chief hope of our country. The legislature has of late appointed a board of education, with a secretary, who is to devote his whole time to the improvement of public schools. An individual more fitted to this responsible office, than the gentleman who now fills it,* cannot, I believe, be found in our community; and if his labors shall be crowned with success, he will earn a title to the gratitude of the good people of this State, unsurpassed by that of any other living citizen. Let me also recall to your minds a munificent individual,† who, by a generous donation, has encouraged the legislature to resolve on the establishment of one or more institutions called Normal Schools, the object of which is, to prepare accomplished teachers of youth, a work, on which the progress of education depends more than on any other measure. The efficient friends of education are the true benefactors of their country, and their names deserve to be handed down to that posterity, for whose highest wants they are generously providing.

There is another mode of advancing education in our whole country, to which I ask your particular attention. You are aware of the vast extent and value of the public lands of the union. By annual sales of these, large amounts of money are brought into the national treasury, which are applied to the current expenses of the government. For this application there is no need. In truth, the country has received detriment from the excess of its revenues. Now, I ask, why shall not the public lands be consecrated, (in whole or in part, as the case may require,) to the education of the people? This measure would secure at once what the country most needs, that is, able, accomplished, quickening teachers of the whole rising generation. The present poor remuneration of instructers is a dark omen, and the only real obstacle which the cause of education has to contend with. We need for our schools gifted men and women, worthy, by their intelligence and their moral power, to be entrusted with a nation's youth; and to gain these we must pay them liberally, as well as afford other proofs of the consideration in which we hold them. In the present state of the country, when so many paths of wealth and promotion are opened, superior men cannot be won to an office so responsible and laborious as that of teaching, without stronger inducements than are now offered, except in some of our large cities. The office of instructer ought to rank and be recompensed as one of the most honorable in society; and I see not how this is to be done, at least in our day, without appropriating to it the public domain. This is the people's property, and the only part of their property which is likely to be soon devoted to the support of a high order of institutions for public education. This object, interesting to all classes of society, has peculiar claims on those, whose means of improvement are restricted by narrow circumstances. The mass of the people should devote themselves to it as one man, should toil for it with one soul. Mechanics, Farmers, Laborers! Let the country echo with your united cry, "The Public Lands for Education." Send to the public councils men who will plead this cause with power. No party triumphs, no trades-unions, no associations, can so contribute to elevate you as the measure now proposed. Nothing but a higher education can raise you in influence and true dignity. The resources of the public domain, wisely applied for successive generations to the culture of society and of the individual, would create a new people, would awaken through this community intellectual and moral energies, such as the records of no country display, and as would command the respect and emulation of the civilized world. In this grand object, the working men of all parties, and in all divisions of the land, should join with an enthusiasm not to be withstood. They should separate it from all narrow and local strifes. They should not suffer it to be mixed up with the schemes of politicians. In it, they and their children have an infinite stake. May they be true to themselves, to posterity, to their country, to freedom, to the cause of mankind.

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* Horace Mann.

† Edmund Dwight, Esq.

III. I am aware that the whole doctrine of this discourse will meet opposition. There are not a few who will say to me, "What you tell us sounds well; but it is impracticable. Men, who dream in their closets, spin beautiful theories; but actual life scatters them, as the wind snaps the cobweb. You would have all men to be cultivated; but necessity wills that most men shall work; and which of the two is likely to prevail? A weak sentimentality may shrink from the truth; still it *is* true, that most men were made, not for self-culture, but for toil."

I have put the objection into strong language, that we may all look it fairly in the face. For one I deny its validity. Reason as well as sentiment rises up against it. The presumption is certainly very strong, that the All-wise Father, who has given to every human being, reason and conscience and affection, intended that these should be unfolded; and it is hard to believe, that He, who, by conferring this nature on all men, has made all his children, has destined the great majority to wear out a life of drudgery and unimproving toil, for the benefit of a few. God cannot have made spiritual beings to be dwarfed. In the body we see no organs created to shrivel by disuse; much less are the powers of the soul given to be locked up in perpetual lethargy.

Perhaps it will be replied, that the purpose of the Creator is to be gathered, not from theory, but from facts; and that it is a plain fact, that the order and prosperity of society, which God must be supposed to intend, require from the multitude the action of their hand and not the improvement of their minds. I reply, that a social order, demanding the sacrifice of the mind, is very suspicious, that it cannot indeed be sanctioned by the Creator. Were I, on visiting a strange country, to see the vast majority of the people maimed, crippled, and bereft of sight, and were I told that social order required this mutilation, I should say, Perish this order. Who would not think his understanding as well as best feelings insulted, by hearing this spoken of as the intention of God. Nor ought we to look with less aversion on a social system, which can only be upheld by crippling and blinding the Minds of the people.

But to come nearer to the point. Are labor and self-culture irreconcilable to each other? In the first place, we have seen that a man in the midst of labor, may and ought to give himself to the most important improvements, that he may cultivate his sense of justice, his benevolence, and the desire of perfection. Toil is the school for these high principles; and we have here a strong presumption, that, in other respects, it does not necessarily blight the soul. Next we have seen, that the most fruitful sources of truth and wisdom are not books, precious as they are, but experience and observation; and these belong to all conditions. It is another important consideration, that almost all labor demands intellectual activity, and is best carried on by those who invigorate their minds; so that the two interests, toil and self-culture, are friends to each other. It is Mind, after all, which does the work of the world, so that the more there is of mind, the more work will be accomplished. A man, in proportion as he is intelligent, makes a given force accomplish a greater task, makes skill take the place of muscles, and with less labor, gives a better product. Make men intelligent and they become inventive. They find shorter processes. Their knowledge of nature helps them to turn its laws to account, to understand the substances on which they work, and to seize on useful hints, which experience continually furnishes. It is among workmen, that some of the most useful machines have been contrived. Spread education, and, as the history of this country shows, there will be no bounds to useful inventions.

But it is said, that any considerable education lifts men above their work, makes them look with disgust on their trades as mean and low, makes drudgery intolerable. I reply that a man becomes interested in labor, just in proportion as the mind works with the hands. An enlightened farmer, who understands agricultural chemistry, the laws of vegetation, the structure of plants, the properties of manures, the influences of climate, who looks intelligently on his work and brings his knowedge to bear on exigencies, is a much more cheerful as well as more dignified laborer, than the peasant, whose mind is akin to the clod on which he treads, and whose whole life is the same dull, unthinking, unimproving toil. But this is not all. Why is it, I ask, that we call manual labor low, that we associate with it the idea of meanness, and think that an intelligent people must scorn it? The great reason is, that, in most countries, so few intelligent people have been engaged in it. Once let cultivated men plough and dig and follow the commonest labors, and ploughing, digging and trades will cease to be mean. It is the man who determines the dignity of the occupation, not the occupation which measures the dignity of the man. Physicians and surgeons perform operations less cleanly than fall to the lot of most mechanics. I have seen a distinguished chemist covered with dust like a laborer. Still these men were not degraded. Their intelligence gave dignity to their work, and so our laborers, once educated, will give dignity to their toils.—Let me add, that I see little difference in point of dignity, between the various vocations of men. When I see a clerk, spending his days in adding figures, perhaps merely copying, or a teller of a bank counting money, or a merchant selling shoes and hides, I cannot see in these occupations greater respectableness than in making leather, shoes, or furniture. I do not see in them greater intellectual activity than in several trades. A man in the fields seems to have more chances of improvement in his work, than a man behind the counter, or a man driving the quill. It is the sign of a narrow mind, to imagine as many seem to do, that there is a repugnance between the plain, coarse exterior of a laborer and mental culture, especially the more refining culture. The laborer, under his dust and sweat, carries the grand elements of humanity, and he may put forth its highest powers. I doubt not, there is as genuine enthusiasm in the contemplation of nature and in the perusal of works of genius, under a homespun garb as under finery. We have heard of a distinguished author, who never wrote so well, as when he was full dressed for company. But profound thought and poetical inspiration have most generally visited men, when, from narrow cicumstances or negligent habits, the rent coat and shaggy face have made them quite unfit for polished saloons. A man may see truth, and may be thrilled with beauty, in one costume or dwelling as well as another; and he should respect himself the more for the hardships, under which his intellectual force has been developed.

But it will be asked, how can the laboring classes find time for self-culture. I answer, as I have already intimated, that an earnest purpose finds time or makes time. It seizes on spare moments, and turns larger fragments of leisure to golden account. A man, who follows his calling with industry and spirit, and uses his earnings economically, will always have some portion of the day at command; and it is astonishing, how fruitful of improvement a short season becomes, when eagerly seized and faithfully used. It has often been observed, that they, who have most time at their disposal, profit by it least. A single hour in the day, steadily given to the study of an interesting subject brings unexpected accumulations of knowledge. The improvements made by well disposed pupils, in many of our country schools, which are open but three months in the year, and in our Sunday schools, which are kept but one or two hours in the week, show what can be brought to pass by slender means. The affections, it is said sometimes crowd years into moments, and the intellect has something of the same power. Volumes have not only been read, but written, in flying journeys. I have known a man of vigorous intellect, who had enjoyed few advantages of early education, and whose mind was almost engrossed by the details of an extensive business, but who composed a book of much original thought, in steam-boats and on horseback, while visiting distant customers. The succession of the seasons gives to many of the working class opportunities for intellectual improvement. The winter brings leisure to the husbandman, and winter evenings to many laborers in the city. Above all, in Christian countries, the seventh day is released from toil. The seventh part of the year, no small portion of existence, may be given by almost every one to intellectual and moral culture. Why is it that Sunday is not made a more effectual means of improvement? Undoubtedly the seventh day is to have a religious character; but religion connects itself with all the great subjects of human thought, and leads to and aids the study of all. God is in nature. God is in history. Instruction in the works of the Creator, so as to reveal his perfection in their harmony, beneficence and grandeur; instruction in the histories of the church and the world, so as to show in all events his moral government, and to bring out the great moral lessons in which human life abounds; instruction in the lives of philanthropists, of saints, of men eminent for piety and virtue; all these branches of teaching enter into religion, and are appropriate to Sunday; and through these, a vast amount of knowledge may be given to the people. Sunday ought not to remain the dull and fruitless season, that it now is to multitudes. It may be clothed with a new interest and a new sanctity. It may give a new impulse to the nation's soul.—I have thus shown, that time may be found for improvement; and the fact is, that among our most improved people, a considerable part consists of persons, who pass the greatest portion of every day at the desk, in the counting room, or in some other sphere, chained to tasks which have very little tendency to expand the mind. In the progress of society with the increase of machinery, and with other aids which intelligence and philanthropy will multiply, we may expect that more and more time will be redeemed from manual labor, for intellectual and social occupations.

But some will say, "Be it granted that the working classes may find some leisure; should they not be allowed to spend it in relaxation? Is it not cruel, to summon them from toils of the hand to toils of the mind? They have earned pleasure by the day's toil and ought to partake it." Yes, let them have pleasure. Far be it from me to dry up the fountains, to blight the spots of verdure, where they refresh themselves after life's labors. But I maintain, that self-culture multiplies and increases their pleasures, that it creates new capacities of enjoyment, that it saves their leisure from being, what it too often is, dull and wearisome, that it saves them from rushing for excitement to indulgencies destructive to body and soul. It is one of the great benefits of self-improvement, that it raises a people above the gratifications of the brute, and gives them pleasures worthy of men. In consequence of the present intellectual culture of our country, imperfect as it is, a vast amount of enjoyment is communicated to men, women and children, of all conditions, by books, an enjoyment unknown to ruder times. At this moment, a number of gifted writers are employed in multiplying entertaining works. Walter Scott, a name conspicuous among the brightest of his day, poured out his inexhaustible mind in fictions, at once so sportive and thrilling, that they have taken their place among the delights of all civilized nations. How many millions have been chained to his pages! How many melancholy spirits has he steeped in forgetfulness of their cares and sorrows! What multitudes, wearied by their day's work, have owed some bright evening hours and balmier sleep to his magical creations! And not only do fictions give pleasure. In proportion as the mind is cultivated, it takes delight in history and biography, in descriptions of nature, in travels, in poetry, and even graver works. Is the laborer then defrauded of pleasure by improvement? There is another class of gratifications to which self-culture introduces the mass of the people. I refer to lectures, discussions, meetings of associations for benevolent and literary purposes, and to other like methods of passing the evening, which every year is multiplying among us. A popular address from an enlightened man, who has the tact to reach the minds of the people, is a high gratification, as well as a source of knowledge. The profound silence in our public halls, where these lectures are delivered to crowds, show that cultivation is no foe to enjoyment.—I have a strong hope, that by the progress of intelligence, taste, and morals among all portions of society, a class of public amusements will grow up among us, bearing some resemblance to the theatre, but purified from the gross evils which degrade our present stage, and which, I trust, will seal its ruin. Dramatic performances and recitations are means of bringing the mass of the people into a quicker sympathy with a writer of genius, to a profounder comprehension of his grand, beautiful, touching conceptions, than can be effected by the reading of the closet. No commentary throws such a light on a great poem or any impassioned work of literature, as the voice of a reader or speaker, who brings to the task a deep feeling of his author and rich and various powers of expression. A crowd, electrified by a sublime thought, or softened into a humanizing sorrow, under such a voice, partake a pleasure at once exquisite and refined; and I cannot but believe, that this and other amusements, at which the delicacy of woman and the purity of the christian can take no offence, are to grow up under a high social culture. Let me only add, that in proportion as culture spreads among a people, the cheapest and commonest of all pleasures, conversation, increases in delight. This, after all, is the great amusement of life, cheering us round our hearths, often cheering our work, stirring our hearts gently, acting on us like the balmy air or the bright light of heaven, so silently and continually, that we hardly think of its influence. This source of happiness is too often lost to men of all classes for want of knowledge, mental activity, and refinement of feeling; and do we defraud the laborer of his pleasure, by recommending to him improvements which will place the daily, hourly, blessings of conversation within his reach.

I have thus considered some of the common objections which start up when the culture of the mass of men is insisted on, as the great end of society. For myself, these objections seem worthy little notice. The doctrine is too shocking to need refutation, that the great majority of human beings, endowed as they are with rational and immortal powers, are placed on earth, simply to toil for their own animal subsistence, and to minister to the luxury and elevation of the few. It is monstrous, it approaches impiety, to suppose that God has placed insuperable barriers to the expansion of the free illimitable soul. True, there are obstructions in the way of improvement. But in this country, the chief obstructions lie, not in our lot, but in ourselves, not in outward hardships, but in our worldly and sensual propensities; and one proof of this is, that a true self culture is as little thought of on exchange as in the workship, as little among the prosperous as among those of narrower conditions. The path to perfection is difficult to men in every lot; there is no royal road for rich or poor. But difficulties are meant to rouse, not discourage. The human spirit is to grow strong by conflict. And how much has it already overcome! Uuder what burdens of oppression has it made its way for ages. What mountains of difficulty has it cleared! And with all this experience, shall we say, that the progress of the mass of men is to be despaired of, that the chains of bodily necessity are too strong and ponderous to be broken by the mind, that servile, unimproving drudgery is the unalterable condition of the multitude of the human race?

I conclude with recalling to you the happiest feature of our age, and that is, the progress of the mass of the people in intelligence, self-respect, and all the comforts of life. What a contrast does the present form with past times? Not many ages ago, the nation was the property of one man, and all its interests were staked in perpetual games of war, for no end but to build up his family, or to bring new territories under his yoke. Society was divided into two classes, the highborn and the vulgar, separated from one another by a great gulf, as impassable as that between the saved and the lost. The people had no significance as individuals, but formed a mass, a machine, to be wielded at pleasure by their lords. In war which was the great sport of the times, those brave knights, of whose prowess we hear, cased themselves and their horses in armour, so as to be almost invulnerable, whilst the common people on foot were left, without protection, to be hewn in pieces or trampled down by their betters. Who, that compares the condition of Europe a few ages ago, with the present state of the world, but must bless God for the change. The grand distinction of modern times is, the emerging of the people from brutal degradation, the gradual recognition of their rights, the gradual diffusion among them of the means of improvement and happiness, the creation of a new power in the state, the power of the people. And it is worthy remark, that this revolution is due in a great degree to religion, which, in the hands of the crafty and aspiring, had bowed the multitude to the dust, but which, in the fulness of time, began to fulfil its mission of freedom. It was religion, which, by teaching men their near relation to God, awakened in them the consciousness of their importance as individuals. It was the struggle for religious rights, which opened men's eyes to all their rights. It was resistance to religious usurpation, which led men to withstand political oppression. It was religious discussion, which roused the minds of all classes to free and vigorous thought. It was religion, which armed the martyr and patriot in England against arbitrary power, which braced the spirits of our fathers against the perils of the ocean and wilderness, and sent them to found here the freest and most equal state on earth.

Let us thank God for what has been gained. But let us not think every thing gained. Let the people feel that they have only started in the race. How much remains to be done? What a vast amount of ignorance, intemperance, coarseness, sensuality, may still be found in our community! What a vast amount of mind is palsied and lost! When we think, that every house might be cheered by intelligence, disinterestedness and refinement, and then remember, in how many houses the higher powers and affections of human nature are buried as in tombs, what a darkness gathers over society. And how few of us are moved by this moral desolation? How few understand, that to raise the depressed, by a wise culture, to the dignity of men, is the highest end of the social state? Shame on us, that the worth of a fellow creature is so little felt.

I would, that I could speak with an awakenig voice to the people, of their wants, their privileges, their responsibilities. I would say to them, you cannot, without guilt and disgrace, stop where you are. The past and the present call on you to advance. Let what you have gained be an impulse to something higher. Your nature is too great to be crushed. You were not created what you are, merely to toil, eat, drink and sleep, like the inferior animals. If you will, you can rise. No power in society, no hardship in your condition can depress you, keep you down, in knowledge, power, virtue, influence, but by your own consent. Do not be lulled to sleep by the flatteries which you hear, as if your participation in the national sovereignty made you equal to the noblest of your race. You have many and great deficiencies to be remedied: and the remedy lies, not in the ballot box, not in the exercise of your political powers, but in the faithful education of yourselves and your children. These truths you have often heard and slept over. Awake! Resolve earnestly on self-culture.—Make yourselves worthy of your free institutions, and strengthen and perpetuate them by your intelligence and your virtues.

Culture of the Mind.

Mind makes the man—
Want of it the fellow.

This motto, somewhat altered from Pope, has a peculiar bearing upon the agriculturist. The farmer possesses all the privileges, and most of the advantages, of other classes of the community; and if he will improve his mind, his influence will be as potent, and his example as salutary, as the influence and example of any other profession. The richest natural soil will produce neither bread nor meat without culture. The highest natural gifts of intellect will not profit the possessor, unless, like the rich soil, they are cultivated with assiduity and care. Good culture not only improves the mind, and fits it for high mental gratification and enjoyment, but it lightens the toils, and greatly increases the profits of labor. Franklin owed his fame, his fortune and his usefulness, to his early habits of study, of industry, and of virtue. Without these early habits, he probably would have risen to neither fame nor fortune. Some minds, like some soils, are naturally richer than others; yet even apparently sterile minds, like infertile soils, may, by good culture, be made to yield great returns. Let the young farmer, then, aspire to the highest honors of the nation, by endeavoring to improve his intellectual faculties; and if he does not attain the goal of his wishes, he may be sure of greatly improving his condition, and of benefitting others, provided always, that he is industrious and honest. However menial and servile agricultural labor may have been considered among the privileged classes of Europe; and however degrading it may yet be held by the would-be aristocracy of America, it has commanded the highest respects of good men in every age, and constituted, in our country, the favorite study and employment of a Washington, a Jefferson, a Madison, a Monroe, and a Jackson: of an Humphrey, a Livingston, a Shelby, an Armstrong, a Lowell, a Lincoln, and a great many others, whose names will stand out in bold relief upon the future annals of our country. Let, then, no young aspirant for fame and usefulness, shun rural employment, because it does not feed his hopes of distinction, and let no one, engaged in this employment forego the opportunity, which his condition presents, of cultivating his mind, as the surest means of sinking *the fellow*, and rising to the dignity of *the man*.

☞ *Price of advertising*, $1 *for three insertions of ten lines or less.*

GREAT SALE of IMPROVED SHORT-HORN CATTLE AND BLOOD HORSES.—The subscribers will sell at auction, on *Tuesday the* 10*th day of September next*, at the farm of Samuel Allen, on the Niagara river, two miles below Black-Rock, the entire stock of Imported Short-Horn Cattle, for several years past bred on the farm of L. F. Allen, on Grand-Island.

The herd consists of about thirty, including Cows, Bulls, Heifers and Calves. Several of them have been imported by one of the subscribers, direct from England, and with their produce, are surpassed by few animals in the country. In addition to these, every animal offered is the direct descendant of thorough bred imported stock, and of unquestionable purity of blood.

With the above will be sold twenty select and beautiful animals, consisting of pure Devon; crosses of different degrees between the Devon and Improved Short-Horns; crosses of the Alderney and Ayreshire with the Short-Horns. These are Cows, Heifers and Calves, all superior animals.

ALSO—The superb horse "BELL-FOUNDER," got by imported Bellfounder, the best thorough-bred trotting horse ever in America, and out of the imported mare Lady Allport, bred by T. T. Kissam, Esq. of Long-Island. The stock of this horse is unsurpassed in the country for size, speed and action—together with several elegant, thorough-bred breeding mares and fillies, and two or three young horse colts, the produce of the above. These animals are of the highest character as roadsters, and as trotters, no blood in the country has excelled them. They are all from the best stables of Long-Island. Also, a beautiful pair of full-bred matched fillies, five years old. All these horses are blood bay.

This entire stock will be sold without reserve, to the highest bidder, commencing at 10 o'clock A. M. They can be shipped within an hour from the farm, on board the steamboats to go up the Lakes, or on board canal boats at the farm.

Catalogues of the animals, with descriptions and pedigrees, will be prepared, and the stock may be viewed at the farm previous to the sale. A credit of sixty days will be given on approved notes or acceptances, payable at a bank either in Buffalo, Albany, or New-York, for all sums over $300.

LEWIS F. ALLEN,
SAMUEL ALLEN.

Black-Rock, N. Y. June 25, 1839.

The "Ohio Farmer" and "Lexington (Ky.) Intelligencer," will please insert the above till first September, and send their bills to the subscribers for payment. ts.

☞ **A FEW COPIES** of the published volumes of the "FARMER'S CABINET," bound in boards, published at Philadelphia, have been received, and are for sale at the Cultivator office. A subscription has also been received for the "BOSTON CULTIVATOR." Subscriptions are also received for any and all of the agricultural publications published in the United States.

We repeat the remark, that no one periodical can, or does contain, all that it is interesting for the farmer to know, in order to improve his business; and that we shall very cheerfully lend our aid, free of charge, to furnish any gentleman, or association, with such agricultural periodicals as they may desire. Our professed object being the promotion of agricultural improvement, the conductors of agricultural journals are persuaded, that the harvest will be in proportion to the seed sown. August, 1839. tf

IMPROVED DURHAM SHORT-HORNS.—Mr. WHITAKER'S third sale of high bred improved Short-Horns, by the ship Napier, will be held at Powelton, near Philadelphia, on Friday the 20th September, 1839, at 10 o'clock A. M.

The subscriber is authorised by Col. Powell to say, that all the best cattle which he has at any time imported, and the improved short-horns which he considered the best in England, were either in Mr. Whitaker's possession, or were derived from his fold. Col. Powell has not the slightest interest in Mr. Whitaker's sales. Philadelphia, July 15, 1839.

ts C. J. WOOLBERT, *Auctioneer.*

NEW-YORK URATE AND POUDRETTE COMPANY, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundance, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1,-211, post-office, New-York, or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. *New-York, July* 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them. aug–4t.

WATKINS' PATENT WHEAT FANS, GRAIN CRADLES, and every other variety of tool required for harvesting, for sale by R. SINCLAIR & Co.
July–2t Baltimore, Md.

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Published here, the Rural Library, S. Fleet, editor; a few copies of 1st vol. for sale. The object of this work is to constitute a library at the least possible expense. 2d vol. commencing with Prof. Low's Elements of Practical Agriculture, with nearly 250 fine engravings; subscription $3. Subscriptions received for the Genesee Farmer, Cultivator, &c.

July–3t J. W. WEAVER & Co. 79 Barclay-st. N.Y.

FOR SALE—A splendid Farm, in the town of Hillsdale, Columbia county, N. Y. situated 18 miles east of the city of Hudson, containing about 208 acres of first rate land, about 180 of which is fine level arable soil, of an excellent quality, in a good state of cultivation, and on a very public road from New-York to Albany, and not surpassed by any in Columbia, for fertility; the remainder in fine timber; about 30 acres of good pine and chestnut timber. This situation is the most splended in the town of Hillsdale. The farm can conveniently be divided in to two farms, giving an equal quantity of timber land to each. There is a beautiful grove of fruit and ornamental trees about the main dwelling; also three other DWELLING-HOUSES, three Barns, besides Hay Barns and Barracks, Sheds, &c. Also, out-houses of almost every description, and in first rate order.

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THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

The Crops in the West,

Our correspondent at Black-Rock, writes, July 20:—"The crops all, save grass, which is tolerable, are enormous in this region. The world never saw, before, such crops in Western New-York, Ohio, and the great west, in the way of wheat, as this year. It will not exceed seventy-five cents a bushel west of this, if it is so much; possibly not over fifty to sixty cents. The millers will learn caution from their great temerity and losses, and the farmers, hundreds of whom are now lamenting over the last crop, for which they had refused high prices, will learn to take a good price when offered hereafter."

Mr. Colman's Agricultural Report.

There are some items in this report which we go back to notice; and,

1. "*The manufacture of Charcoal.*—The growth of Mount Washington is principally white birch and chesnut, with some maple and oak. A great business of the inhabitants on the mountain, and of many persons in the neighborhood, is the conversion of this wood into coal, of which 100,000 bushels are stated to be annually made. Two and a half cords of wood are required to make 100 bushels of coal. By good management, two cords will make 100 bushels. The wood standing is valued at from 50 to 75 cents per cord. A kiln of common size contains from 25 to 30 cords. The chopping of two cords for the kiln, is considered a good day's work for a man. Collecting and drawing together on good ground, requires five days. The covering of a kiln requires three days' work. The burning of a kiln is twelve days' work. The coal brings 12½ to 13 cents at Hudson, about 24 miles distance, or 5½ to 6½ at Riga ironworks."

We introduce this extract, for the purpose of suggesting some facts which may benefit both the burner and the buyer of charcoal, which has come to be an article of great consumption in our towns and villages. We have extensive ranges of mountains on the east, in Rensselaer, and on the west, in Schoharie, covered with wood, but too remote from navigable waters, and from large towns, to admit of the fuel being carried to market, except in the form of charcoal. When economically managed, this article is made a source of profit, although the transportation to market may be 20 or 30 miles. A farmer in Schoharie, living 28 miles from the city, informed us, that in seven years he has paid for a new farm, got a large portion of it under good improvement, and built comfortable buildings, almost exclusively from charcoal which he has himself made and marketed from wood growing upon it.

The interests of both the buyer and seller, require that charcoal be properly burnt. Of the seller, because, if properly managed, he gets a third more coal than when the burning process is badly managed, and has a more ready market. Of the buyer, because he gets a far better article. The value of charcoal is determined by its specific weight. A hundred *pounds* of pine charcoal is worth as much to the consumer as a hundred *pounds* of hickory or maple charcoal, though the former may exceed the latter in volume one-half. It is *weight,* not *bulk,* that determines its intrinsic value.—Hence it would be a wise municipal regulation to regard the standard of value by weight, taking care that the wood is thoroughly charred.

To obtain the largest quantity, and best quality of coal, it is necessary to exclude the air from the pit, while in the process of burning. The quality and quantity will depend upon this exclusion. If burnt without any covering, there would be little or no charcoal, and that little would be inferior. Hence it is essential, that not only the coal pit be well covered, and be kept well covered, but that the interstices between the wood be filled with some substance that will exclude the air, without retarding the burning process. Dr. Bull, whose excellent experiments and remarks upon this subject we cannot now lay our hands upon, directs, that these interstices be filled, as the wood is fitted in the pit, with the coal dust of former pits, a work of no great labor; and that this will not only give more coal, but better coal. Coal burnt in this mode will have a solid and brassy surface, a sonorous sound, and comparatively great specific weight—criteria which the buyer should especially look for. Charcoal badly burnt, will, on the contrary, exhibit a crumbly soft surface, a dark color, and be comparatively light.

2. *Marble quarries.*—Upon the eastern border of Berkshire, we meet with that extensive marble formation, which extends, in a direction nearly north and south, from Long-Island Sound to the northern boundary of Vermont, at Swanton; and the quarries of Sheffield, West-Stockbridge, Hancock, &c. are extensively worked. The marble for the Girard College, at Philadelphia, is obtained from the first named town; and blocks weighing from seven to thirteen tons, have been transported across to Hudson, 24 to 26 miles, by oxen and horse teams.

3. *The agricultural capacities of Berkshire* are great. With a district highly congenial to the rearing of cattle, and the extension of the dairy; within a short distance of navigable waters, and great facilities for transportation to market; and a soil highly favorable to root crops and coarse grains, on which to fatten them, the agriculture of Berkshire admits of great improvement.—The more cattle, the more manure; and the more manure, the higher may be the condition of the land, and the greater the return in arable crops.

4. *Domestic Economy.*—"In looking over my returns," says the commissioner, "I was struck with the remarks of a man of much practical wisdom, and one of the best farmers of the commonwealth. He says, 'that a farmer should produce upon his farm, all those supplies for his family, which the farm can be made to yield.'"

This is true in regard both to the individual farmer, and a nation of farmers. The more either subsist upon the products of their own labor, the more independent they are, and generally the more prosperous too. Mr. Colman remarks upon this good rule of olden times:—

"In his case this is done, within doors and without; for there the spinning-wheel has not forgotten to turn round, nor the shuttle to speed its flight. In this *cottage,* [we suppose the commissioner means *farm-house,*] whose neat and beautiful arrangements cannot be surpassed, the clothing, the bedding and the carpeting, were all the product of their own fields and flocks. I shall not soon forget the unpretending and hearty hospitality of these enviable dwellings. I have slept many a time under a silken canopy, and trodden many a carpet as soft as the pride of eastern luxury could make it; but never with any thing like the sentiment of honest pride and independence with which I saw here the floors spread with carpets made from their flocks, which for fineness and beauty the foot of a princess need not disdain; and on a cold night slept in woollen sheets from their looms, as soft as the shawls of Cashmere, [rather high colouring;] and wiped my face with towels spun with their own hands, from their own flax, of a whiteness as transparent as the drifted snow. In such beautiful examples of domestic management, it is delightful to see with how limited means the best comforts and luxuries of life may be purchased. Nor were these instances few. The county of Berkshire abounds with examples of this domestic comfort and independence. Much to be regretted will be the change, which has already invaded many parts of the state, where, under the pretence of superior cheapness, these household fabrics shall give place to the more showy but flimsey products of foreign industry; and the healthy exercise of domestic labor and household cares shall be deemed degrading in our wives and daughters, and exchanged for the idleness and frivolities of pride and luxury."

5. *Composts and Liquid Manures.*—The commissioner urges increased attention to manures, as "the very sinews of agriculture; its food; its life-blood." He recommends that manures be mixed with earths, in the form of composts, in order to preserve their gaseous and liquid properties. In this way, he says, the amount of manure is greatly increased.

The subject of composts is one of calculation. If manure ferments in the yard, or upon the surface, a great portion of its fertilizing materials are undoubtedly wasted. It is no less true, that if the fermentation takes place while the dung is in a commingled state, with earthy matters, that the earths will absorb, in a measure, the gaseous and liquid portions of the manure, and hold them, and when applied to the land, give them off to the growing crops. Judge Hecock, a former professor of agriculture, contends, that these composts should be in the soil of the field where the manures are to operate. That by this mode, the expense of carting the earth to the yard, and afterwards to the field is saved. Mr. Colnan thinks they should be formed in the yard. Our opinion coincides with Judge Hecock's. We can have no more of the cat than her skin. The earths can only gain what the dung loses; and if the change takes place in the soil, the double expense of transportation is saved.

We contend, that all the dung of the stable and cattle yards should be applied, in spring, to hoed crops. If it has been spread over properly constructed yards, which retain the liquids, and the yard littered with the refuse vegetable matters of the farm, no hurtful fermentation will ensue before the dung is wanted for the hoed crops. But will this dung rot in the soil, it will be asked, in time to give food to the growing crop? We answer, yes. There is not a question that green vegetable manure undergoes a speedy decomposition when buried in the soil; and it is almost as apparent, that vegeto-animal manures, a term which Chaptal properly applies to the dung of animals which feed upon hay and like forage, will almost as speedily decompose under like circumstances, if saturated with the liquids of the yard, or other moisture, when buried. Judge Hecock made an experiment with dry straw. He buried it in a trench, and after covering it with earth, he planted melons, and had an uncommon fine crop. In the autumn, the straw was found to be perfectly rotted. We repeated his experiment, and with a like result. We have hardly a doubt, that where long manure is applied broadcast, and buried with the plough, it will rot, and feed the crop growing on it; and if not so efficient in the early part of the season, it will be more efficient towards the latter part than fermented dung. We manured a field of corn, part with manure which had been drawn out in the winter, and had undergone a partial fermentation, and part with coarse unfermented manure from the cattle yard, upon which fermentation had hardly commenced. The old manure gave the earliest growth, but the new manure gave the strongest after-growth, and at least one-fifth the greatest product in corn. Hence we consider all composts, made with manure which can be applied in a fresh state to hoed crops, as involving a useless expense of labor, without any corresponding return.

Where manure is drawn to the field sometime before it is to be used, or where it is not wanted for the spring crop, Mr. Colman's recommendation of mixing it with earth, or at least of covering it with earth, is undoubtedly proper. Again—where it is desirable to bring insoluble matter, as peat earth, into an available condition for crops—and where this cannot be sufficiently done by bedding the cattle yards with it, its admixture with unfermented manures, in the form of a compost, may be highly proper.

With regard to liquid manure, we have hardly yet begun to learn its value. The commissioner recommends the construction of water-proof vaults, or cisterns, under or contiguous to cow-houses. We have added contiguous, for we should prefer the outside rather than inside of the building, for the convenience of pumping the liquid into carts, when wanted, and for the greater convenience of conducting to it, from all the stables and sheds, the urine of the animals which they shelter. We do not like the suggestion, however, of housing cows during the summer months, with the view of saving their urine. It will be saved in the yard, if this is made concave, and kept well littered. Cows do not do so well in confined stables, nor so well tied, at a season when they are tormented with flies. "Doubling our manures," says the commissioner, "is quadrupling our crops."

Under the head of *Machinery,* Mr. Colman notices the Drill-barrows of Mr. Bushnell, of Sheffield, and of Mr. Metcalf, of Lenox; a Thrashing Machine made in Hinsdale, N. Y. and the smoke-house of Mr. Spicer, which has two apartments, one for the fire, and the other for the meat which is to be smoked.

In regard to smoking meat, our common mode is a bad one. We half cook it, as well as smoke it. The Dutch, and no people have better smoked meats, make their smoke in the cellar, and apply it to the meat in the garret. We do not want heat, but merely smoke, or the pyrolignic acid which the smoke contains, to dry and cure our meats. The desideratum, therefore, should be, to obtain the smoke without the heat, and this can only be well affected by employing separate apartments for the fire and the meat, and by conducting the smoke to the latter by artificial means.

Water-Works.—This is a contrivance, on the farm of Mr. Bassett, of Lee, for forcing up the water from a brook to the barn, similar, we presume, to one constructed at our neighbor's C. N. Bement. A three-foot head of water is raised in a small stream, which serves to turn a wheel, which carries a horizontal pump, and which latter forces the water, through pipes connected with it, up a hill of some sixty feet elevation, and discharges it into a tank.

There is subjoined to Mr. Colman's report, an appendix, containing several matters of interest, which we have not now sufficient room to notice. Among other things is an experiment, on two trials proving successful, of A. C. Metcalf, of Lenox, for preventing the ravages of the *Borer* on the locust tree.

The remedy is simply to wash the bole of the tree, in the early part of the summer, with spirits of turpentine. The trees soon lost the sickly appearance occasioned by the borer, assumed a healthy hue, and afterwards did well. Mr. M. thinks, that on a large scale, the spirits of turpentine would prove equally efficient if diluted with muddy water, as it will not mix with that which is pure.

The cedar owes its exemption from insects and from decay, to its resinous properties, which are obnoxious to the insect tribes, and which exclude moisture. It is stated, that cedar has been recently dug out of the ground, on the site of ancient Utica, which must have been buried more than two thousand years, in a sound condition.

The English Agricultural Society,

Has just held its first anniversary meeting; and so far as we are enabled to judge from their labors thus far, the society is likely to prove of immense advantage to the nation. It appears from the first annual report, that there are already 1104 members of different classes; that its subscriptions amount to about $36,000; that ten prizes have already been awarded for prize essays to be read before the society; that an extensive correspondence has been opened with the agricultural, horticultural, entomological and statistical societies of Europe; that geological collections are being made, and the basis of a library laid; that the first number of a journal, containing their proceedings and prize essays was commenced in April last, &c. The report concludes with a list of prizes to be awarded, amounting to some thousand dollars, and of the prominent objects which are primarily to engage the attention of the society. Of the latter, the following are the heads:

1. Classification of soils.
2. Permanent improvement of soils.
3. Productiveness of seeds.
4. Manures.
5. Rotation of crops.
6. Stock.
7. Mechanics of agriculture.
8. Diseases of cattle and plants.
9. Grass farms.
10. Physiology of agriculture.

We note these heads as constituting the great points of improvement in the agriculture of every country, and particularly in the agriculture of the United States, and as calculated to produce, in the investigations to which they will lead, the highest advantages to civilized society. And we repeat the remark, in a hope of stimulating to the organization of a like society in our country, upon a liberal and enlightened scale, that the English Agricultural Society embraces men of the highest standing in the kingdom, in reference to rank, influence and science. With us, unfortunately, our great men are too much engaged in politics, in commerce, or in speculation, and either do not appreciate justly the importance of agricultural improvement, or have not leisure or patriotism to bestow proper attention upon it.

The Great Principles of Agriculture

Are the same every where. Animal and vegetable matters constitute every where the food of plants; and heat, moisture and atmospheric air, universally, the active agents of vegetable nutrition. With a knowledge of the truth of these great principles, it is the province of man to apply them, under the various contingencies of climate, soil, aspect and seasons. And this is a labor in which the mind, enlightened by science, and fortified in its conclusions by experience, can do far more than the hands. The cultivated mind, like steam-power, is a labor-saving principle, capable of performing, or of saving, an immense amount of labor.

The efficacy of Green Crops as Manure.

We do not remember to have seen a more successful experiment made with green crops as a manure, or a stronger proof of their great value, than was made by John Kelly, of Essex, Mass. and communicated by him to the agricultural society of that county. The experiment was made upon a sandy plain. The customary crops were from eight to thirteen bushels of rye, and from thirteen to thirty bushels of Indian corn per acre. Grass would not grow upon it. The green crop was charlock, or wild mustard, which sprung up spontaneously, and was ploughed under three times successively as it came into bloom. The land had been the three preceding years in corn, enough to exhaust good land. The charlock was ploughed under the 18th of June, the 7th of August, and the 14th of September; the seed was sown immediately upon the last furrow, as the ploughing progressed, and harrowed in. The piece contained one acre and thirteen rods, and yielded *forty-three bushels and three pecks.*

Mr. Kelly did not think the experiment *quite complete.*

"To render it more so," he says, "I would not turn a furrow after the dew had evaporated. I have no doubt but a large portion of that fertilizing quality in the soil, which, (during the summer months,) is continually exhaled from the earth, is by the dew brought again within our reach, and it would be wise to avail ourselves of the opportunity of laying it again in the soil. And in the second place, I would by all means use a heavy roller after each ploughing. It would fill all the crevices left by the plough, and by pressing the soil more closely to the weeds, at once hasten the decomposition, and very much retard the evaporation from the soil.

"But the land is not only very much enriched by the process. There is, I conceive, no method by which it can be so thoroughly cleaned. Three times during the season, a fresh surface is presented to the atmosphere, and each time, as the decaying vegetable matter increases in the soil, so is the exciting cause augmented to make a more vigorous effort. We have in this manner gone over nearly all our land which is infested with charlock, and the diminution of the weeds is quite sufficient to warrant the expectation, that in a few years it may be comparatively eradicated."

This is scientific practice—the reasoning of a rural philosopher—a cheap and sure means of cleaning and imparting fertility to an exhausted or poor soil. In regard to the utility of ploughing in the dew, we have been told of a case in point, which took place some years ago, in Pittsfield. A poor laboring man asked permission to crop a piece of ground belonging to a wealthy neighbor, which had been thrown into *old field,* as not worth cultivation. Permission was granted. As the applicant worked out upon hire, and could not lose his time, he contrived to do all the ploughing after sundown, and before sun-rise. His crop was a very fine one; and the fine product was attributed to the circumstance of the ploughing having all been done while the dew was upon the surface. These lessons should not be lost upon the reader.

The Circumscribed Farmer,

We mean such as possess a limited capital, and limited desire for improvement, except in their own way, often decline taking an agricultural paper, because it teaches nothing, they say, that is adapted to their practice, or that is graduated to their scale—because, in fact, it is not oral, and delivered by word of mouth, but has been subjected to the operation of the printing press.

Let us ask these gentlemen, if they were disposed to have their son learn a trade, or to become a first rate farmer, would they select a teacher of circumscribed knowledge, who followed the practices of the last century, or knew only how to *kill land*—or one who was familiar with all the improvements of the age, and whose thrift in business would be a guarantee that he *worked* it right? Now the agricultural journal is to the circumscribed farmer, what the good teacher would be to the boy—an instructor in the improvements and best practices in his business—written by those who have made and adopted them, and have profited by them,—and for the particular benefit of those who have limited means, or cannot go abroad for the information they need. The modern improvements in farming go to economize labor, or rather to render labor more productive and profitable, and to keep up the fertility of the soil—two objects of as much or of more importance to the circumscribed farmer, than it is to the one of more extended means. The man who takes an agricultural journal profits by the experience of hundreds; while he who takes none, can profit alone from his own, and from that of perhaps a few neighbors. The adage teaches, that two heads are better than one, the world over.

These remarks are preliminary to some extracts we are about to make from John Lorain, a philosopher and a first rate farmer, written for the special instruction of circumscribed farmers, to whose notice they are respectfully recommended.

"In this country, land is very cheap: an excellent ready cash market for the produce of the soil generally prevails. This offers every rational encouragement to the poor but industrious farmer, who depends principally on his own labor, and that of his family, for cultivating the soil occupied by him. He is but little affected by the high price of labor, or the idleness and insolence of workmen, which take place in every country where labor is scarce, unless the laws be oppressively severe.

"The principal reason why this class of farmers so seldom become wealthy, and but too frequently continue poor, is the desire of immediate returns from cropping, and the mistaken idea that the profits to be derived from rearing live stock, progress too slowly to answer their purposes. This induces them to crop the soil yearly, with but little attention to grass or an increase of cattle, until their grounds become so much exhausted that rest is absolutely necessary to procure crops worth gathering. The soil being greatly impoverished, and the seeds of the grasses destroyed, as far as perpetual ploughing and cropping can effect this ruinous purpose, the grounds rest with no other covering, but that of some scattering and debilitated grass and weeds. This exposes the soil to the very injurious action of the sun, wind, washing rains and melting snows. When such grounds are ploughed for crops, instead of being richly stored with grass roots, and well covered by their tops, scarcely any vegetation is found to replenish them, or to nourish the crops grown on them.

"These ruinous practices naturally introduce poverty of soil, and its inseparable companion, poverty of purse. This, however, is not all; it entails on posterity the wretchedness introduced by their inconsiderate forefathers, or an Herculean task to counteract the curse of poverty, which their negligence had introduced. Whether Satan is also the instigator of this evil, I do not presume to determine, but certain I am, that it is much greater, (so far as farming be concerned,) than the curse entailed on the soil by the fall of Adam. That seems to consist simply in brambles and thorns, including in these, such other vegetation as would compel man to earn his bread by the sweat of his brow. This curse we may all see is irrevocable, but we may also, at the same time observe, that if man complies with heaven's mild decree, and removes those obstacles to the growth of plants, which better suit his purpose, agriculture flourishes, and his rational wants are abundantly supplied.

"But when the hand of folly introduces the additional curse of poverty on the soil, this insatiable monster, like Aaron's serpent, swallows all the rest. Even brambles, thorns, &c. (the mild chastisement of heaven,) cannot prosper where poverty has obtained dominion over the soil, as may be readily seen, for this and every other vegetation grown on such grounds, looks sallow, starved and debilitated.

"That man is inexcusable, and ought to be punished for this sin against common sense, himself, his posterity, and the community in which he resides, is evident.

"Before this inconsiderate being enters the forest, glade or prairie, nature had been for ages enriching the soil for his use, in the way that has been described. The fertility of it might be preserved and increased, even by the circumscribed farmer, if a system of agriculture calculated to keep the ground fully replenished with decaying animal and vegetable matter was practised, and due attention were paid to the augmentation of live stock, in proportion to an increase of ability, instead of the ruinous practice of perpetual ploughing and cropping.

"Reason, alone, demonstrates this interesting fact. It has also been clearly proved by actual practice, in almost every neighborhood, by the successful enterprise of farmers, who commenced their business on lands bought on credit, and covered with timber, without any buildings on them, and with not more than a pair of working cattle, and cows barely sufficient to supply the family with butter and milk. Nay, more—some who were not half as well stocked as this, have paid for their land, acquired an extensive stock of cattle, and become wealthy, although their mode of management was very inferior to that which has been proposed. They, however, increased their live stock in full proportion to the means furnished by the system of management employed by them.

"From first to last, they have been enabled to live better, and vastly more independently, than those who relied principally on the plough. The cause of this is evident; milk, butter, cheese, wool, meat, hides and manure, are continually increasing. It is evident that but little manure can be obtained in the beginning; however, where that little is spread, the product is greatly increased, as is also the fertility of the soil for a succeeding crop, and the grasses following it. Where a plenty of good grasses and hay prevail, young cattle will grow as much or more in one year, than they do in two when kept on pasture, fed bare during summer, and on straw through the principal part of the winter.

"It is considered proper to remark that, although many circumscribed farmers make considerable progress in increasing their live stock, their laudable enterprise, however is too often suddenly checked, before they obtain half the number of domesticated animals necessary to the proper cultivation of their grounds.

"This evil originates in the prevailing error, that huge piles of stone and mortar, or boards and scantling, are the best means that can be pursued by the cultivator to improve his farm. Hence it is, that we see almost in every part of Pennsylvania, where it is possible to effect this mistaken improvement, extensive barns and dwelling-houses standing on farms, where we do not observe half the quantity of grass, or number of cattle, necessary for the proper cultivation of the surrounding soil."

The Northern Shepherd,

Is the title of a 12mo. volume sent us by the Kennebeck Agricultural Society, for which we tender our thanks. It is a report made to that society, by a committee appointed for the purpose, upon the diseases and management of sheep. It is divided into three parts, the first on the mangement of sheep, prefaced by a short description of the various kinds among us; the second on the diseases of sheep; and the third miscellaneous. From the cursory examination which we have been able to give to the work, we think it will serve as a valuable companion to the sheep-master and shepherd.

There are some general principles laid down and inculcated which we think important ones, and which we propose briefly to notice; and although we do not intend to go into an argument to prove them to be sound, we think most of them are so palpably true, that the reader will only need to be reminded of them to approve and adopt them in practice.

Wool, and not mutton, being the great object in Maine, a preference is given to the Merinos; and hopes are expressed, that by a judicious attention to crossing, the grand point of improvement aimed at will ere long be obtained, viz. a Merino fleece upon a Bakewell body.

The South Downs seem to rank next to the Merino, as having the next finest fleece, as affording excellent mutton, and as possessing a hardiness of constitution, and a vigor and activity, which enable them to support and to thrive upon bleak and barren hills, where the Dishleys would die from exposure or starve.

"*Sheep should not be kept too high,*" says the report, "unless intended for the butcher; for it is believed to be a true maxim in regard to them—'once fat and never fat again.' If they once become fat and are suffered to fall away, it is difficult getting them so fat as they were before they began to grow poor." p. 27.

High rocky pastures are much the best for sheep.—"Nature, it seems, designed the sheep originally for a mountain animal; and although man has by art changed its nature in a surprising degree, yet he has not been able wholly to thwart her views, and the sheep loves still to feed on the hill top and cliff, where there is a pure and exhilarating breeze, and where it can shelter itself under the shade of trees, or a projecting rock, during the heat of our sultry dog-days. A high pasture should therefore be devoted to your sheep."

Salt and tar should be given to sheep.—"A piece of salt may be laid in a trough, and the sheep will lick it as they please, and if some tar be added to the salt, it will be a benefit to them, as tar is a very good stimulant when taken into the stomach, and it prevents annoyance from the different species of flies." We would recall to the recollection of the reader, the mode of administering these as practised in Spencertown, and published in our second volume. A log is hewn upon one side, which is then turned uppermost. It is then perforated upon the hewn side, with hole made by a large auger, two or three inches deep. The holes are then filled with salt, and the hewn surface smeared with tar. In obtaining the salt, which the sheep are permitted to do as often as they desire, their noses become daubed with tar, which prevents the fly from entering the nostril.

Shelter during stormy weather, at all seasons, is considered indispensable to the health of the sheep, particularly after they have been shorn. "So tender and delicate is the skin of the fine woolled sheep, and so close are their fleeces, that there is great danger of pelt-rot being occasioned by too great exposure to the chilling influence of long and cold storms."

Sheep should be brought to the barn, in autumn, in good order.—"They are thus fitted to withstand the rigors of winter much better, and they will be carried through this inclement season with much less care, and more economically than they can be if they are poor and emaciated when winter sets in." This is true of all farm stock.

Sheep require the stimulus of distension—they should be filled with something that they will eat. When fed upon green grass, a sheep consumes eight pounds a day. If this grass is converted into hay, it weighs but two pounds, and the two pounds constitutes its winter ration. To ensure health, the six deficient pounds should be made up in water, vegetables or other food.

Pine or hemlock browse, are recommended to be given to sheep in winter. "I have for near thirty years," says the writer of a part of the report, "made use of hemlock boughs as the cheapest green food." It may be added, that the resinous qualities of these boughs, promote the health of the animal and prevent disease.

Sheep should not be turned to pasture too early in the spring—"for it takes their appetite from their fodder, and as they cannot graze enough to fill them, they lose flesh fast."

Sheep should not be crowded in sheds, nor huddled together in one spot too long; "as that," says the book, "I am confident, has produced disease in my flock. In one instance, I have no doubt the pelt-rot was thus produced, and nothing saved the whole flock from the scab, but a timely application of oil to the sheep."

Open sheds are the best shelter for sheep.—If kept dry, the wind is desirable, though cold. It preserves the purity of the air, and promotes health.

Under the treatment in March it is remarked—"Take good care of your sheep this month, that they may be able to bring forth their young the better during the next." And under the treatment for April it is urged, to "make the sheep eat as much green food as possible each day. Grass is the best, if you have it; next to that potatoes. This month tests all the rest, as regards ewe sheep, for he who raises the greatest number of lambs from a given number of ewes, is supposed to be the best shepherd, all other things being equal."

We pass over the second part of the work, which treats of the diseases of sheep, and content ourselves for the present with making the subjoined extracts from the miscellaneous part.

"*Salt.*—I have mentioned that salt was considered by the Spanish shepherds as essential to the health of sheep, and this sentiment is very general in every part of Europe except England, whose situation renders the air sufficiently salt.—The same consequence from similar causes takes place here. Upon Long-Island, and elsewhere near the sea, the cattle require no salt, nor manifest a desire for it; whereas north of the Highlands, they eat it ravenously, and it is thought essential to their health. The ancients also entertained similar sentiments upon this subject. Aristotle prescribed one peck every five days, during the summer, to one hundred sheep. We should consider this a large allowance, but it would be readily eaten. They also observe, that, however good your pastures may be, the sheep will tire of them if not changed, unless their appetites are kept up by salt."

"*Transitions from high to low food.*—With all stock, it is allowed to be very dangerous to pass very suddenly from high feed to that which is scant and poor; or from plenty of green food to that which is altogether dry. Hence arises a very important maxim in respect to sheep; which is, as soon as the pastures fail, towards the end of autumn, to put them to turnips or cabbages, if we have them; and this will perhaps be found our best system with respect to turnips; to sow a sufficient quantity for our sheep, to be eaten after the grass fails, and before the snow falls, so as permanently to cover the ground."

Essex Agricultural Society's Transactions.

We always turn to these with a certainty of finding much to instruct, and something to amuse us. The transactions of 1838, which are now before us, are rich in matters of interest to the farmer and to the country; and we hope to serve up to our readers some acceptable repasts from their contents. We shall begin with extracts from the address delivered before the society at its anniversary meeting; and the sentiments which these contain, we are persuaded, will be heartily acceded to by every honest republican, who is not led astray by the phantom of speculation, or who is not bewildered in the mazes of party politics.

The scope of Mr. Withington's address, he remarks, may be expressed in the following propositions and questions, embracing the great problem now before the public mind.

Proposition I. The majority must rule.
II. The majority must toil.
III. All professions must be open and free.
IV. The majority, to rule well, must be intelligent and virtuous.
V. How shall we make them so intelligent and virtuous as to choose the toilsome professions and rule well?

We pass over the first four pages of the address, to the following

EXTRACTS.

Yes—to be a good republican it needs faith; it is necessary for the prelusive experiment. It is well known, for ages past, the MASSES of men have been rising. Ever since the establishment of corporations and boroughs in the middle ages, in every political convulsion, the result has been to increase the influence of the many and diminish the oppression of the few. Our government is one of the last efforts of these long operating causes; it was established, not for a few families, not for a titled aristocracy, not for a king, but for him that drives the chisel and him that holds the spade; and it supposes the possibility of that dubious and much-doubted attainment in human nature,—that he, who earns his bread by the sweat of his brow, may yet be a thinking being; choose his own religion and make his own laws, as well as obey them. History perhaps has very little to produce this faith of which we have been speaking. Our brightest visions must be borrowed from the future. Our hopes are founded on what man *may be;* not on what he *has been.* We read, it is true, of ancient republics; but they resemble us only in a generic name. There never was a republic that *went for man;* or was founded on the rights of man. They all formed a conventional idea of the citizen; and never went for that inheritor of will and reason, that responsible being, who derives his immortal gift from, and is accountable chiefly to God. Why should we be forever talking of Athens and Rome; of Athens with its 20,000 citizens and 400,000 slaves; of Rome, not only with its slaves, but with its myriad of idle citizens, fed from the public treasury; and where we are told, even before the age of Cicero, there were not more than 2,000 citizens who had what might be called an estate. Were these republics founded on the rights of man? Were their partial experiments, when fully unfolded, calculated to produce much confidence in our own?

The soul must animate the body; the plan must go before the execution; the theory must guide the action; and confidence in what is possible and true must inspirit the perseverance that leads to success. We often hear it lamented that so many evils should mar the beauty of our rising morn. Ah, these clouds! these fogs; these curtains of darkness over the rising sun! The mob; the radical; the popular delusion; the impracticable plan and the still more absurd execution; the libel; the inflammatory press; the sage that will not write and the fool that will; the midnight caucus and the premature nomination; the demagogue in office and the general spread of political corruption; a surplus revenue in the midst of national bankruptcy; and the dreadful shakings of credit in the commercial world; the jealousies between the opposite parts of our republics; the justling of the wheels in our delicate and complex machine; all these are evils—earthquakes, which shake our moral ground; and yet it seems to me the *chief* evil of these mortifying calamities is not seen. The chief evil is, that they go to destroy that confidence in the permanency of our institutions, which is of itself a part of their spirit. Every bad election; every wild experiment; every mob in a great city; every act of political injustice, tends to destroy that *faith* which is at once the spring of our activity and the source of our salvation. If I can discern aright the signs of the times, we are now in danger from a wide-spreading skepticism respecting the stability of republican institutions, and even the value of liberty itself. It is the dry-rot, which has seized the beams of the building, from the sills to the ridge-pole; and however silent in its progress, is seen in its mortal effects. It is astonishing how many are infected with this criminal distrust. It quenches all enthusiasm; it destroys all principle; it leads to political corruption; it makes parties a mere contest for place; in a word, it cuts off the stream of action in its head-spring, and leaves to the citizen, in his prospects, a dreary and fountainless waste. Alas! this political infidelity has crept from heart to heart, until it has become more extensive than we allow ourselves to confess. How different is this spirit from that of the last generation! Then all was credulity, principle, confidence, enthusiasm. Every oration, on the fourth of July, was filled with the most fulsome promises. A great empire! A free people! An intelligent majority! Wise rulers! The best of laws! A new example! An imitating world!! Such were the first visions of a new born nation. Now the note is entirely changed. Presumption has been followed by despair; and it is to be feared, that as some disastrous facts have weakened the principle, so the weaker principle may produce new facts, still more disastrous, until exertion ceases and liberty is lost.

The cures of those evils are many; but a very important one must come from a well-prized and well-regulated *agriculture.*

Society has often been compared to a pyramid, which owes its durability not only to solid materials, but to its skilful shape. Agriculture is the base; the ground is the fruitful mother of the best of our comforts. And it is necessary, for the welfare of any nation, that the majority of its citizens should follow the profession of tilling it. It produces the raw material. Thence come the bread and meat and wool, which nourish and clothe our bodies. It is the silent steward of the Great Father of nature, offering a kind of temporal omnipresence to the solicitations and wants of its inhabitants; various in its gifts; permanent in its location; reasonable in its restitutions and most just in its rewards.* No man that was willing to cultivate the earth and thence derive his support by the sweat of his brow, ever perished by hunger; and no nation, whose citizens kept the ranks of this profession proportionably supplied, was ever known to perish by wars or treasons, or commercial confusions; by banks or bankruptcy; by discontents and factions within; or by invasions and foes from abroad. Not that following agriculture is itself a virtue, or forsaking it essentially a vice; but a due replenishing of this employment is an indication of a healthful state in the public sentiment. It shows that the foundation of the mountain is broad; and that the top thereof, though lofty, may alike defy the electric fires and the sweeping winds of the summer and the winter cloud.

Such is the imperfect character of our most solemn investigations, and so greatly are we blinded by party spirit and passion, that whenever we are called (as we think) to oppose and overthrow any public institutions, we inflame our zeal by exposing all their defects and allowing none of their excellencies. Never was there a revolution when the merits of a conquered dynasty were carefully estimated by the victorious party. Even in institutions where the balance of evils is on the whole great, it is always found, when they are abolished, that some unthought of benefit, is lost, by a removal; nor is it until long after the excitement of the change is passed away that mankind can foot the account and fairly estimate the exact magnitude of their loss and gain.

So it was in our American revolution. We rejected the institutions of Great Britain. We threw off those aristocratic chains, they were binding upon us. We altered the foundations of society; and liberty started on a new career of more daring experiments. She was wider in her sweep; deeper in her franchises; more radical in her maxims. She professed to comprehend all men in her offered privileges and blessings. It was freedom in manners as well as in laws; her powerful sun, now in the meridian, was to melt away the last floe of restrictive ice and set every human creature on the career of wisdom as the waves dance together on the sea in equal space and freedom. But it is now found that this universal *enterprise* has its evils. There is danger, that the necessary professions should not be kept full; that multitudes should forsake the plough for the pen; that the splendid professions should be chosen rather than the useful: I have some suspicion that, in our present constitution of manners, even the multitudes of colleges in New-England may be an evil; certainly no man should hope to hide his laziness under a pretended love for literature and religion.

* * * * *

There is another evil. No heterogeneous composition can last. We have retained the *ideal* of the old system with the form of the new. They are destructive of each other. There is a silent spirit, which tinges our fancy and tinctures all our ideas of gradation and eminence. It still seems to say that one profession shall be more honorable and profitable than another, while at the same time, in theory and in practice, we throw the doors wide open and make all alike accessible to every class. The consequence is, there is a pressure to those which are esteemed the more desirable pofessions. Enterprise and honor are confined to narrow channels. An anecdote will explain what I mean. Two advertisements were recently published in a neighboring city; one for a clerk in a store; the other for an apprentice to learn the blacksmith's trade. The number of applicants for the former place was *fifty;* for the latter *not one.*

But how shall we avert the evil? It is certain we cannot reverse our republican institutions; nor restore the ancient ranks. Some plan must be devised within the sphere of manners, more suitable to the spirit of the age; more gentle in its operations; more salutary and healing in its effects. To elucidate this point is our main inquiry.

In the *first* place, then, we must bring our manners and our political theory more into harmony. Our creed must sanction our practice, and our practice must be in conformity to the spirit of our creed. We must not attempt to put the *new wine into old bottles; else the bottles break and the wine runneth out and the bottles perish;* or, in plain language, the republican spirit must be put into the republican forms; and we must be content to take the system, the whole system and nothing but the system, with all its blessings and attendant evils. If all men are born free and equal; and all professions are alike honorable, then *say so* at once; and leave the balance of the relative numbers to be regulated by the relative profits; as it certainly will be, if not controlled by these subtle, colouring ideas, inherited from other ages and antiquated systems. Two grand ideal powers are now brought into mental collision, and are shooting their moral ammunition across the Atlantic. On the one side, our theory is deeply felt among the powers of Europe. It produced the French revolution; and is still producing a deeper revolution, though silent, in the vision of eastern politicians. On the other hand, their commercial monopolies, their institutions and manners are exercising a deep influence over us. It is felt in the traveller; the summer visitant, the steamboat; their newspapers; their debates; their titles; their reviews; their wit and their metaphysics. Even the late coronation of the queen Victoria was not without its effect. The whole system of commercial wants and supplies grows up from these social forms and supplies them. Every cargo of fashionable goods creates a taste and leads to an expense unfavorable to republicanism. For my part, though no friend to sudden innovation, and wishing to place myself as far as possible from the spirit of modern radicalism, I am compelled to say, that it is my wish, that everything, in this western world, should radiate from one great central idea; that we might have republican manners; republican fortunes; republican architecture; republican books; and republican eloquence; that everything might be latently blended with that spirit, which hails the improvement and recognizes the equality of man. Let the central altar be built with unpolished stones and be tinged with the crimson of our own rustic sacrifices.

Education too should take a shape from our public prospects. Every father and tutor should educate his son or pupil with reference to the condition, which his country imposes and the duties she requires.

* * * * *

Thirdly. The human mind is, after all, governed by some very fine and invisible threads, which, though delicate in their texture, are strong in their effects. There is a latent impression of elegance, grace, beauty, which a young man gets early in life, from a thousand indeffinite causes, powerfully determining him in the choice of his profession. Woe to that man, who sees, in his youthful morning, the rainbow settle on the wrong hill; and is doomed to pursue it through life over unfordable streams and up impracticable heights. There is an idea of *the beautiful* in morals and in life, *to kalon,* the fond image from which emanates our strongest desires, and around which play our brightest dreams of felicity. It is this, which coloring all the operations of reason; governs the man; decides his choice; inflames his energy; increases his skill, and gives him the elements of success. One man finds it on the ocean; another on the land; one in war; another in peace; one in science; another in poetry. Petrarch had his Laura; and it has been seriously doubted whether she ever had flesh and blood; whether she ever existed out of poetry; whether the bard did not embody his own fancies and give to *an airy nothing a local habitation and a name.* In a certain sense, every man has his Laura; who fills his imagination, and leads him through life. Every man has some ideal of perfection and happiness after which he always reaches, though never grasping; and which modifies his pleasures and his pains from his cradle to his tomb. In vain does reason speak; in vain does experience warn; in vain may you balance against his ideal visions the collected utilities of life; if a man does not, in some degree, reach his contemplated goal, he is poor in the midst of abundance, and wanders a wretch through the world. Nor is it the young and imaginative alone that are governed by these ideal forms; the most cool and avaricious feel their power. *Their* Laura is not the same as Petrarch's; they will not write sonnets to her praise—certainly not *such* sonnets—but their views are just as ideal; and the phantom they pursue assumes her beauty and her power, solely from her relation to their temper and taste. It is not the material gold that absorbs the miser's lust; to him, as to other men, it is worthless dross; it is the ideal of being a rich man; it is the laurel of a Crœsus shading his dwelling and adorning his tomb.

**Justissima tellus* is Virgil's fine expression. II. Georgic. 460 line.

If a certain style of living seem essential to our happiness; and in the competitions of life, we are left to fall short of it; no philosophy, and I had almost said, no religion, can save the strongest mind from a degree of disappointment.

Now it was the policy of antiquity to give agriculture the first place among the professions; I allude not to pastorals; that retrospective pleasure with which, from the courts of princes and in an age of refinement, men look back upon incredible scenes of virtue in Elysian fields of bliss. But the most sober calculators, the orator and the historian, delighted to relate the story of Cincinnatus, passing from his plough to victory and from victory back to the plough—*triumphalis agricola*. The possibility of uniting the highest mental qualities, with that practical skill which makes the *desert blossom like the rose*, was strongly inculcated. It was the leading article of ancient faith; and must be so again. The man, who makes agriculture, not merely productive, but honorable; who surrounds his farm with the images of the most attractive happiness; who dwells in a neat abode, such as republican wisdom might build and republican simplicity ought to desire; who, in addition to the song of the robin, can make the music of contentment flow around his calm abode; can unite it with the intelligence of a citizen who knows his right and is determined to defend them; who knows that *this business* is favorable to mental culture and as fair a road as any to political eminence; such a man does more to encourage the profession than all other causes combined. He touches the springs of action in their centre and blesses his country and mankind. He plants the laurel beside the plough, and allures thousands to come, and after having toiled within its fragrance, to sit beneath its shade.*

There is still a *fourth* expedient. The return of those, who have been disappointed in the learned professions or commerce, to agriculture; and being happy in the return. Your father's farm!—it supported your cradle and may perhaps be destined to inclose your grave. I am aware, that these resumptions of an old employment have not always been successful. The body long disused to labor, melts beneath the summer sun; aches as it follows the plough; and the soft hand, which has worn the glove, becomes blistered as it handles the pitchfork or the spade. The stillness, too, of a country life, so soothing at a distance, becomes tasteless when it is the forced choice of men, who have trod the mart and been honored in banks. Even the song of the robin, which warbled so sweetly in pastorals, becomes harsh discord when a man hears it from a house, under a heavy mortgage; and it is the only music, which his poverty can afford. But let us not be discouraged; life is a conquest over difficulties. These returning farmers; these prodigals, who, having spent their substance, at last go home to their father's house: these shipwrecked mariners on the golden sea of fortune, who swim to the shore on the last shivered plank—after all, have some advantages. They have increased their skill; they know mankind; they have seen the world; and should they be endowed with genius and glow with a new ambition—what discoveries might they not make! Though the triumphs of mechanical skill have as yet been chiefly confined to manufactures, and some say can never be exhibited in agriculture, yet as an offset to this advantage, there is the composition; the improvement of soils. What a field is here open! How little do we know of it! How important the pursuit! How rich the reward! All the difference there is between ten bushels of corn to the acre and an hundred, is before us to awaken our invention and activity: and suppose a Newton, a Davy, a Franklin, a Whitney, to be thrown on such exigencies, how would the treasures of nature be opened! How would the best spots for the largest crops be sought out and found. Let no man despair of reaping his substance in his last days from the rugged earth, who retains either of those best instruments, a healthful body or a vigorous mind.

My fellow citizens, I rejoice, on the whole, in the exhibition of this society, and believe its tendency to be good. It reflects credit on the wisdom and philanthropy of the men who support it. Any thing that turns our attention to the great foundation of our social happiness, must be beneficial. But, I am deeply impressed with the conviction, that we need a revolution in our ideas of public and private life.

The road of enterprise must be new laid—new paved—and conduct to other objects. We are still misled by certain ideas of refinement and felicity descending to us from the Gothic ages. The public hive must have more working bees and fewer drones; and what is of equal importance, the drones must cease to engross the profits and the honors. The late concussions in the commercial world are not without their moral. They point to a different source of prosperity. Instead of thinking that all talent is to be employed on the sea or in speculation, we must turn it to a new channel; it must guide the plough; improve the soil, and carry agricultural skill to its last perfection. We shall always be an enterprising nation; I hope we shall always be a moral one. But that enterprise must flow in a wider channel; that morality must be founded on a better faith. Perhaps it would not be impossible to describe the circle that bounds the last expansion of the republican idea. When two young men, entering on life with equal abilities and virtues, would not turn up a copper for the choice of a profession to ensure their future success and distinction, then, and not till then, will the republican idea be carried out to its full perfection.

REMARKS.

The root of the evils complained of, and which seem justly to have excited the doubts, if not the fears of the orator,—the want of faith in the permanency of our republican institutions; the general rush to the learned and mercantile professions, for fame, fortune and fashion,—the idol Laura; and the neglect of rural pursuits,—the root of these evils, we think, lies in the defects of our system, or rather want of system, of agricultural education. Give to rural, the education which we give to professional labor,—improve the mental powers of the agriculturist, too, as you do those of the lawyer and doctor, and you will raise him to the same scale in society; and surely when this is done, there are too many substantial inducements to rural life, to apprehend any serious deficiency in its labors. Education, if it cannot, like the lever of Archimides, be made to move a world, can be made to move and model its inhabitants. Education has a controlling influence in after life. It makes men Christians, it makes them Mahometans, it makes them Jews, it makes them Pagans; it makes them ministers, doctors, lawyers; and, had we professional schools of agriculture, as we have of law, divinity and medicine, it would make thousands farmers,—intelligent, useful farmers—real working bees. But, alas! we have no professional schools for the farmer—nothing to enlighten his mind in his business, which is the great business —*emphatically* the great business of our republic. We profess to have adopted the *principles* of equality, while we are fast running into the *practices* of aristocracy. We impart to the few, in our system of education, facilities for lording it over the many. Hence, the great tendency thitherward, and hence, the importance of the great agricultural class in the right management of our political affairs.

We are strongly of the impression, that the establishment of professional schools of agriculture, in which the mind as well as the hands should be instructed—and particularly as normal schools for the instruction of teachers, would in a few years work a salutary revolution in the habits and fashions of society, and avert many of the foreboding evils with which our republic is threatened.—*Conductor*.

Method of using the Chloride of Soda.

A translation of A. G. Labarraque's method of using the chloride of soda, has been kindly sent us by Jacob Porter, the translator. This chloride is the most powerful disinfecting agent known, and has been found of great use in dressing ill-conditioned sores, and as a means of purifying unhealthy places, and disinfecting animal substances. It is sold in a liquid form, at the apothecary's by the bottle. It is used diluted with water. A bottle of the liquid, which costs but a few cents, will serve a family sometime, for disinfecting the air of vaults and other foul places about dwellings, purifying the air in sick chambers, in cellars, &c. Its great utility in lazarettoes and hospitals, and, in Asia, in preserving from the plague, seems to have been tested and proved by officers of the French government. At this season, it is peculiarly beneficial. We subjoin some of the directions for its use.

"For ill-conditioned ulcers let a glass of the chlorated liquor be mixed with five times its quantity of pure water, and in this mixture dip the lint with which the ulcers are to be dressed. The dressings should be applied twice a day. If the sore become red and inflamed, this mixture should be still further diluted; if, on the contrary, the sore does not change its appearance, it should be dressed once or twice with some chloride with only half its quantity of water, so as to bring on a slight inflammation, which is indispensable for causing atonic ulcers to pass to a state of simple sores. The healing will then go on rapidly. At the time when the chloride is applied to the ulcer, the fœtid smell is destroyed.

"Gangrene, hospital putrefaction, ill-conditioned burns and scalds, old syphilitic ulcers, corroding herpetic affections, and the like, should be treated in the same manner.

"Cancer in a state of supperation may be disinfected with some lukewarm or cold water, containing a twentieth of the chloride soda.

"For ulcerations of the nasal organ, the throat, the palate and the gums, the chloride should be diluted with eight or ten parts of water. It will, nevertheless, be necessary to touch these sores with a little lint moistened in some pure chloride.

"For the scald, head the chloride should be mixed with only an equal quantity of pure water, and the parts affected be moistened with this liquid twice a day.

"Great advantages have been obtained from using the chloride very much diluted in water, for all the purposes of the toilet. In a dose of from 25 to 40 drops [not to be taken internally,] it acts as a bracing and preserving wash, prevents the spread of herpetic eruptions, and cures certain diseases of the skin.

"The air of sick chambers, and the patients themselves, may be purified by mixing a spoonful of the chloride and six spoonfuls of water in a plate, and setting it under the patient's bed; indeed, several plates with the diluted chloride may be placed in the same apartment if necessary. In this way the exhalations may be destroyed as soon as they are produced. It will be necessary to renew daily the chlorated water contained in the plates.

"In all places where there is a crowd of men or animals, whether sick or healthy, the air becomes corrupted, and acquires deleterious properties, owing principally to the animal exhalations. These exhalations may be destroyed by sprinklings of the chloride, diluted in from 25 to 30 parts of water; or by setting in these places (and they may be out of sight,) some vessels containing the chlorated water, which can never be in the least injurious, whatever may be the quantity. This method of purifying the air is indispensibly necessary in lazarettoes, hospitals, prisons, poor-houses, manufactories, churches, seminaries, convents, halls of study, and dormitories in colleges and boarding-houses, cabins of ships, court rooms, crowded theatres, saloons when filled to excess on great occasions, and the like.

"Sprinklings of the chlorated water will be more especially necessary whenever an epidemic or contagious disease prevails; they should be made in order to guard against the deleterious influence arising from the neighborhood of marshes, the rotting of flax, hemp and the like. They will likewise be serviceable in the diseases of domestic animals, in places where silk worms are raised; finally, in all places where the air becomes charged with exhalations, which, on being accumulated, produce fatal effects.

"In cases of asphyxia, produced by the exhalations of vaults, sewers, or any considerable masses of putrefying animal substances, it will be necessary for the patient to breathe the concentrated chloride; and his chamber should be sprinkled with the chlorated water, so as to subject him to the influence of the disinfecting agent.

"It is often necessary, sometime from a tender, pious feeling of regret, to preserve for a long time the bodies of deceased persons. A fœtid odor appears more or less readily, according to the temperature of the air, the state of the patient's body at the time of his decease, or the disease that terminated his life. This decomposition may be suddenly arrested; indeed, it may be prevented by sprinkling the body with some chloride diluted with water. For this purpose a bottle of chloride should be mixed with twelve bottles of water; in this mixture a linen cloth should be wet, laid on the body, and sprinkled occasionally with the liquid."

Influence of Climate upon Seed.

We received, last spring, twelve ears of Dutton corn from Mr. Osborn, of Oswego county, his residence differing from ours, in latitude and altitude, about two degrees. We planted with this seed eight rows across our field, the residue being planted with seed of our own raising. The Oswego corn tasselled two weeks earlier than that from seed raised in Albany, thus showing six or seven days' difference for a computed degree of latitude, in the earliness of the crop—the northern seed giving the earliest crop in a ratio inverse to the forwardness of the spring. This will serve as a hint to farmers in districts where corn is liable to be cut off by early autumnal frosts, to obtain their seed from a more northern latitude, or from a district of higher altitude.

Hussey's Patent Reaping Machine,

Is exciting considerable attention in Maryland, and it has been recommended by the Philadelphia Agricultural Society, and by a society in Maryland. A Maryland correspondent speaks of it as follows:—

"I know not whether the news may not have already reached you, of a new mowing machine, invented by Mr. Hussey, which adapts itself to all surfaces, up hill and down, not encumbered with stones and stumps, and doing its work better than can be done by hand, to the amount, in a day, of what four of the best cradlers could accomplish. The executive powers of this machine are very credibly vouched by a Mr. Carroll, who has one or more of them in use on a large farm. His moving power is a pair of strong horses. Before the thing can reach perfection, we must employ the electro-magnetic impulse, which your last legislature thought no humbug."

12th Anniversary of the American Institute.

The annual exhibition will commence on the 7th of October, at Niblo's Garden, in Broadway, New-York. The contributions from exhibitors will be received on Thursday, Friday and Saturday immediately previous. The anniversary address will be delivered on the evening of the 10th October. The Silk Convention will be held on the evening of the 11th; and a ploughing exhibition will take place at Harlem on the first Thursday of September, at two o'clock P. M. We intend to give the address of the Institute in our next number.

Sales of Short-Horn Cattle.

It will been by our advertising page, that a sale of the Messrs. Allens fine stock of Short Horns will take place at Tonnewanta, near Buffalo, on the 10th of September, and that a sale will also take place at Powelton, near Philadelphia, of several imported animals, belonging to the celehrated herd of Mr. Whitaker, of England, on the 20th of September. The Messrs. Allens have taken much pains to procure the best stock to breed from, and from the appearance of their herd two years ago, we have no doubt they have succeeded in rearing superior animals.

An Idler

Cannot bear to be inquired of as to his daily business. Every answer to such a question is to him a subject of self-reproach. He has either attended to no business, or to the business of others.

AN INDUSTRIOUS MAN

Will answer such interrogatories with pleasure. His responses will imply self-approbation: he has been employed in providing for the wants of himself and family, and perhaps doing good to others.

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* After all, mankind, especially the young, will be governed by their ideas of the beautiful more than utility; in politics, morals, religion, and general life: nor would a benevolent man wish to exterminate this fundamental principle of our nature. But there is all the difference in the world, between conventional beauty, the beauty of fashion and expense; and that, which is simple, natural and eternal. Let us look at a few particulars: a rich shawl to a young lady's eye is beautiful; so is a rose. But the one is a conventional beauty; the other a natural. The one lasts while the fashion lasts; the other, i. e. its essential beauty, until flowers shall be no more. Take the fluctuations of female dress: sometimes its beauty depends solely on the fashion; sometimes it approaches to the everlasting laws of nature. The old stays and high-heeled shoes of Queen Ann's day, were mere conventional beauties; the Grecian dress is natural and essentially beautiful. Now it seems to me, what we are to seek is—that cheap, simple, essential beauty, which promotes the progress of mental refinement, but never leads to the expense which plunges families and nations in ruin. Let the conventional and natural meet in one line of inseparable union.

The idler is the drone which lives on the public hive, but adds nothing to its stores.

The other is the laboring bee, which works not only for itself, but for the commonwealth.

Let the young imitate the latter, if they would not, like the drone, become worthless outcasts.

Capacity of Rain Water Cisterns.

The following table, showing the number of gallons of water contained in cisterns of the diameters mentioned, for each foot of their depth, is copied from a communication in the Farmers' Cabinet.

Diameter.	*Gallons in 1 foot.*	*In 10 feet.*
5 feet,	120,	1,200,
6 "	170,	1,700,
7 "	230,	2,300,
8 "	308,	3,080,
9 "	390,	3,900,
10 "	480,	4,800,

So that a cistern 6 feet in diameter, and 10 feet deep, will hold 1,700 gallons, or fourteen hogsheads.

THE BUDGET.

Silk Reel.—It is out of our power to give to Mr. Geo. Bigelow the advice he asks of us in regard to silk reels, not having used any, though we have no hesitation in saying, that the silk business will ultimately do well, where it is managed as a family concern.

We have had several inquiries for the constitution of the New-York State Agricultural Society. We have complied till we have not a copy left, and till we are unable to procure one for publication.

Several correspondents have asked our opinion as to the best machines and implements, as threshing machines, straw cutters, cultivators, drill-barrows, &c.—These are delicate questions to answer, especially as we have personal experience with but few of those which are offered for sale. All we can do is to speak well of those we know to be good. This we have done freely. But we cannot speak of the comparative merits of those which we have not tried. Mr. Pitts, of whose threshing machine we have spoken in high commendation, is now located in Albany, and we have referred the inquiries relative to his machine to him in person.

Acknowledgment.—From W. Donaldson, a description of the Swartaria Mining District, illustrated by diagrams.

CORRESPONDENCE.

Plans and Estimates for Farm Dwelling-Houses.

Distrusting our own judgment in this matter, we placed the several Plans and Essays on Farmers' Dwelling-Houses, which we had received, in the hands of an eminent disinterested architect and builder, and an intelligent farmer, to examine them, and advise us which was best entitled to our premium. After carefully examining them, the gentlemen have given it as their opinion, that the plan submitted by John Cain, of East-Clarendon, Vt. on account of its greater convenience, good proportions, and economy of structure, is entitled to a preference; and we therefore award to Mr. Cain our premium of TWENTY DOLLARS, in such article of plate as he may select. The plan of Mr. Jewett, of Weybridge, Vt. having been considered the second best, we tender to Mr. Jewett a bound set of five volumes of the Cultivator, as a gratuitous premium.

As the competitors have been at considerable labor in furnishing us plans and estimates, and as, moreover, different persons may select different models, according to their means and their taste, we publish them all, omitting the details of the estimate of the cost, except Mr. Cain's, which we give entire, as the price of materials will materially vary in different districts. The estimated aggregate of cost is, however, stated at the foot of each communication.

If this effort to improve our farm dwelling-houses, to render them convenient, and to economize the cost, shall, as we think it will, afford useful hints to those who intend to build, and serve to lessen the burthen of female labor, in the discharge of domestic duties, we shall feel happy that our premium has been productive of public good.

East Clarendon, Vt. March 18, 1839.

Jesse Buel, Esq.—Sir—I am by profession an architect and builder. I have built a great many dwelling-houses, but for the last five years past, I have been entirely employed in planning and superintending the erection of meeting-houses in this state. My place of residence is in the town of Clarendon, but I am at present superintending the erection of a splendid meeting-house in the town of Danby, (Rutland co.) and while here, a friend has let me have the number of the Cultivator for April last, in which I find a premium of $20 offered for the best plan of a farm house, to cost from $1,500 to $2,000. Supposing, as I do, that such plans as may be sent in will be inspected by a committee appointed for that purpose, and should I be aware that such committee were architects, I should not enter as competitor, because they might give preference and premium to one of their number, through friendship. But as I am of opinion, that the committee appointed to decide on the merits of the plans, specifications and estimates presented, will be composed of gentlemen having higher and better motives than favoring friends against merits, I therefore send you enclosed four plans, three ground and one elevation plan; also, a specification or description of the manner the several parts of work shall be done. With the plans and specification, I also transmit to you an estimate of the expense of building, embracing the several kinds of work and the different materials.

Supposing that a small house, tolerably well finished, would be more acceptable to farmers generally, than a large one not so well finished, I have adopted 40 feet long and 28 feet deep, (or wide,) with an addition in the rear 24 by 20 feet. My great object has been to have all the convenience possible in a house of the above size, and a strict regard to proportion. And I flatter myself, that the enclosed plans, for cheapness in building, convenience and proportion, will be found worthy of a candid perusal. I only regret, that I cannot present and explain them to you personally, to remedy which, I must give a particular description of the several parts. I would here remark, that as a cellar is of great importance, particularly to a farmer, I have taken all pains to make it convenient, and have divided it by interior walls, which adds much strength to the floor above, as well as convenience below.

SPECIFICATION.

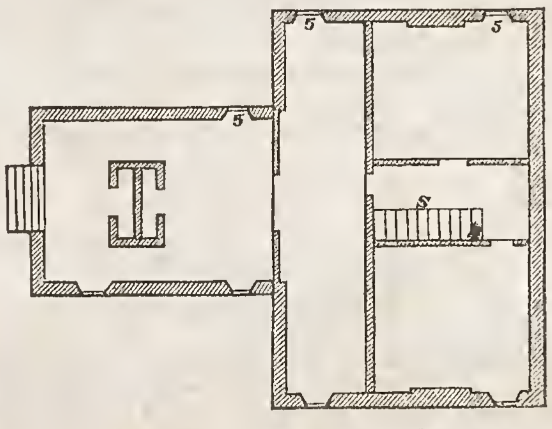
Stone Mason's Work.—If the soil you select for the site is wet, swampy or moist, dig low enough to evade the frost, and fill the trench with cobble stone, hammered down solid, upon which erect a cellar wall laid without any mortar, to the surface of the ground, which would probably be five feet; from thence up lay in mortar. Let the walls be two feet thick, and eight feet high, leaving spaces after getting up to the surface of the ground, for cellar windows, perpendicular to the windows of the principal story. Be careful to have none of the stone project outward, where the frost may affect, because such stone must either break or raise the whole fabric.

Carpenter and Joiner's Work.—The timbers composing the roof ought to be got out to such a size as not to be too weak, and at the same time not too heavy, or they will have a bad effect on the walls. The doors to be six pannels, with mouldings on both sides the principal doors, and on one side of the more obscure ones. The doors entering into the two front rooms on the principal story, to be cased with philacters; those not attached to front rooms and lobby, to be cased with a plain casing, with a returned $\frac{5}{8}$ths laid on the edge, and an one inch Grecian ovelo for land moulding. The windows to have check rail sash, and the frame grooved to receive parting lands; sash 1½ inches thick.

I have made the plans and estimate, &c. for a brick building, the walls to be one foot thick.

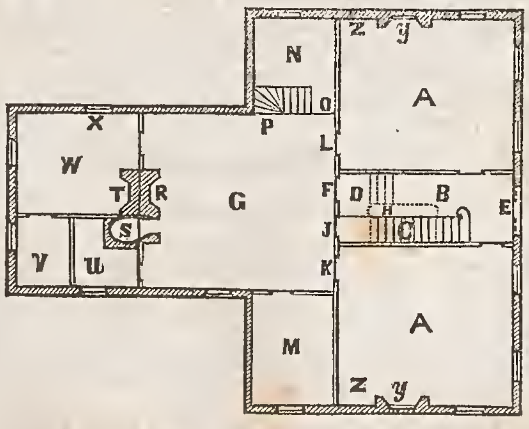
As my business is such, I have not now time to give a proper specification; suffice it to say, that in my estimate I have calculated the price of materials as they could be obtained in the town of Rutland, Vt. as in different parts of the country the price would vary, and even in neighboring towns. I have, also, in making an estimate of the cost of building a farm-house according to the enclosed plans, calculated on a plain, good workmanlike building.

Plan A.—[Fig. No. 23.]



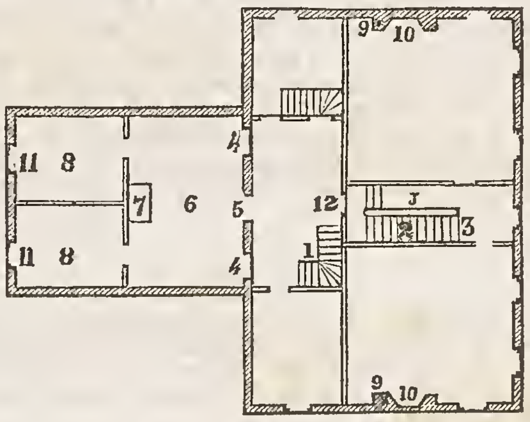
On plan A, you will observe, the walls are two feet thick. It is the ground plan for foundation wall, and shows the openings for the windows, and one opening for an outside door, with the steps to descend to cellar. S is the stairway that lands in the kitchen. The particular place for the different kinds of sauce, &c. I have left to the option of the builder.

Plan B.—[Fig. No. 24.]



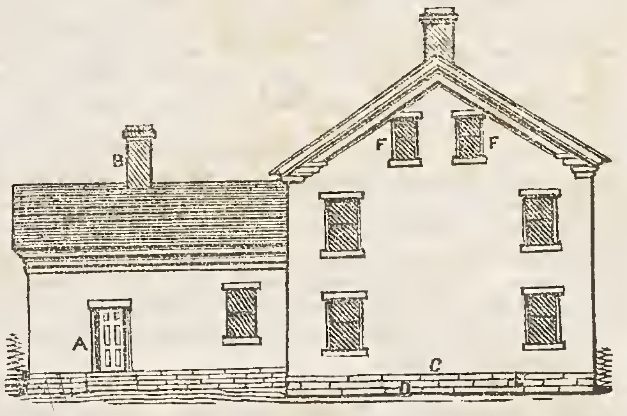
Plan B, is the ground plan of the principal story. A, A, the two front rooms. B, the lobby. C, the principal stairway, landing on the square platform D, which platform is seven feet above the lobby floor, so as to admit a passage underneath from front entrance E, through the doorway F, leading into the kitchen G.—The stairs are built on a geometrical construction, turned on a cylinder at H, and continuing from platform D, three steps, and landing at I, on plan C. The doorway marked J, leads to the cellar stairs, which go down underneath the principal stairs. K and L are doorways leading from the kitchen to the two front square rooms. M, a bed-room. N, a bed-room, with its door leading into the kitchen at O. P, the doorway and stairs (as back stairs,) leading into the room Q, on plan C. R, S and T, on plan B, are fire-places for kitchen and back kitchen. S, the oven. U, the buttery. V, pantry. W, back kitchen. X, back door. Y, Y, fire-places. Z, Z, cupboards.

Plan C.—[Fig. No. 25.]



Plan C, is the ground plan for chamber floor. Fig. 1, the stairway to the garret; 2, that portion of principal stairs seen from lobby, 3, with the three steps landing at J. The rear part of the house is intended to be only one story high, which admits the windows, 4, 4, above the roof of said back part, to light room Q. 5, is a doorway leading into room 6, which is over part of the kitchen; 7, kitchen chimney; 8, 8, bed-rooms; 9, 9, the flues of the fire-place, on plan A; 10, 10, fire-places for the two square chambers; 11, 11, two windows in gable end of rear part. The room 6, to be lighted by two sky-lights, laid level with the shingles, with zinc or lead round the frame, to prevent leaking; the glass to lap as the shingles do, or as the roof of a hot-house. The remainder of plan C will explain itself, the rooms being bed chambers.

Plan D.—[Fig. No. 26.]



Plan D, is an elevation view of the end of front part, and side view of the back part. A, the door marked X on plan B, and B the chimney 7 on plan C. C, the marble water table. D, underpinning, or that portion of the cellar wall seen above the surface of the ground at E, E, E. I should have shown the cellar windows, marked 5, 5, 5, on plan A. F, F, are the garret windows, the chimney brought up between them. I have not drafted a front elevation view, supposing that the plan B, with the front entrance door and two windows each side, and plan C, with the five windows placed as they are, will show all that is required.

Some of the advantages or conveniences of these plans are, having the kitchen so near the centre of the house, and the buttery and two bed-rooms so convenient to the kitchen; also, having the cellar door and back stair door lead out of the kitchen, and having the square rooms, A, A, as dining room and sitting room so convenient to the kitchen. I would here state, that from platform D, on plan B, to doorway 12, on plan C, there must be three steps, as at I, on plan C.

ESTIMATE OF THE EXPENSE OF MATERIALS AND WORK,
as they could be obtained in the town of Rutland, Vt.

68,000 brick, at $4 per thousand,	$272 00
Laying 68,000 brick, including board and tending, at $2.25 per thousand,	153 00
200 bushels lime, at 25c. per bushel,	50 00
800 bushels sand, at 2½c. per bushel,	20 00
6 boxes glass, at $3.12½ per box,	18 75
7 cwt. nails, at 6¼c. per lb	43 75
9,000 feet lath boards, at $4 per thousand,	36 00
5,000 feet lining boards for floors, at $4,	20 00
(If the floors were single and matched, the cost would be about the same, the work of matching being extra.)	
5,000 feet spruce floor boards, at $10 per 1,000,	50 00
2,500 running feet of rafters and joist, at 1½c. per foot,	37 50
800 feet square timber, at 3½c. per foot,	28 00
20,000 pine shingles, at $2 per 1,000,	40 00
Brads, locks, latches, hinges, screws, &c.	30 00

10,000 feet pine stuff, at $20 per 1,000,.......	200 00
104 feet marble water table, at 25c. per foot,..	34 68
150 feet marble window sills and caps, at 34c. per foot, ...	50 00
2 set polished jambs and mantles, at $10 each,	20 00
2 set common do. $4 each,.....................	8 00
Plastering, including board and tending,......	50 00
Painting, do do	75 00
Carpenter and joiner's work, do	500 00
178 perch of stone wall, the laying of which, at 50c. per perch, including board and tending,	89 00
Total,......	$1,825 68

The above doth not include the getting out and drawing of stone for basement wall, as the expense would depend on the distance, &c.

I have not time at present, to make an estimate on the cost of a wood building, no further than to remark, that here, where pine clapboards are $15 per thousand, besides drawing ten to fifteen miles, and as a frame building would require more nails than a brick one, and the work of framing and covering extra from a brick house, would cost about as much as the laying the brick; and it is my opinion that a brick building of the size and description herein mentioned, would cost from $150 to $200 more than a frame building, finished equally as well. Yours respectfully,

JOHN CAIN.

Weybridge, Vt. January 17, 1839.

Mr. Buel—Sir—Perhaps you could not direct the attention of the farmer to a subject more interesting and useful, and one that would originate so many different opinions, as the elevation and ground plan of a farm dwelling-house.

The inquiring mind and critic may say that the style is either too plain or too expensive—some would admire a story and a half, others two—one may want a fire-place in each apartment, and others would prefer stoves. In choice of materials, some would prefer brick, and stone or wood; and finally, in an edifice of this nature, we are more apt to seek for the discovery of some inconvenience and faults, than we are to give credit for the good.

That others may be induced to present some better drawings, I take the liberty to offer the following, which you may submit for the consideration of your honorable committee, which is the drawing of the ground plan and front view of a wood dwelling-house, 30 by 38 feet, two stories high; a building in a direct line attached in the rear, 20 by 30 feet; two wings, on each side of the main building, 19 by 20 feet. It may front either to the east or west, by inverting the ground plan. The whole plan may be diminished in size, and nothing in the plan prevent the main building being erected only one story and a half. The cellar under the main building laid with stone four and a half feet, the remaining two and a half feet a vacuum in the wall round one inch wide, is best done by raising the two and a half feet on the inside by a course of brick, which vacuum prevents the penetration of frosts to the cellar. In the first place, the farmer's wife considers it very important, that the kitchen should be convenient to each apartment above and below. I would recommend a flue leading from the fire-place to the cellar, to conduct the ashes into a vault which may be so constructed as to make a safe and convenient smoke-house.

The cost of the materials depends on the country where it is erected. Wood, brick, stone, iron, and mechanical labor can be obtained in this section as cheap as any part of the United States. A house of this description can be finished in good, comfortable style, for fourteen hundred dollars.*

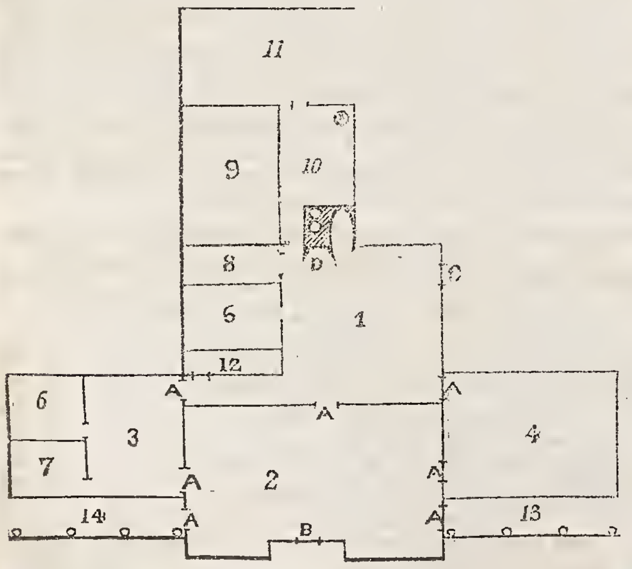
In giving the dimensions of the rooms, I have made no allowance for the walls and partitions. Respectfully yours,

SOLOMON W. JEWETT.

EXPLANATION OF THE CUTS.

Fig. No. 27, represents the ground plan. Fig. No. 28, the elevation of the front view.

[Fig. No. 27.]



No. 1, Kitchen,....................	19 by	18 feet.
2, Parlour,....................	19	20
No. 3, Sitting-room,................	11	14½ feet.
4, Library, &c..................	14½	20
5, Bed-room, ...	11	8
6 and 7, Bed-rooms,............	7	9
8, Pantry, ...	11 by	5
9, Cheese-room,................	11	18
10, Wash-room, &c	9	18
11, Wood lean-to,..............	12	20
12, Cellar and chamber stairs,....	3½	11
13, 14, Piazzas, ...	4½	20

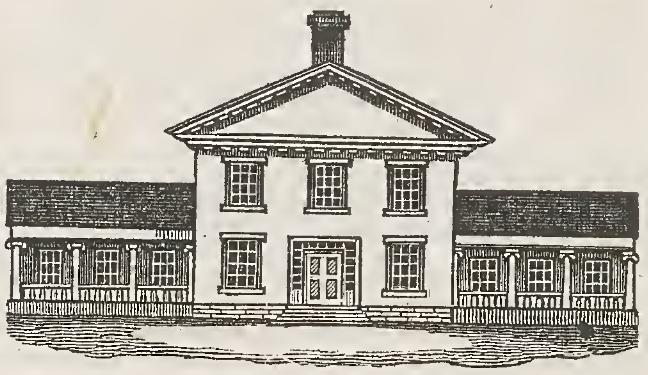
A, Kitchen door. B, Front door.

C, Oven and fire-place, with an arch attached in the wash-room.

D, Hall and stairway, including two closets, 10 by 19 feet.

⊙, Fountain of water.

[Fig. No. 28.]

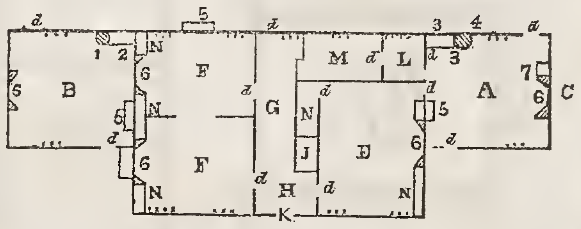


Princetown, N. Y. February 1, 1839.

Mr. J. Buel—Dear Sir—I have been looking for some time past, in very new number of the Cultivator, for a farm dwelling-house making its appearance, for the best plan of which you offer a very liberal premium. But I have looked in vain, and as the year has almost expired, I begin to think that surely none has been offered. Building is always attended with heavy expenses, and when badly planned, much of the comfort and convenience, which would otherwise have been enjoyed, is lost, to say nothing of the money uselessly expended. Rather than that your good intentions in a matter of so much importance should be frustrated, I have concluded to send you a plan (such as it is,) to commence with; for if architects will not condescend to do the work for us, we must *try* to do it for ourselves. If it meets with your approval, so far as to think that it will warrant the expense of publication, others may be induced to point out its defects, suggest improvements, or offer a better. If any should think the plan too extended, and of course too expensive, it may be cut down to meet their views, 1st. By omitting one or both wings; 2nd. By cutting off the end next to the laundry, retaining the hall; or, 3d. By rejecting the second story.

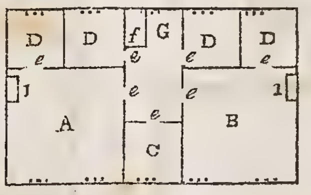
Respecting the cost, as the building is supposed to be of timber, it will depend somewhat on the price of stuff where it is to be erected. Not having the requisite experience myself, I submitted the plan to a mechanic, requesting him to give an estimate of the expense.—His opinion was in general, that it would cost from $1,500 to $2,000, to finish it in tolerably good style. The cellar walls, should be built with good mortar, and raised two feet above the ground, and the cellar divided into two apartments, one of which is to be solely appropriated to dairy purposes.

[Fig. No. 29.]—Ground Floor.



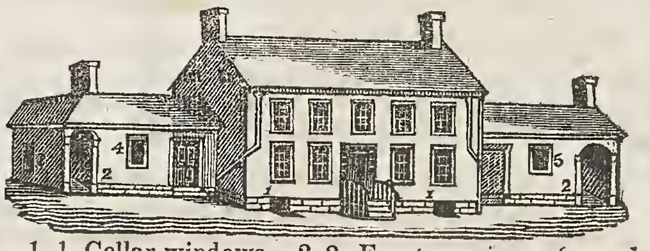
The main building is 26 by 46 feet; length of posts 22 feet. A, the kitchen, and B the laundry, are each 18 by 20 feet; length of posts 11 feet. The wood-houses, C, C, are too-falls to the ends of the kitchen and laundry, 10 feet wide, extending 10 feet in rear of the building, where they are 20 feet wide and double roofed; (they may be extended back at pleasure;) openings inward, the openings in front furnished with neat doors. E, sitting-room, 16 by 18. F, F, two rooms, 12 by 16 feet each, with folding doors separating. H, hall, 10 feet wide. I, stairs, 4 feet wide. G, continuation of hall, 6 feet. K, front door, 4 feet. d, d, d, d, doors. L, pantry, 8 by 8. M, store room, 8 by 14. N, N, N, N, N, closets. 1, 2, cistern and sink in laundry. 3, 4, cistern and sink in kitchen. 5, 5, 5, doors to cellar. .... dots, shows the places for the windows. 6, fire-places. 7, oven.

[Fig. No. 30.]—Second Floor.



A and B, two rooms in front, 16 by 18 feet each. C, clothes room, 10 by 10. D, D, D, D, bed-rooms, 9 by 10 each. e, e, e, &c. doors. f, termination of stairs. g, winding stairs to garret. 1, 1, chimnies.

[Fig. No. 31.]—Front View and Elevation.



1, 1, Cellar windows. 2, 2, Front openings of wood-houses, with doors. 3, Wood-house running back 10 feet in rear of building. 4, Laundry. 5, Kitchen.

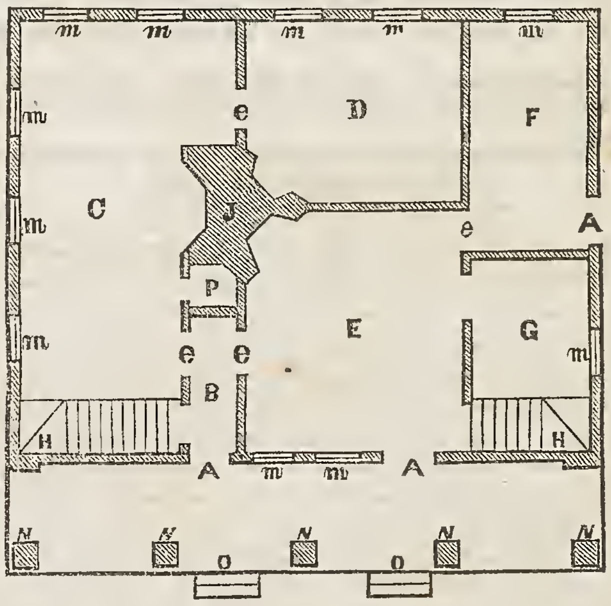
JAMES SMEALLE.

Farmington, Conn. January, 1839.

Judge Buel—Dear Sir—I send you a plan of a farm house, not so much for the purpose of competing for the premium you have so generously offered for the best, as to make it the foundation of some thoughts I wish to offer on the subject of buildings, generally. Before I do this, however, I will go through with my plan, and must frankly say of it, that it has nothing to recommend it but convenience. Architects will condemn it for want of regularity, order, and due proportion. I can only say to this, I am no mechanic; the great objects to be gained are, utility, adaptation to the use for which it is erected, suitableness to the wants of the class occupying it, economical in expense, &c. If, with these essential requisites, the mechanic can present a plan with more fair proportions, more beautiful in appearance, and more substantial, he shall have my thanks. Without these, he ought not to have the thanks of any. But to the detail.

Accompanying this, I send you two drafts; one of the ground floor with its several apartments and references, the other its elevation, with a side view of its entrance and a veranda attached, on a scale of one-eighth of an inch to the foot. The estimation of expense is calculated on more windows than the draft presents, so they may be reduced if desired.

[Fig. No. 32.]—Ground Floor.



A, doors. B, hall or passage. C, front room. D, bed-room. E, common room. F, store room. G, pantry. H, stairs. I, chimney. e, inside doors. *m*, windows. N, posts sustaining veranda. O, steps. P, closet.

It has five apartments on the ground floor, and a small landing place, or hall, viz:—a sitting room, a common room, a bed-room, a pantry and a store room. Can any one of these be dispensed with? All are necessary —all are convenient to one another, of suitable size, and well adapted to a family carrying on farming. The objections are, the sitting or parlor room is not well proportioned, and the division between the common and bed-room comes too near the fire-place, causing or placing the fires in the corner of each room. To these it may be replied, that the end of the sitting-room next the stairs may be fitted with a sliding partition, for a library for the family, and thus make the room in due proportion; and the sleeping-room may be fitted without a fire-place, and warmed by a stove, and the chimney placed near the centre of the side of the common room. The entrance to be on the south side, on account of the northern blasts of winter. In the view, I have presented a veranda, extending along the whole southern side, exhibited as adding to the convenience and appearance of the house, although not included in the estimate, and not considered absolutely necessary; but for the comfort of shade in summer, and some protection from storms in winter, considered very desirable.

The second story to be divided into six sleeping apartments, (or more if thought necessary;) and here I would say, I should prefer having but one story to a house, but for the greater economy of two, the same amount of roof (the most expensive part of our buildings,) covering twice the amount of space, compared with a one story house. The stairs to the second story have their entrance from the hall, and a second flight from the common room, and then into the cellar under the last, the entrance from the pantry. The store room may be converted into a cheese room by dairy farmers. The size is 39 feet by 30, (varying according to the number of the family)—sitting-room 15 by 25 feet—common 15 by 18, and sleeping 15 by 12—pantry and store-room 9 by 12½ each. Three entrances, two on the south side, into the landing place, one between the sitting and common room, one into the common room, and one into the store room; there are 3 or 4 windows to each story on the front or end standing to the west on the plan, and as many as needful on the northern side and each end; one chimney, which can be reduced in size if stoves are contemplated for warming the house.

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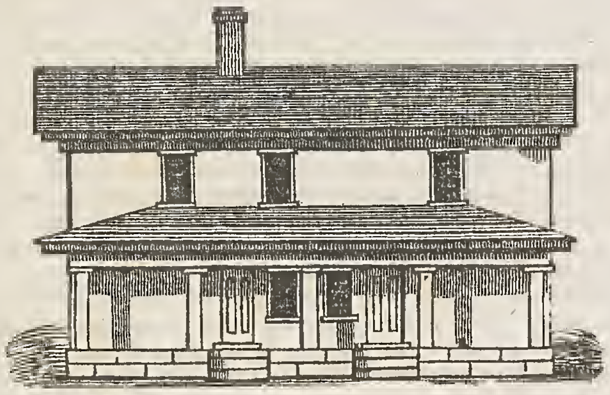
* Mr. Jewett subsequently sent us his estimate for wood, brick and stone; and for the two latter materials the cost is estimated at $1,450.—*Cond.*

The cost, including cellar and painting, built in a plain but substantial manner, estimated at the market price of mechanic labor and materials for the whole, falls a little short of eleven hundred dollars, but say in round numbers $1,100. I think that although the price of materials and perhaps labor may vary in different sections of our country, the cost of such a structure will not much exceed that sum in any part of it.

[Fig. No. 33.]



And now to the main object of my communication.—I have long looked with regret upon the habits of my countrymen, of estimating the present cost of any structure they are about to build, without extending their views to posterity. Cheap buildings, that will answer for the present, with perhaps a little ornament for outward show, is the rage. This is eminently so in building bridges, houses, barns and out-buildings. Now it seems to me, that economy alone would dictate to him who is to build, to take into consideration durability as one of the first elements in his calculation, and if he finds that a stone structure, which will endure say only thrice the length of time of a wood building, at from one-eighth to one-quarter increased out-lay at the outset, will, in the end prove much the cheapest; and add to this, the trouble and vexation attendant on building, which every generation must go through, if we follow up our present habits, gives greatly the advantage to durable structures. I have been led to make a calculation of the comparative expense of an entire wood building, with one of stone, and I find the difference is not by any means so great as is generally believed. I estimate, in the plan I have presented, the cost of timber, boards, nails, paint and labor necessary for the outside of such a house, and which would not be used in one of stone, to be $245. The cost of stone for walls and labor for the same, would be $320. The roof and the material for the inside will be equal for each, so that the difference is the small sum of $75. I am aware that the expense of stone will vary according to the facility of procuring them; but when we take into consideration the fact, that small stone of almost any shape, well laid in good lime, will make as good walls for buildings as any other, and that but few sections of the country but that have them in quarries or scattered over the surface of the soil, the expense will not be so greatly variant as we should at first expect. I have estimated the cost per perch of stone, including laying, at $1.50, but a house has recently been built in this vicinity, which cost but $1.12 per perch. I think, therefore, that $1.50 per perch may be a fair estimate, in ordinary circumstances, of the cost of stone work for buildings—and who can doubt the greater durability and comfort of such houses? Let the moss covered cottages of our father land, which have from generation to generation stood firm and undecaying monuments of the wisdom of our ancestors in building, speak for the first; and for the proof of their superior comfort, a neighbor of mine built a stone house fifty feet square, which he has sufficiently warmed for the two past years, at an expense of $25 per year in wood fires. It is true he used stoves, but he attributes, as one great cause for this saving of fuel, the imperviousness of his walls to the cold air. If this is true, that stone houses need so much less fuel to warm them, and I cannot doubt the fact, the saving of fuel alone would pay the extra expense of stone houses.

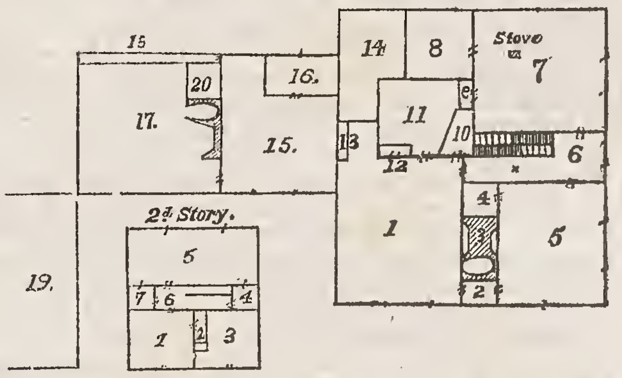
But I am extending my communication farther than you can spare space to occupy, and I will forbear, only suggesting a thought or two regarding roofs. Shingles are becoming scarce and inferior in quality, and we must look for a substitute. Slate are expensive, liable to break, and I suppose not quite tight; (of this, however, I have no personal knowledge;) and in casting about for a good covering, sheets of zinc have appeared to me to be a desirable article. It has one good quality, at least; it will not rust like tin. Cannot some of your correspondents tell us where it has been tried, and how well it answers? Such knowledge would be very desirable to future builders.

Respectfully yours,
EGBERT HAWLEY.

Derby, Vt. 4th Feb. 1839.

Judge Buel—Dear Sir—I send you the plan of my dwelling-house, with the improvements which several years' occupancy have suggested. In size it is 38 by 30 feet, built of a planked frame, with one tier of brick on the outside. This serves to exclude cold and moisture more effectually than any other material. Cellar as large as house, 7½ feet deep. The conveniences of the inside will be seen from the rough draft annexed.

[Fig. No. 34.]—Ground Plan.



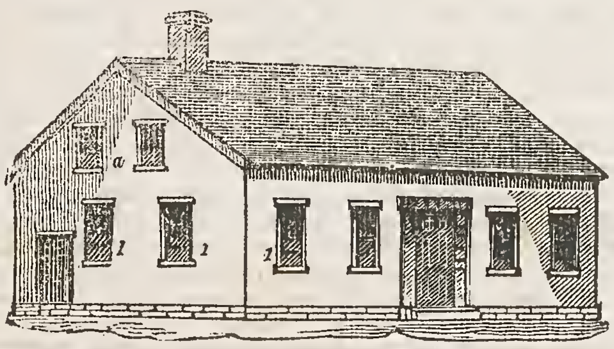
No. 1, Kitchen, 14 by 19 feet. No. 2, Entry or passage to No. 5. No. 3, Fire-places and oven. No. 4, Closet. No. 5, Sitting room, 11½ by 15 feet. No. 6, Front entry, 8 feet wide. No. 7, Parlor, 15 by 15 feet, warmed by stove, the pipe passing into chimney resting on beam at *a*, (Fig. No. 35.) No. 8, Bed-room, 8 by 9 feet. No. 9, Cupboard. No. 10, Place for hardware, brooms, &c. at the entrance to the cellar. No. 11, Bed-room, 8 by 9 feet. No. 12, Cupboard. No. 13, Sink. No. 14, Buttery, 7 by 12 feet, having a cool part of the house, as it is or the north side, the house fronting the east. No. 15, Back kitchen. No. 16, Meal-room. No. 17, Wood shed. No. 18, Walk. No. 19, Shed and barn. No. 20, Waste room for setting away cooking utensils. *Second Story.*—No. 1, Sleeping room, warmed by kitchen stove-pipe. No. 2, Chimney and closet. No. 3, Sleeping room; (Nos. 1 and 3, 14 by 15 feet, with fire-place or stove.) No. 4, Small room, lighted from hall. No. 5, Hall, a large room for spinning and weaving, or for beds; size 15 by 28 feet, or it may be divided by partition. No. 6, Bed-room or closet, lighted from hall; stove in the hall.

Thus I think you will perceive by this arrangement, at least one advantage—that the greatest possible amount of room inside is secured, in proportion to the dimensions of the building. I would also invite the attention of farmers to the materials of which the house is built, as affording for cheapness, strength, and durability, as well as security from the effects of dampness and cold, the best now in use to my knowledge. You will notice this building fronts upon a road running north and south. The road being changed will somewhat affect the position of the rooms.

I suppose the first object to be attained by procuring a model of a farm-house, is in the plan of the lower part or basement story; of course the dimensions may be lessened or increased, and each builder will use his own discretion as to size as well as heighth of his dwelling. My house is one story and a half, so the proportions of the upper rooms are somewhat curtailed by the slope of the roof: this may be remedied by building a little higher, if thought an inconvenience.

The doors are marked in Fig. No. 34, thus (⁏)—the windows are marked thus (·). Fig. No. 34, presents a ground plan of the house, and Fig. No. 35, the front side and south end. 24 light windows in the basement story, and 20 lights in the upper story.

[Fig. No. 35.]



Of the back kitchen, I have given but a loose description, as its size will of course be determined by the necessities of each proprietor. Very respectfully yours,
WILLIAM VERBACK.

Efficacy of Lime in preventing Insect depredations—Mildew of the Gooseberry.

Mr. Buel—Sir—Although not a tiller of the soil, I have lately become a subscriber to your valuable paper, and feel a disposition to perform what little may be in my power, to increase the stock of agricultural knowledge, and to stimulate to renewed exertions those who are practically engaged in this all important, though still too much neglected source of national wealth and greatness. In the Cultivator for May, page 57, I observed a communication, which stated among other things, that a piece of corn on ground where fragments of wall, &c. had been strewn for manure, was exempt from the ravages of worms. This recalled to my recollection some facts which were communicated to me in conversation some time ago, by an intelligent old gentleman, who was for many years a farmer in Columbia county, in this state, and which were in substance as follows:—He once applied what he supposed at the time was plaster or gypsum, but which was afterwards ascertained to be lime, to a number of hills of corn, potatoes, cucumbers, melons, &c. It was applied at the time of planting, about a handful being thrown directly over the seeds in each hill, previous to their being covered with earth. He remarked that the corn to which this application had been made, was entirely exempt from worms, while other pieces of corn in the vicinity suffered severely from their depredations. The cucumber and melon vines, &c. were also exempt from their attacks, neither were they troubled by the striped bugs or flies, with which they are generally molested. The gentleman assured me, that he had afterwards repeated this experiment a number of times, and always with a like satisfactory result. It would seem from this, that lime is to a great extent a preventive of the ravages of the grub and other insects, when applied at or previous to the time of planting. The mode practised by my informant, may not answer for all soils and situations, but the same result might probably be attained by throwing the lime mixed with earth over the surface, and ploughing or harrowing it under previous to planting.*

A short time since, at the house of a friend, while overlooking a volume of the Cultivator, (for 1835,) I noticed a communication in which hydraulic or water lime, (some account of which was given in a recent number,) is highly recommended as a paint for fences, out-buildings, &c. The writer asserts that it is more durable and much superior in all respects to common lime. With the exception of stating that he mixed it with skim milk, he gives scarcely any directions respecting the proper manner of applying it. I shall be pleased if some of your correspondents, who have used the water lime for such purposes, will communicate the result of their experience, and if favorable, state the best method of mixing and preparing it, &c.

There are, in my garden, some young gooseberry bushes, which have been well manured and pruned, but the fruit, since they commenced bearing, (about three years ago,) has been uniformly *rusty*, as it is commonly termed. To prevent this, I have tried several remedies without success. Last year, seeing salt dissolved in water somewhere recommended, I had it sprinkled over the bushes several times, commencing when they were in blossom, but without any effect. I have also tried lime, (recommended I believe in the Cultivator.) Last fall, it was applied freely about the roots, and the branches whitewashed as thoroughly as practicable, and a small quantity mixed with water was sprinkled over the bushes two or three times this spring. This experiment answered no better than the other. It would be a source of gratification to me, and doubtless also to many other persons, to be informed of any effectual remedy for this disease, which may be known to you or any of your numerous correspondents. Respectfully yours,
E.

New Utrecht, L. I. July 18, 1839.

Remark.—We have cultivated the gooseberry eighteen years—during sixteen of which, we lost most or all of the crop by mildew or rust;—but the last two years the fruit has been fine, clean and healthy. We impute the recent exemption to the application of brine (salt and water,) to the ground about the bushes in the month of February, which we have done two years. We consider the mildew a vegetable parasite, which abides permanently upon the collar and root of the bush, and from which seeds are disseminated, under a suitable state of the atmosphere, in summer, to the fruit; and that the application of salt, when vegetation is dormant, destroys the parasite without hurting the bush. Pickle may be used in the growing season, at the rate of one ounce of salt to one gallon of water. In winter it may be made much stronger.—*Cond.*

Crosses of Vegetables.

Deep River, Ct. 16th July, 1839.

J. Buel, Esq.—Sir—Will you answer me, in the Cultivator, the following questions, giving either your own opinion, or that of correspondents? I think the English writers and some others are not correct on that subject.

1. What kinds of vegetable, vine or plant, will cross or mix, so as to produce a good or bad kind?
2. Will any that does not produce a kind between the two, injure each other in this way?
3. Are not many of our seeds injured in this way, producing worthless plants among good crops?
4. Will not the potatoe bulb or root, be injured in the blow, crossing without making use of the seed?
5. Will not perennials and annuals sometimes mix together in the blow?
6. Will the cucumber and melon—the muskmelon and watermelon, or the melon and squash, mix so as to inure the seed?
7. Will not all of them in their own kind, mix or cross so as to produce good or bad fruit or roots? Yours truly,

PHINEAS PRATT.

ANSWERS.

1 and 2. Vegetables, like animals, will mix and produce

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* If lime is a preventive, it must be owing to its caustic quality, and should of course be applied in a fresh burnt state; and it would seem better, as a guard against the cut-worm, to apply it on the surface, after the seed is covered. The soil about the young plant then becomes saturated with the alkali, which must be obnoxious to the grub. We have applied both ashes and lime in this way to our corn; and although the crop sustained no injury from the worm, we cannot exactly say that the lime and ashes saved the corn.—*Cond. Cult*

new varieties, through their seminal organs, or seed vessels, if they are of the same genera, or varieties of the same species; and the progeny, as in animals, will be like the parents, good or bad, better or worse than the female, according to the quality of the male, which impregnates or fecundates the female sexual organ.

3. Many of our field and garden seeds are greatly deteriorated in this way. Hence, among gardeners, no two kinds of cabbage, or of turnip, &c. are allowed to seed near each other, lest they should change the variety desired to be preserved pure; hence florists destroy single and imperfect flowers, lest they should fecundate and spoil the seed for double flowers; and hence, too, our field seeds deteriorate, under careless husbandry, until they become in a manner worthless.

4. The potato will mix, like other plants, through the blossom and ball, but not through the tuber; that is, the seed of the ball will produce new varieties, but the tubers will not.

5. We think perennials and annuals will not mix, though of the same genera.

6. Different species and varieties of the cucumber, melon and squash will mix with some of their own genera, but not with another genera, and not with all of their own; as, for instance, we doubt if the seed of the muskmelon is affected by the contiguous growth of the cucumber; or the seed of the watermelon by the contiguous growth of the squash, though the two first belong to the *cucumis*, and the two latter to the *cucurbita* family. Again—the egg plant, tomato and potato belong to the genera *solamum*, yet we do not think the blossoms of the one affects the seeds of the other.—*Conductor.*

Poudrette Manure.

Mr. J. Buel—Dear Sir—I purchased last spring, a few bushels of this article, which I applied to corn and potatoes; making experiments of different quantities to the hill, in order to test its strength more fully. The experiments have resulted favorably—one hand full or a gill, being sufficient in the hill to cause either corn or potatoes to vegetate sooner, and outgrow what was planted at the same time on other manure. It has also been tried in this county on wheat, and I am informed that it answers an excellent purpose. I believe it to be *more fertilizing*, and at the same time *cheaper*, than any other manure used in the vicinity of New-York. It may be put up in barrels, and sent to any part of the country.

"*The New-York Urate and Poudrette Company,*" by whom it is prepared, is located on the Hackensack river, New-Jersey, having an office in New-York city, where orders are received.

JOHN G. BERGEN.

Brooklyn, Kings co. July 18, 1839.

Underdraining with Pine Gutters.

Southampton, Va. July 8, 1839.

Judge Buel—Sir—I get good information from some of your correspondents; and what little I know about underdraining, your correspondents shall be welcome to, if you think it worth publishing.

About six or seven years ago, I put down an underdrain in the following way:—In the first place, I cut a ditch the width of the spade, deep enough to make the land dry, and was careful to make it well. I then sawed blocks off of logs, about eight inches long, and rived them three or four inches wide and one inch thick, and lay these pieces across the ditch, about five or six feet apart, and settled them level with the bottom of the ditch. I then went to our piney old fields, where we have a plenty of pine poles, and cut those down about eight inches through, and dug them out in gutters; the poles may be from 12 to 18 feet long. After I got a sufficient number of these gutters dug out, I hauled them to the ditch, and commenced at the upper end of the ditch, and laid the first down, the big end of the pole at the upper end of the ditch, and the second pole was to lap on the little end of the first, and so on, until I finished. After all the poles were down, I hauled pine straw or pine brush, and filled the ditch about half full, and then returned the dirt, and the ditch was done forever. Since I put down the first drain, I have put down about 900 yards, and if I live, I intend to put down in the same way, all the ditching I shall make the balance of my life time. The durability depends upon how long the gutters will last; but as the air cannot get to them, I believe they will last 50, or perhaps 100 years. Yours, &c.

JESSE LANKFORD.

N. B. The big end of one pole is to lap six or eight inches over the small end of the other.

Bloody Murrain.

Judge Buel—Sir—Under this head I find in your last (July) Cultivator, a piece written by A H. F. Payne, (who appears to be a resident of the state of Missouri,) on his experience of the bloody murrain in cattle. As he appears to be unacquainted with the disease and its preventive, I am induced, from a long experience, to endeavor to throw some light upon that subject, for the benefit of those living in countries subject to that fatal disease, which I believe all new countries are subject to, while their cattle run at large through the summer season.

1. I hold that one ounce of prevention is worth a pound of cure.

2. I have found that wood ashes given in equal parts with salt, at the usual times of giving my cattle salt, for the last twenty years, has been a certain preventive.—This is my remedy—try it, Mr. Payne.

3. The bloody murrain is occasioned by an extended and overflowing gall, affecting the liver, causing the leeches or blood-suckers therein, and the flow of blood outward or inward, and death follows. Many other prescriptions might be given for reducing the gall, but I know of nothing so handy and cheap as to mix ashes with salt. Cattle themselves apply the remedy when they can come at lye made of wood ashes.

4. As the disease prevails more in new countries than old, and vastly more with cattle that run in the woods than with those in enclosed pastures, I infer that the woods herbage induces these extended galls to a ruinous extent. As the gall is some time in accumulating, it will be some time in diminishing; by this course, therefore, no person should trust a few messes in a season, or a cure when the liver is rotten. The working ox, the milch cow, the young and the old, the fat and the lean, I have had and seen die with the murrain, but all had extended galls that I ever examined; and perhaps no country has been more afflicted with this disease than the Western Reserve, in the state of Ohio, of which I have been a resident for thirty-five years, and am a practical farmer, and have not lost a creature with the murrain for the last eighteen or twenty years. Although I have now no occasion to let my cattle run in the woods, I still continue to use ashes with salt, fearing the result of neglect, having formerly lost many cattle.

I am sorry to hear that Mr. Payne is paying $5 per bushel for Baden corn, and that all a cheat. I think in his climate, the good yellow flint and perhaps red cob would do just as well; but he probably thought that when men had been detected in selling wooden pork hams, neatly canvassed, wooden nutmegs, and mullein for tobacco seed, &c. that the rogues had done cheating. Most respectfully yours,

JONATHAN WARNER.

Ashtabula co. Ohio, July 15, 1839.

Hon. J. Buel—Dear Sir—Judge Warner, the writer of the above article, is a practical farmer, residing in this place, and a man who has had many years experience in horticulture, and I hope you will give his article a place in your valuable paper. Very respectfully,

S. M'INTYRE, P. M.

Force of Prejudice—Utility of Premiums.

> "Men are fond of certain tenets, upon no other evidence but respect and custom; and think they must maintain them, or all is gone. Though they have never examined the ground they stand on, nor have ever made them out to themselves, or can make them out to others."—*Locke.*

This remark is applicable not to the understanding alone, but to the continual practice of men in their every day pursuits. No occupation is exempt from it, and upon none does this blind servility of the mind exercise a wider or more pernicious influence than upon agriculture.

Farmers generally are proverbial for prejudice, and an obstinate adherence to old fashioned and long tried methods of doing every thing; and nothing but the example of others, making the results of their innovations palpably and undeniably beneficial, will ever effect a change. This disinclination to change, or to adopt "new fangled notions," as they are frequently termed, arises from several causes; foremost of which may be considered the situation of farmers, retired, and beyond the influence of public spirit, and that enterprise and energy of character which impels others to improvement. Secondly, the want of means or capital to risk any deviation from a long tried course, without the certainty of remuneration. And, lastly, ignorance, the foster mother of prejudice and conceit, handed down from one generation to another, nursing itself in its own blind self-sufficiency, and effectually excluding the light which science, reason and philanthropy are struggling to disseminate for the benefit of others.

It is, however, cause of gratification, that the attention of farmers has at length, in some measure, been aroused, and that they are beginning to shake off the apathy that has so long enchained them. For the last three years, in many parts of our land, there has been a steadily increasing, and permanent improvement in the art, which, considering the small amount of light diffused, and the strength of prejudice opposed to it, has scarcely a parallel in the annals of agriculture. It is true, in parts of the old world, the products of the soil have been increased to a most wonderful degree; yet the improvement has been more gradual and limited in its extent; confined to certain districts or counties, where intelligence, united with ample means for experiment, guided the large proprietors in their endeavors to improve their unproductive estates. In this country there has been no stimulus of that kind to arouse the energies or to excite the ambition of the humble cultivators of the soil; content to live from hand to mouth, earning a mere subsistence, our farmers have groped along in the same beaten track, for the last fifty years. But light at last is beginning to dawn upon their benighted faculties. The press—that powerful instrument of good or ill—is insinuating itself into every hamlet and cottage. Rail-roads and steam-boats have raised, as by an enchanter's wand, fertile valleys and pretty villages from the deep seclusion of remote distance, to the admiring eyes of men of taste and science from the city. Intelligence and capital are at work in the country, developing its capabilities, and adding interest and beauty to its natural charms. Science has invaded the territories of ignorance and simplicity, and lo! the change.

Yet the struggle has but commenced; although in many favored parts, the genius of improvement has alighted in her course, still there is a vast extent of territory where the obstinacy of habit, and blind adoration of ancient customs, are still to be combatted and overcome. How this is most readily to be effected, is yet a matter of question; in the great work of reformation and improvement, our agricultural papers are certainly, so far, entitled to the largest share of merit; but their influence has been mostly confined to the upper class of farmers—men of intelligence and property, who expect to realize a certain percentage for their investments; which, failing to obtain in the ordinary methods of cultivation, they seize with avidity upon any thing which promises better; and partial success prompts to further experiment. With these, prudence and a just economy are all that is necessary. Once excite the energies of an intelligent mind—let it be interested in the occupation before it, and its course must be onward. The field of agriculture is the field of science, and the further we advance in it, the brighter and more interesting are the charms unfolded to our view.

It is the poorer, and by far the larger class of farmers, for whom the sympathies of the more enlightened should be enlisted. Their improvement offers a wide field to the philanthropist and patriot also; for as they excel in numbers, so also must their efforts affect the general prosperity of our common country. But their numbers exclude the possibility of individual exertions in their behalf. By furnishing them with cheap publications, or giving them access to works of science which they can comprehend, we may certainly benefit a few, but the great mass must be operated upon in a different manner; with them, the value of any instruction cannot be appreciated, unless its connection with material improvement be distinctly shown. They must be spoken to in the language of dollars and cents, and this can only be afforded by legislative bounty, in the shape of premiums, for excelling in the different branches of their business. Tell a man who has been accustomed to get his stock through the winter, by feeding them the refuse and unmarketable forage from his hay or grain crops, that it would be better to devote time and labor to the cultivation of roots for the same purpose, and he cannot comprehend you; nor will he, so long as he does not clearly see the advantage; but urge him to the attempt by offering a sufficient inducement, in the shape of a premium for any particular crop, and when it is once grown, it must be either fed or sold. In either case it acts beneficially; for it must be obvious to the dullest mind, that what will remunerate the purchaser, certainly must the producer, if consumed in the like manner.

The same argument holds good with stock, and all the various products of the farm. Offer sufficient inducement to raise none but the best, and the poor will speedily disappear. And why should it not be so?—Can our legislators, who have frowned down every effort to extract but a pittance for this noble purpose, offer one plausible reason for withholding it? Can they be so wilfully blind as to refuse to see its benefits, or so wanting in patriotism as to deny but a small amount for a public good, when they unhesitatingly lavish thousands for the enrichment of the few, who openly speculate upon the property of that public? If so, then upon them should be cast the reproach which now attaches itself to the low state of agriculture in our country.—And let those who now feel the reproach, manifest their indignation in the proper place, and when the proper time arrives.

Our farmers are justly termed the bone and sinew of our country. It is high time for them to show the strength of the material they are made of. Let their voices speak from the ballot box—let them discard all party distinctions, and look only to the integrity and honesty of their candidate, and let him be one who has shown, by his exertions in their behalf, that he has his country's good at heart.

L.

New-York, July, 1839.

Experiments with Poudrette.

Narrows, L. I. July 23, 1839.

Mr. Buel—Having procured a few bushels of poudrette from the New-York Urate and Poudrette company, who are extensively engaged in its manufacture, for the purpose of making experiments to test its efficacy, I will give the results as far as present appearances indicate, for insertion in your valuable journal, if you deem them worthy of a notice.

A compost was made by mixing the article in question with city-stable and hog manure, in such proportions as to make the cost of a bushel of the mixture double that of the same volume of the stable and hog manure. This compost was used for cucumbers, melons and corn; putting the usual quantity in the hills in some rows, and in others less: in the growth of the vines of the two first and yield of the cucumbers, I find nothing to warrant a belief of sufficient advantage to compensate for the extra expense; but the corn, when it came up, was of a darker green, grew more rapidly, and still holds the ascendency over the adjoining rows, which were manured in the usual manner. Two rows of corn adjoining the others were also manured with half a pint, and two rows with a pint in a hill of the poudrette alone, covering it with soil previous to dropping the seed; for I find by experience that corn does not prosper when planted in contact with hot fermenting manure: in the growth of these rows there is but little difference; those containing the largest quantity excelling; but they all flourish more than any others in the field, and are also superior to those in which the compost was used. A pint of poudrette mixed with the soil in each hill, was applied to two rows of cucumbers; these appear to grow and yield about as well as the adjoining rows, in which the ordinary manure was used.

Also planted in May on clover sod, in rows, a small piece of Mercer and kidney potatoes with good stable manure, a large shovel full on four potatoes; each tuber being 15 inches apart, excepting a row of each kind in which a half pint of poudrette alone was dropped on each potato: those last vegetated sooner, and the vines are stouter and more thrifty than the others.

From all appearances, the yield of the corn and potatoes on which poudrette alone has been used, will exceed the others; but the final result I intend accurately to ascertain and communicate to you when the crops are gathered in the fall.

My object in writing this communication, is to draw the attention of agriculturists to this kind of manure; which, without doubt, when properly applied, will prove as in France, China, and other countries, a valuable auxiliary to the farmer; and I hope that those who are better qualified many be induced to take the matter in hand and enlighten the public, so that the most judicious modes of application for the different crops and varieties of soil may become known. The conversion of a substance into a valuable manure, which in large cities for ages has been consigned to the river or otherwise dissipated and lost, and which increases the productions of the soil, and assists in making our land teem with plenty, must prove beneficial, not only to farmers, but to the whole community. Especially to the farmers in the vicinity of New-York will it prove to be of great benefit; for they possess not the unexhausted soil of the west to operate upon; they are compelled to fertilize their land or starve; to pay thousands of dollars for the sweepings of the streets and emptyings of the stables, of which in consequence of the increased demand and facilities of transportation, it is difficult even to obtain a sufficiency, although the price has nearly doubled in the last 20 years.

There may be some failures in the experiments made with this kind of manure, before the most judicious modes of application are ascertained; yet its final triumph and ultimate success may with safety be predicted. Yours, TUNIS G. BERGEN.

The above communication was submitted to Mr. Peter Barthelemy, who is one of the discoverers of the process of making urate and poudrette, and who is the only introducer of the article in the United States, and who joined the present company for the purpose of manufacturing urate, has made the following remarks:

"It will not answer to make a compost of poudrette with any other *manure*. It must be applied to the earth or soil as delivered from the factory: because the poudrette will act immediately upon the compost added to it instead of the vegetable matter in the soil; and the consequence is, its effect upon vegetation will be retarded, as long time as it will require to have the other part of the compost absorbed, and the additional compost will be lost to the vegetation; the poudrette being of a stronger nature will first absorb any other manure before fertilizing the crop; in other words, poudrette alone is worth more than all the additional compost manure added to it. P. BARTHELEMY."

The Wheat Fly

Is an animal that has never attacked my grain. It has so happened that my neighbor's wheat and mine were in adjoining fields, separated only by a fence; that his wheat was nearly destroyed by the fly, and not one discovered in mine. The only solution I can give to it is as follows:

My wheat *is uniformly* sowed late, never until there has been a hard frost,—sufficiently so as to kill insects of that kind. I cause a strong solution of salt and water to be made, sufficiently so to bear an egg; and my wheat is soaked about 24 hours in it, and then rolled in lime on the barn floor. When that rule has been followed, my crops have been about as good as my neighbors, when their wheat *was not affected* with the fly.* Great care should be taken not to soak the wheat more than about 24 hours, and then rolled in lime; else the germinating quality of the wheat may be destroyed or injured. A. DEY.

New-York, 23 *July*, 1839.

How to increase the circulation of Agricultural Papers—Subscribers' Duties.

Lake C. H. Ia. July 18, 1839.

My Friend—This is to you—I see you about to pass over and not read this article—you don't like the title! It an't interesting to you, do you say? Look again—look at the signature,—did you ever see my name to an article in this paper that did not interest you? There now, you see I am an old acquaintance. No. Well, then you did not take the last volume of the Cultivator. The more's the pity. Thousands who read that, will remember me right well. They will expect something interesting as soon as they see this article is from their old friend. I beg of them, as well as of the publisher, a thousand pardons that I have neglected them so long. My conscience has not been easy for months. I knew I had not done my duty. For when a man, particularly a friend to agricultural improvement, knows that he has a talent to be useful and interesting in his writing; that by a little light labor of his pen, that he can lighten the labor of his fellow laborers, he *neglects his duty* if he neglects to do it. You need not call me an egotist, because I say that I know I have that faculty. Thousands have told me so; and I now here tell you that I have neglected my duty. Reader, have you neglected yours? did you write a letter to your paper, and because it was not published, say you would never write another? Did you say further, that you would never subscribe for the paper again? Shame on you then,—Oh! you was only angry a few minutes,—you're over it now, and think yours the best paper in the world. You think you made an hundred dollars more off of your farm last year in consequence of taking it. So do I. I'll tell you another thing that I think. I think that the readers of the Albany Cultivator alone, made $50,000 more in their various occupations last year in consequence of reading it; and equally so of the New-England Farmer,—The Genesee Farmer,—the Franklin Farmer,—the American Farmer, and so on of every good farmer's paper, in just proportion. There is another thing I think; that the increased value of those readers' farms is twenty times the above sum. There is another thing I think; think, why, I know it. I know it by my own feelings. I know that the increased happiness of those readers was worth twenty times more than all the increase of property. Suppose then that the circulation was doubled,—yes, but don't every body subscribe that wants to, now? No, not half. But you can get them to—and it is *your duty* to do it; you an't able to pay for any papers to give any. Who asked you to do it? There is your neighbor Jones that always is reading yours when he can get a chance, and who never has a dollar that he thinks he can spare to pay the subscription; would be glad to take the paper and pay you in chopping wood. Now do you think you did your duty last year? you know you had a two dollar bill, and it cost you some trouble to get it changed when you sent for yours; you might just as well have sent for two copies and let Jones have had one. He would'nt have lost them two fine old sheep if he had read the Cultivator; because he would have seen that ruta bagas were just what they wanted. But poor man; did'nt know it. There is your neighbor Williams too; you had some dealings with him, and he would have been glad to have taken the paper from you, "in the way of trade;" "because that would not be paying out money," though you paid it to him. Now you know that he lost nearly all his first planting of corn by the insects, birds, &c.; and then came up to your house to "get the receipt out of the paper how to doctor the seed." But then it was too late to replant; so he planted beans. Did you ever see a finer crop? Got nicely ripe and pulled and hung up on the scattering corn, lugged out to the fence, and stone heaps, &c. to put up to dry. Well, there came on a long warm rain; and poor man, he lost the whole of them nearly, more than an hundred bushels. Do you remember when he came to your barn, and the conversation? "Did'nt you lose your beans, neighbor Thomas, that warm rain?" says he in perfect astonishment, "I saw you pulling them the same day I did,—and mine were the ripest. Why bless me, how bright they do thrash out. Now in God's name, do tell me how you saved them?"

"Why, I read it in the Cultivator more than a year ago."

"Good heavens, 'twould have been worth more than an hundred dollars to me."

"So it was to me—and then it's so easy and simple; take a parcel of stakes,—I took old bean poles out of the garden,—out into the field and stick 'em round, and put a few stones or sticks at the bottom, and then pull the beans: no matter how green they are, and stack them up with the roots touching the stalkes until you get high enough; and then tie the top course with a little straw or a string, and the trouble is all over; they will cure as well as a shock of corn, and injure less."

"Well now, I have always intended to take that paper,—but I never had a dollar to spare at the right time to send for it." Now my friend, do you think you did your duty? If you had, would you not have sent for a paper for each of these neighbors, and in a manner compelled them to take them?

I got five and twenty into circulation "in the way of trade;" can't you? don't be mistaken,—I mean YOU.—Can't you get one; just one more subscriber; it is *your duty*. Nothing can sustain this government but an improvement in her agricultural branches. I don't know how many hundred millions of dollars we are in debt. We? Yes, WE. You and I, and every *producer* in the government. On that debt annual interest must be paid. Must be paid by a tax on agriculture. Let it be mystified as much as it may, 'tis the only way whereby under heaven that it can be paid. 'Tis the farmer that pays for every rail-road and canal, whether useful or not; and when farmers are so much in debt, it is time they were improving the means to get out. How can they improve without they gain knowledge? How can they gain knowledge unless they read? How can they read unless they are provided with papers or books. How can some of your neighbors provide themselves, unless you assist them? Then for once attend to this SOLEMN DUTY. Don't let your conscience rest one day, until you have procured one more subscriber to this paper. And if you can't procure a subscriber, send yourself and procure another set, (20 if you are able,) and distribute them among your neighbors; you will soon see the leaven work; the corn will come up, the beans will be saved, and you will rejoice at the end of the year, as you think to yourself, "how much good I have done with so small a sum." And here I make you a proposition. At the end of the year if you are dissatisfied that you have followed my advice, write to the publisher and your money shall be refunded to you. He will endorse this proposition for me I guess.

And this reminds me, the last of my "extra" numbers is used up "in the way of trade;" add another to my list, I must keep one on hand; 'tis *my duty*; 'tis the way I make up my list of subscribers—and it is certainly a large list for a place so new, where all are poor and new beginners in life.

But the effects are visible. There are no "Nick Bradshaw's" in this settlement.

There are some other duties that "we owe one another," but my letter is already too long. I shall write again. In the mean time think of the *duties* here pointed out. Can you deny them to be truly stated? Then instead of thinking, be up and doing; and truly you shall meet your reward. Most truly your agricultural friend, SOLON ROBINSON.

Holbrook's Revolving Horse Rake.

Whitesboro, July 20, 1839.

Jesse Buel Esq.—Dear Sir—I have used the revolving rake of Holbrook & Co. on my meadows for six or seven years past; and am confident that a man and horse can rake more than ten men with the common rake.

Mr. Holbrook's rake is superior to any I have seen; and I confidently recommend it as better than any horse rake now in use. Respectfully your friend and obedient servant, S. NEWTON DEXTER.

Remark.—We have received, but have not yet been able to use, one of Mr. Holbrook's rakes. Our grass is generally too heavy for a horse rake—two rakings by hand serving for a tolerable winrow; and our habit of making our hay in grass cocks superseding spreading the hay. They are for sale at W. Thorburn's, Albany.—*Cond.*

Principles the bases of correct Practice—A Proposition.

Stockport, 7th mo. 1st. 1839.

Respected Friend J. Buel—I have long been a reader of the Cultivator, and have derived from its pages a great deal of pleasure and a great deal of substantial benefit. I commenced farming without any previous acquaintance with the business; hence the large body of sound practical information contained in it, has been peculiarly valuable to me. I have, however, regretted that so many of the dicta advanced by thy correspondents are based on the narrow foundation of a single experiment.

It is unfortunate for the progress of the *science* of agriculture, that this habit of theorising on the basis of a single experiment has become so inveterate with our rural population; it seems to me that among other evils resulting from it, is the strong distaste for *book farming* which is manifested by so many farmers.

They find in one treatise, that the phases of the moon should be strictly attended to in all agricultural operations, because he has tried the experiment and found it to be so. Another author advises us to plough and sow whenever we are ready, without the slightest regard to lunar influence. He has tried the experiment and found that the moon had neither part nor lot in the matter.

This controversy respecting lunar influence, is very far from standing alone as an example of the contrariety of opinion existing among our most enlightened agriculturists; indeed, there is scarcely any single practice recommended by our agricultural writers but what a diametrically opposite practice is strongly enforced by another, and both appeal to *experiment* to support their respective opinions. The unsophisticated farmer, puzzled, and perhaps led astray by these conflicting opinions, imbibes the idea that experiments are very fallible things; and that book farming is only fit for those who have plenty of money to *lose*: hence, he either goes on in the old track of his fathers, or finding that guessing is far easier than experimenting, and that it leads to results quite as definite, forms a theory of his own, and does well or ill, according as it approximates to truth or error. Now in experiments conducted by those who know how to interrogate nature, there is none of this ambiguity; the results are as certain, and the general laws deducible from them, stand on as firm a foundation as any of the propositions of Euclid; those who have traced the masterly investigation of the nature of caloric by Dr. Black, which resulted in the discovery of latent heat,—or that of the properties of oxygen by Lavosier, which resulted in establishing the theory of combustion, will have no difficulty in asserting that the same skill and patience which were exhibited by these illustrious masters of the Baconian or inductive system of philosophy, be applied to the solution of any of the vexed questions in agriculture, the result would be equally satisfactory; and let me remark in passing, that I know of no way in which thou couldst employ thy gifted pen more profitably, than in giving a plain and simple abstract of the fundamental principles of Lord Bacon's celebrated system of inductive philosophy.

It is a disputed question amongst farmers, whether plaister ever benefits clay land,—as usual, there are plenty of experiments on both sides. I have frequently sown it on clays without the smallest perceptible benefit; but this spring, I was told to sow it at the time of full moon in April. I did so; and there is nearly twice as much grass as there was last year. This of course is conclusive that clay lands are *sometimes* benefitted by plaister; but it affords very little light on the far more important question, (under what circumstances is it beneficial to clay lands?) because I did not pay attention to any of the collateral circumstances.

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* Our correspondent alludes to the *Hessian fly*, not to the *grain worm*; as the latter attacks the ear, and against which late autumn sowing would be no preventive; but rather aid in the work of destruction. The grain in the early sown might be too hard before the fly appeared; but that sown late comes into head in the nick of time for the deposites of the fly.—*Cond.*

I would here remark for the sake of precision, that the clay on which the experiment was tried was of a stiff, adhesive character; containing very little, if any, silicious matter. It contains about 90 per cent of alumina and 10 of vegetable and earthy matter. Now is the success of my experiment owing to my sowing at the time of full moon in April, or to the fact that it was sown early in the season, or to the wetness or dryness of the season immediately following, or to the absence of snow last winter. In order to test the question thoroughly, let eight individuals of leisure, and of moderate acquaintance with science, (one in each senate district) provide themselves with a thermometer and barometer and rain gauge. Let them also provide themselves with a book ruled for the purpose, and commencing on the first day of January next, note in it at 8 A. M., 1 P. M. and 8 P. M.; the state of the thermometer, barometer, and the direction of the wind and the state of the sky with reference to clearness and cloudiness; let the figure 0 represent entire clearness, and 10 entire cloudiness; if the sky is half covered with clouds and half clear, let it be represented by 5, &c.; and let them each day add a note respecting the general appearance of the weather, or any thing in nature affected by the weather. Whenever it rains, let them carefully note the number of inches and parts of an inch that has fallen; when it snows, let them be careful to select a level piece of ground sheltered from the wind, and measure its depth as soon after it has fallen as possible. As soon as the frost is off the ground, let a number of spaces, each one rod square, be marked off contiguous to each other; then as soon as the snow is off, let one rod square be sowed with one gill of plaister, and the square rod next to it which we will call No. 2, be left without any. At the time of new moon in April, let No. 3 be sown with one gill of plaister, and leave No. 4 without any. At the full moon sow No. 5, and leave No. 6; and so on, at the time of new and full moon in May and June; then let the grass on all the ground be cut in one day, and let the weight of each square be separately noted.

Care should be taken to weigh the hay on all the squares as nearly at the same time as possible, so that one may not be dried more than another; and that the quantity of plaister sown be accurately measured. Indeed, perfect accuracy in all the different steps which I have detailed is all-important. I should like to point out the points which I expect would be settled by the experiments, but my paper is already full, and I must close by saying that for the sake of uniformity, each experimenter should select stiff clay,—not black muck, nor heavy loam; but *clay*. Respectfully thy friend,

N. N. D.

REMARK.

A compliment of a bound volume of the Cultivator will be made to any gentleman in each or either of the eight districts, who will carry out the suggestion of our correspondent and send us the result.—*Cond.*

A Bird Story.

Milton, Ulster co. N. Y. July, 1839.

Friend Buel—I would not have ventured to forward the following statement, were it not that the narrator of it, Edward Hallock, of the firm of Wm. Hallock & Brother, of Milton, Ulster co. is known to thee, and known to be of unquestionable veracity. I have heard him before express his conviction, that if birds were protected and cherished by farmers and others, we should never be subjected to the loss of corn or other crops by grubs; and that other noxious insects would be sensibly diminished. There is a small kind of bird (the males nearly black, the females brown,) that is noted for being around and following cattle in the field, as in the case I am about to detail. Mr. H. says, "on the 26th of the present month, I was ploughing for turnips, myself with one team and my son with another; and observing that we were followed by a flock of the above little birds, I took it into my head to notice their motives, to ascertain what was the attraction, when I perceived that their object was grubs. We ploughed up plenty of a small white and a large brown or grey grub, as well as some in a chrysalis state, and angle worms; all of them, *excepting angle worms*, appeared to be acceptable to them; and as the sequel will show, they were capable of devouring large quantities. I should think that one would make way with at least 100 per day. I cautioned my son against making any motion towards noticing them, in any way to intimidate them; as I found they grew more and more bold in their honest avocation, and as the land diminished in width, they would remain in the opposite furrow when not more than three or four feet distant. At length my son spoke cautiously, and said there was one on his plough beam. I then stopped the teams and told the boy to pick up a grub and show it to the bird that had distinguished itself by its tameness. He did so; and the bird immediately seized it. Encouraged by this, I told him to pick up the next white one, and hold it out in his fingers near the ground, crawling down, he did so, and the bird came and picked it out of his fingers! Afterwards he stood up and held out one, and the bird lighted on his hand and picked out the worm. This was repeated until it lighted on my own hand; I raised it up and applied my cheek to its wing without frightening it away. The next day he was not slow in finding us, and practised the same familiarity, in presence of James Sherman, William Hallock and others of the neighbors; it came into the cornfield where the boys were weeding corn, and actually, without any special attraction, perched upon the head of one of the boys; it continued these visits until one of the boys in an adjoining field, could not repress his inclination to seize and hold it. This made him more wary, but he gradually recovered his confidence." I communicate these facts in the hope they may contribute to produce an examination into the subject of how far it would tend to the agricultural interests, to fall upon some method to tame and familiarize small birds, instead of frightening, maiming or destroying them.

Please to concoct something from the above; and from the fact of turkey buzzards being domesticated in Charleston and the southern cities for scavengers—also, that in some province of Germany a premium was offered for the extirpation of a kind of bird, and afterwards doubled to have them back again, on account of the insects destroying their wheat.

E. HULL.

EXTRACTS.

Of the Nature and Action of Manures.

CONCLUDED.

[*From Chaptal's Chemistry applied to Agriculture.*]

Besides the characteristic of providing plants with food, the various kinds of dung possess other qualities, which add to their fertilizing powers. Dung as it is applied to the ground, is never so much decomposed as to have ceased fermenting; and from the moment it is mixed with the soil it produces in it a degree of warmth favorable to vegetation, and serving to guard the young plants against the effects of those sudden returns of cold in the atmospheric temperature, which are so often experienced. On account of the viscous fluids which it contains, dung is not easily dried, unless it be in contact with the air. It therefore preserves the roots of the plants in a state of moisture; and supports vegetation at those periods, when without it, plants would perish from drought. It likewise contains many salts which are transmitted by water to plants, serving to animate and excite their functions. The various kinds of dung, mixed with earth, may be considered in the light of amendments to the soil; and in this view they ought to vary according to the nature of the earth to be improved. Compact soils require to be separted and warmed; they require, then, those manures which have been but slightly fermented, and that are the richest in salts.—Calcareous and light earths require oily manures, which decompose slowly, and can retain water for a long time, to furnish it to the wants of plants in the seasons of drought.

It is by separating these principles, that we may be able to appropriate the various kinds of manure to each species of soil and plant; the attention of agriculturists is already directed, upon this point, to the composition of mixtures of manures, called composts. These are formed by arranging, one above another, beds of different kinds of manure, taking care to correct the faults of one by the properties of another, in such a manner as to produce a mixture suited to the soil to be enriched by it.

For example, if it be required to form a compost for a clayey and compact soil; the first bed must be made of plaster, gravel, or mortar rubbish; the second, of the litter and excrements of horses, or sheep; the third of the sweepings of yards, paths, and barns, of lean marl, dry and calcareous; of mud deposited by rivers, of the fecal matter collected upon the farm, the remains of hay, straw, etc. and this in its turn must be covered with a laying of the same materials as the first. Fermentation will take place first in the beds of dung, and the liquor flowing from these will mingle with the materials of the other layers; when the mass exhibits the signs which I have pointed out, as indicating decomposition to be sufficiently advanced, it must be carried into the fields, care being first taken to mix well the substances composing the different layers.

If the compost be designed to manure a light, porous, and calcareous soil, it must be formed of materials of a very different character. In this case it is necessary that argillaceous principles should prevail; the substances must be compact, the dung of the least heating kind, and the fermentation continued, till the materials form a yielding and glutinous paste; the earths must be clayey, half baked, and pounded, or consisting of fat and argillaceous marl, and mud from the sea coast. Of these all the layers must be formed.

By following these principles in my operations, I have completely changed the nature of an ungrateful soil in the neighborhood of one of my manufactories. Over this soil, composed of calcareous earth and light sand, I spread, during several years, some calcined clayey earth; and this land, upon which I could formerly raise only stone fruit, has become adapted to fruit containing kernels; and produces excellent wheat, whereas before it bore only scanty crops of oats and rye.

Observations and researches in Agriculture:

BEING A FARMER'S LEGACY TO HIS SON.

[*From the Farmers' Monthly Visitor.*]

Prefatory Remarks.—The observations which we intend to make under this head are selected from a series of notes and hints which were noted down at the time of their occurrence, as likely to be of use to one of my family. I felt as if I were bound to make my son some wiser, some better informed for my having trod the path of life before him. I felt as if I should not comply with my conviction of duty if I did not endeavor to make the world, or at least my own family, some better for my having lived and thought before them. In accordance with this conviction of duty, I made, as leisure permitted, such memoranda as I thought may prove useful to those of my own family, especially, and perhaps to others through them; and from those of them which bear the nearest relation to agricultural pursuits, I have selected what follows. Perhaps they may prove to some young beginners in husbandry and rural economy what they were intended to be to him for whose use and reference they were principally recorded—a starting-post from the goal arrived at by a predecessor in the course.

1. *Ruta Baga:—advantages of this crop.*

You may sometimes be placed in circumstances like the following, in which you would hardly know what to do, were it not that the season for sowing ruta baga gives you some elbow-room. For instance; you may not be able to get out all your manure in season for your corn and potatoe crops, as a farmer's work in May generally comes thicker and faster than a month later.—Rather than summer your manure, or get it out at a great disadvantage at the season of corn-planting, plan your work so as to have a spot for Swedes to which you can apply your manure when you have more leisure to get it out.

When your wheat is winter-killed, or otherwise so injured as not to be worth harvesting, or when other crops fail, it is of advantage to have such a resource as the culture of ruta baga presents. You may cut your first crop of clover, if you cannot spare it as manure, and have your land ready early enough for this root crop.

Another advantage of this crop is the facility of harvesting it. A man can harvest fully twenty bushels of turnips for one of potatoes.

The chief advantage of this crop consists, at the present time, at least, in the much greater nett profit which may be produced from an acre in this than in almost any other crop. An average crop is six hundred bushels; but more than double this quantity is, on good authority, said to have been obtained. The expense of cultivation has been estimated as low as two cents a bushel; and I have never heard of judicious management being reckoned higher than four cents a bushel. As food for hogs, cattle, and even horses, three bushels of ruta baga are generally accounted of equal value with one of corn or two of oats. If you will be at the trouble of making the calculations of profit which these data furnish you, you will be astonished at the results. Take the average crop of hay at two tons to the acre, and the average crop of ruta bagas as above stated, and estimating three tons of turnips equal, for neat cattle, to one ton of hay, and you will arrive at a result almost equally surprising.

As a minor advantage I may mention, that on farms like mine which have not the advantage of a running stream where cattle can water themselves, and where we are obliged to break the ice or draw for them every time they drink—it is in such cases good for the comfort and well being of the cattle, and lessens our labor, that less water is needed when cattle are fed on this or other root crops. It is no small trouble to water cattle as they ought to be upon some farms in winter.

This crop possess other recommendations; these I shall not submit to you at present.

2. *Ruta baga.—Time of sowing, and quantity of seed.*

In latitude approaching to 42 and 43 deg. ruta bagas may be sown from the 10th of June to the 10th of July. I have always aimed at getting them in by the last week of June.

As to the quantity of seed, I am now well convinced, that it is much more profitable to sow more seed than is really needed than to be more sparing of seed, and be obliged to transplant. The time occupied in this operation will cost more than the extra seed saved. If you use only half a pound to an acre, you will have a good deal of transplanting to do; whereas if you put on four pounds to the acre you will have a great many to hoe or thin out, but with *regular* sowing, no transplanting.—Transplanted roots never do well. From eight inches to one foot should intervene between the plants.

3. *Soap.—A hint in housewifery.*

In summer and autumn your soap-grease is apt to accumulate beyond your immediate wants; if put away it is apt to be devoured by maggots, and if made into soap, you may not have pine or other appropiate vessels enough to hold it. Having suffered loss from being placed in such circumstances, we were much gratified with a piece of intelligence accidentally received, which relieved us from the disagreeable dilemma. By the boiling your soft soap with salt, about a quart of the latter to three gallons of the former, you can separate lye and water enough to make the soap hard. After boiling half an hour, turn it out into a tub to cool. Cut the cake which swims on the top into pieces, and having scraped off froth and other impurities, melt again, (without the lye and water underneath of course,) and pour into a box to cool. You may then cut it up into bars of proper dimensions for drying. By adding a proportion of resin, well pulverized, at the last boiling, you will have yellow soap like that made for market.

Families moving to the 'Far West' or otherwise, would find it more advantageous to make their soap fit for carriage in this way, than to give it away, or sell it for next to nothing.

4. *Starch from frozen potatoes.*

By accident or carelessness we once had a few potatoes left in the field so as to be injured by an unexpected frost. As we had not our supply of starch for the season yet prepared, it was thought best to take these potatoes, *before they thawed*, and obtain what starch we could from them. They did not yield so much as sound ones—perhaps a half.

5. *Causes of seeds not germinating.*

We have known, and heard of considerable loss and disappointment from seeds, particularly onion seeds, not growing. We have thought and inquired in reference to the cause, and the result of our cogitations and inquiries may be thus stated.

Without a certain degree of moisture, seeds will not germinate. On dry sandy soils, and in a dry season, it seems highly probably, then, that seeds may be deprived of the requisite degree of moisture: perhaps receiving just as much as will mould them and destroy their vitality, or being so near the surface as to be injured by the sun's heat and light.

But the seeds may have germinated, and have commenced to send out their roots and stem stalks and yet be destroyed. If the soil is not pressed closely to the seeds, and very dry weather occurs just at this period of the process of germination, the root being too distant from the soil, and too feeble to draw any supply of moisture, the liquid food of the plant contained in the fermented seed may be dried up, and the life thus destroyed.

If you would avoid disappointment and loss from seeds failing to grow, the preventive process is indicated by a knowledge of the causes most frequently productive of this result, which we think are those stated above. If you sprout your seeds before putting them into the ground you will preserve them from the first cause of failure, but if you pulverize your soil thoroughly and press it in this state with hoe, spade, or roller, upon the seeds thus sprouted, the root stem will soon and surely derive sufficient moisture from the soil.

In a few instances I have found my neighbors blaming the seed as useless, particularly of onions, carrots and parsnips, when I have obtained a little of the same seed, and found it to sprout quite well. You may easily save yourself from such reflections, or from the temptation to blame others, by steeping the suspected seed in warm or tepid water from six to twenty-fours hours, according to the size and hardness of the seed, and then setting it away in a warmish place for a day or two. If good it will sprout in this time; if kept warm in a darkish place, and it does not sprout in this time, the seed is faulty.

In connexion with this subject, I may state that several circumstances incline me to the belief that corn which has been sprouted—no matter in what steep—is safe from the ravages of the red or wire-worm. It has been fashionable to steep in a strong solution of copperas, and to ascribe the safety of the seed in this state, not to the change which fermentation has produced in the germ or chit which is usually first attacked, but to the change in the taste from the copperas. We have known corn soaked in simple water—in water alone—to escape from the attacks of the worm as well as that soaked in a copperas steep. Until this matter is made more certain, however, I would hold it bad husbandry to neglect the copperas, as in addition to the change produced by heat and moisture, we have also the disagreeable taste communicated by this salt.

6. *Stirring the earth a relief against drought,*

Is the title of a very excellent article published by the Hon. John Lowell, in the Massachusetts Agricultural Respository, from which you will find an extract in the text-book I first put into your hands—Fessenden's Complete Farmer. In a very dry season, such as we had in 1838, he had some early potatoes in a very sandy soil which seemed so feeble that they were on the point of withering daily. All hopes of a crop were abandoned; and therefore he though them the subject of what he then supposed a *desperate* experiment. He ploughed them thoroughly, and in three days, without a drop of rain, they were observed to have changed color, and to have started up afresh as if they had received the benefit of ample showers. A recollection of this experiment led us in the dry summer of '38, to compensate to our hoed crops for the want of showers, by keeping the earth well stirred and pulverized around them; and we are confident that our operations in this way were beneficial.

This need no longer be considered a *desperate* experiment, for science enables us to explain in what manner the benefit is produced, and might have indicated it as a proper course even before it had been tested by trial. In a time of drought take a piece of earth and pulverize the surface of one half of it, allowing the other half to remain in its hardened and baked condition. For several mornings afterwards observe upon which of these pieces the dew seems to remain the longest, or to have been imbibed the most. The piece which has been stirred will so evidently be seen to be the moistest, that no doubt can be entertained of your having gained some moisture for the soil in this way. Now it is universally or very generally admitted that the dews abound in the food of plants, and this being so, by stirring the soil around plants you furnish this nutriment to the roots by making the soil light and porous which conveys moisture more readily than a hard, baked soil. The air also is supposed to contain the food of plants in a gaseous or very readily-appropriated state. If this is so, and we have no reason to doubt, then it is easy to see that a light and porous soil is more permeable to the air and to whatever food it contains than a hardened soil can be. This consideration shows that stirring the earth may be beneficial not only in seasons of drought, but also at all times. And in confirmation of this, we recollect that it has been recorded of Curwen, an English agriculturist, that by continually stirring the soil around some field cabbages, he obtained them of the enormous weight of 50 lbs.

Mr. Lowell suggests another mode by which plants may be benefitted in a dry season, by stirring the surface, and keeping the soil light and porous. It is well known that porous bodies are bad conductors of heat. If you take a piece of woollen cloth or a little wool, and a piece of slate or metal, and place them upon a piece of lard or butter exposed to the rays of the sun, you will in a few minutes be convinced of the difference there is, as conductors of heat, between porous and compact bodies. Now it is reasonable to infer from our knowledge of this law, that earth in a hard and compact state must convey heat much deeper than soil that is loose and porous. And it is stated in confirmation of this, that compact earth will become very hot, while a light garden loam well stirred, will remain cool, at two inches under the surface, at noon of a sunshine day. Stirring the earth, therefore, not only allows more moisture and more food to be imbibed from the air and dews of night, but it also enables it to resist the heat of the sun's rays.

7. *How to make agricultural pursuits pleasant as well as profitable.*

For ages the employment of the husbandman has been looked upon as dull, uninteresting work. It has been thought to be a dull, plodding occupation of the hands and not of the head. And there has been too much foundation for such an impression. The agriculturists of years not long by-gone, did little with the head to dignify or enliven the work of the hands. A change for the better seems now near at hand. Perhaps in your day, farmers may be generally more intellectual, more intelligent, and more able to bring the truths of science to benefit them in their manual labors, and to give them interest and delight in their occupations. But whatever others do, I hope you at least will take such measures as will convince yourself, if not others, that agricultural employments are as interesting, intellectual, and pleasing pursuits as any with which they may be put in comparison. I know of no method by which you can more effectually render them so than by employing your mind upon your work. Most assuredly the more your mind is employed upon your work—in tracing effects to their causes, in accounting for failure and disappointment in understanding the operations of nature, in devising improvements, &c.—the more interest you will take in your employments and the pleasure and gratification you will derive from them. Moreover this is not only the way to make your pursuits pleasant, but it is the way to make them profitable also. Your mental operations must be wrong-sided and injudicious indeed if they do not lead you to the discovery of means whereby you can educe more produce out of any certain amount of labor and expenditure. The most intelligent farmers, you may easily convince yourself, if industry is not wanting, generally succeed in making their farms the most profitable. But what I wish especially to inculcate upon you, at this time, is, that you will feel more interest, more pleasure, more conscious dignity in your pursuits, the more you occupy your mind on the subject.

Agricultural schools would aid in thus elevating agriculture.

8. *The Horse—its management.*

Of gross and direct cruelty to your animals, I have no fears of your being guilty; but there are other cruelties which may pass under the milder name of neglect, against which I would warn you earnestly. For that man stands low in my estimation, who is careless of the comfort of his cattle, and especially of his companion and servant—the horse. I trust you will adopt the rule which I have endeavored to follow, as your maxim: I will treat my horse as I think I would like to be treated were I in his place! Allow me to drop you a few hints which may contribute to your accomplishment of this benevolent purpose.

When you purchase a horse, endeavor to find out how and upon what he has been kept—how he has been fed and otherwise managed. This it is important to ascertain, for you cannot make any *sudden* changes in the mode of management without discomfort to the animal, and the risk of injury. If a horse has been grained higher than you mean to, you must reduce the quantity of grain very gradually, and not, by any means, all at once. Again, when you take your horses from grass in the autumn, they should not have a totally dry diet all at once, but should be gradually accustomed to it by giving them roots and mashes with their hay. Begin likewise with a small quantity of oats, and gradually increase the quantity until you arrive at their wonted or intended allowance.

Feed your animals, your horses especially, as regularly as you feed yourself. Have certain hours of feeding, and do not deviate from these. Your horse, as well as yourself, will not feel so comfortable if feeding is postponed long after the usual hour.

Make no sudden changes, as I have said, in the quantity and quality of your horse's food, but at the same time accommodate the food to the exercise and fatigue which the horse has to undergo. Even if there is a rather sudden change in this respect, your change as to the quantity and quality of the food should be gradually accomplished. I am convinced, from errors and injudicious management in this respect, many diseases are entailed upon the horse.

All grain would prove more nutritive, if ground or chopped up. Some horses, however, chew up their oats much better than others. A good substitute for grinding the grain when that is inconvenient, is to mix with the grain a quantity of finely chopped straw. If the straw is coarsely chopped, you may probably find, as I have done, that your horse can pick up all the oats and yet leave a very considerable portion of the straw.

Let your horse be driven rather slow at starting, especially if just newly fed or watered. Increase his speed by degrees; and if warm, when within a mile or two of his journey's end, slacken his pace and let him cool down somewhat before being stabled. More anon.

T. C. A.

Clinton, Lenawee Co. Mich. June 22, 1839.

Massachusetts Premiums on Farms.

The Massachusetts State Agricultural society have offered premiums upon farm stock, to the amount of about $400, to be awarded at the Pittsfield and Worcester cattle show next autumn; and they have offered premiums to the amount of $600 for the best cultivated farms in the state. The queries to be propounded to the competitors, and to which they will be required to make answers, serve to indicate the points to be aimed at in good farming, and are therefore of general interest to all who seek to improve their practice; but independent of this, our subscribers in that state have a special claim upon us. We therefore copy from the New-England Farmer, so much of the publication of the trustees as relates to

THE BEST CULTIVATED FARMS.

The trustees again, with a hope of further awakening the attention of the farmers of Massachusetts to a sense of the importance of good cultivation, and at the same time of exciting an honorable competition for exhibiting the best cultivated farms, have decided to appropriate to this object *six hundred dollars* of the funds entrusted to them the present season, as follows:

For the best cultivated farm of not less than 70 acres exclusive of wood land, regard being had to the quantity of produce, the manner and expense of cultivation and the general appearance of the farm,	$200
For the next best,..................................	175
For the next best,..............	150
For the next best,.....	75

To obviate the objections which some claimants for premiums may have to making a written statement of the condition, products and management of their respective farms, as heretofore required, the trustees propose to relieve them of this trouble by an inspection, either personally or by an agent, of the farms which may be offered for premium.

The person or persons making the inspection, will require of the respective owners or occupants of farms, answers to the following inquiries:

Of how much land does your farm consist, exclusive of wood land?

What is the nature of your soil—does it consist of sand, gravel, clay, loam or peat?

If of a part or all of the above kinds, what do you consider the best method of improving them?

How many acres do you till, and how many cartloads of manure (meaning by cartloads 30 bushels at least,) do you generally put on an acre?

Is your manure applied in its long, or green state, or in compost?

Do you spread and plough in your manure put upon fields to be planted with corn or potatoes, or put it into the hills?

What is your method of ploughing and cultivating green sward?

How many acres of upland do you mow, and what is the average quantity of hay upon an acre?

How many acres of grass land do you irrigate; at what season and how long do you allow the water to flow your land, and what is the effect?

Do you manure the land irrigated, or any other land you mow, how much to an acre, and what kind of manure do you put on?

How many acres of low land, not suitable for the plough, do you mow, and what is the quality and quantity of the hay cut the present year?

What is your method of reclaiming low, bog or peat lands, and what has been your success?

How many acres of corn have you planted the present season; what was your mode of preparing the ground and the seed, the kind and quantity of manure used to an acre, the manner of applying it, and the quantity of corn raised to an acre?

How many acres did you plant with potatoes the present year; what was your method of planting, your manner of cultivating, and what the average quantity raised on an acre, and what kinds did you plant?

What number of acres of other vegetables did you plant, what kinds, and how many bushels of produce had you to the acre, and to what use shall you apply them?

How many acres of winter or spring grain did you sow the present year; how was the ground prepared; what quantity of seed did you sow on an acre? If you have raised wheat, of what kind; the nature of the soil, and was it sown with or without using lime?

How many acres have you laid down to grass the present season, at what time in the year did you sow it, how much seed to the acre, and was it sowed alone or with a grain crop?

What are your means and what your manner of collecting and making manure?

How many oxen, cows, young cattle, horses and sheep do you keep through the year? What is the size of your barn or barns, and have you a cellar under them; is your manure covered?

Are your cows of native, foreign or mixed breed?

What is your management of calves intended to be raised?

How much butter did you make this year, and how much cheese, and what proportion of it new milk?

How many swine did you keep, what quantity of pork did you make, and of what breed were your swine?

What do you feed them upon through the summer months and on what do you fatten them?

How many cartloads of manure do you take from your cow styes in a year, and of what materials is it made?

What number of hands is employed on your farm, and what do you pay for labor?

What is the number of your apple trees, and are they of natural or grafted fruits?

What number of fruit trees have you exclusive of apple trees?

Have your trees been attacked by canker worms or borers, and what is your method of destroying them?

In the cultivation of your farm, do you allow the use of ardent spirits?

The trustees are desirous that these questions should be answered with as much particularity as possible. The applicant will not, however, be required to answer them under oath, but according to the best of his knowledge and belief.

The trustees hope, and believe that by the method proposed, many important facts may be elicited, and the farming community enable to derive much useful information from the skill and experience of practical farmers.

N. B.—Claims to be addressed to Benjamin Guild, Esq. in Boston, before the first day of October next.

(Form of the Application.)

To Benjamin Guild, Esq., Boston:

Sir: The subscriber, living in the town of   , hereby makes known his intention of applying for a premium for the best farm, and offers the same for inspection.

On the Selection of Male Animals in the Breeding of Cattle and Sheep.

BY THE RIGHT HON. EARL SPENCER.

More from wishing to set an example to others, than from any hope that what I myself can suggest will be practically useful, I submit to the English Agricultural Society the results of my experience in an important part of that division of farming, to which my own attention has been particularly applied,—I mean the breeding of stock. The part to which the following observations apply is the selection of male animals. A large proportion of farmers breed sheep, and several breed cattle; to all who breed either, this subject is one of great importance.

The object of a certain number is to breed bulls or rams for the purpose of selling or letting them, but that of the majority is to breed oxen or wethers for the purpose of grazing. The first of these classes is very well aware of the importance of selecting good male animals, and profess to spare no trouble, and to be very indifferent as to the expense which they incur in obtaining them; but with respect to those whose object it is only to breed oxen or wethers, I am afraid the case is generally very different, and they take very little trouble and expend as little money as possible in procuring the male animals to which they put their females; that is, they consider as a matter of indifference that on which the profitable or unprofitable nature of their occupation mainly depends.

It is admitted by every one that the bodily and constitutional qualities of the offspring are usually similar to those of the parents, either combining in various proportions the qualities of both parents, or taking entirely after one. I should say, as respects cattle and sheep, that in most cases, the qualities of the male parent predominate in the offspring. I have also observed that the worse-bred the female is, the more will this be the case when she is put to a well-bred male. This observation was first made, I believe, by the late Mr. Berry, in an essay, for which he received a prize from the Highland Society. He accounted for it thus: a well-bred animal means one whose ancestors for several successive generations have all been good, that is, have all possessed the peculiarities in constitution and shape which it is the object of experienced graziers to obtain in their stock. The characteristic, therefore, of the family of such an animal will be such peculiarities; but the ancestors of a badly-bred animal will probably have varied in every possible way, and therefore there will be no distinguishing characteristic in its family; it is consequently most probable that the offspring produced from a cross between two animals so circumstanced will be more like the one in whose family there is a distinguishing characteristic, than the one in whose family no such characteristic exists. The common, but, I believe, mistaken notion, that the offspring from the first cross is better than that from any subsequent one, probably arises from the improvement in the first instance being so much more apparent than, for the reason given above, it is likely to be in any one generation afterwards. Now it is known to all graziers that the attempt to fatten an animal, who possesses no feeding propensities, produces loss instead of profit. If the above observations are correct, the feeding propensities descend from the sire; it is quite just, therefore, to say that a breeder of cattle or sheep, who considers it a matter of indifference what sort of male animal he uses, does consider it a matter of indifference whether he gains profit or incurs loss.

The first object which any breeder of cattle or sheep must keep in view, whether he intends to breed bulls or rams, or whether his aim is merely to breed oxen or wethers, is that the stock which he breeds shall be healthy. The first thing, therefore, to be considered in the selection of a male animal, are the indications by which it may be possible to form a judgment as to his constitution. In all animals a wide chest indicates strength of constitution, and there can be no doubt that this is the point of shape to which it is most material for any breeder to look in the selection either of a bull or a ram. In order to ascertain that the chest of these animals is wide, it is not sufficient to observe that they have wide bosoms, but the width which is perceived by looking at them in the front should be continued along the brisket, which ought to show great fulness in the part which is just under the elbows; it is also necessary that they should be what is called thick through the heart. Another indication of a good constitution is, that a male animal should have a masculine appearance; with this view a certain degree of coarseness is by no means objectionable, but this coarseness should not be such as would be likely to show itself in a castrated animal, because it thus might happen that the oxen or wethers produced from such a sire would be coarse also, which in them would be a fault. Another point to be attended to, not merely as an indication of a good constitution, but as a merit in itself, is that an animal should exhibit great muscular power, or rather that his muscles should be large. This is an usual accompaniment of strength of constitution, but it also shows that there will be a good proportionate mixture of lean and fat in the meat produced from the animal; the muscles being that part which in meat is lean. A thick neck is in both bulls and rams a proof of the muscles being large, and there can hardly be a greater fault in the shape of a male animal, of either sort, than his having a thin neck. I am inclined to say, that in the new Leicester breed of sheep, which is the breed to which I am accustomed, a ram's neck cannot be too thick. Other indications of muscle are more difficult to observe in sheep than in cattle. In a bull there ought to be a full muscle on each side of the back bone, just behind the top of the shoulderblades; he ought also to have the muscles on the outside of the thigh full, and extending down nearly to the hough. It will seldom happen that a bull having these indications will be found deficient in muscle. With respect to rams, my own observation does not enable me to point out any other indications of muscle except the thickness of the neck, which I have mentioned above; if other farmers are able to point out any, I would only say there is scarcely anything to which they ought to pay greater attention.

As I am writing for the use of farmers, it is quite unnecessary for me to attempt to give a description of what is considered a well-shaped bull or ram; it is also obviously impossible to express in words what is meant by good handling. It is sufficient to say, therefore, that no male animal is fit to be used at all as a sire whose handling is not good, and that the more perfect his shape is the better. The above observations apply to breeding generally; for whatever may be the sort or size of the animal intended to be produced, there is no doubt but that good health, propensity to fatten, and good shape, in all cases, ought to be aimed at. But there are not only different breeds, both of cattle and sheep, but experienced and very good farmers differ very much in opinion as to which peculiarities of shape and size are to be preferred, even among animals of the same breed. It is therefore very desirable, before any man commences to breed either cattle or sheep, that he should make up his mind as to the shape and qualities he wishes to obtain, and steadily pursue this object; if he does so, there is very little doubt but that he will succeed in having a herd of cattle or a flock of sheep possessing the characteristics which he at first intended they should possess; but if, on the other hand, he breeds at one time with the view of obtaining animals possessing one sort of shape, and at another time with the view of obtaining animals possessing a different sort of shape, the probability is, that his stock will possess neither the one nor the other in any degree of perfection. Having made this decision, he should take care that the individual male animal which he uses shall possess the qualities which he requires. In addition to this, it is of great importance that these qualities should have been characteristic of the family from which the animal is descended; and if he is old enough to have been the sire of any number of offspring, it is of a great deal more importance still that they should possess them. Because all the perfections of shape and quality which the best judge may wish to find in a male animal are, after all, only indications of what the stock got by him will probably be; the seeing, therefore, what they really are, is much more satisfactory.

There are few breeders, of cattle more especially, who breed upon so large a scale as to enable them to keep many male animals at the same time in use. A man, therefore, can usually only look at the general qualities of the females which he possesses, and observe what are the faults most prevalent among them; these he should be particularly careful to avoid in the male which he intends to use. It is sometimes said that a male animal ought to have no faults, and undoubtedly it would be very desirable that this should be the case; but, unfortunately, no such animal exists. All a man can do, therefore, is to avoid putting a male and female together whose imperfections are the same, so as not to increase the fault already existing in his stock. If a man breeds upon a large scale, and uses several males at the same time, he can, of course, attend to this more effectually than if he uses only one. In this case, he should select and put together the males and females individually, so as to endeavor to correct any imperfections which either of them show. Most breeders of sheep, indeed, do use more than one ram, and all who pretend to take any pains in improving their flock divide their ewes, so as to put them with the ram who will most probably effect this object. I need not say that those (some of whom, I am sorry to say, still exist) who turn two or three rams of different shapes and qualities into a field with all their ewes, without attempting to make any selection among them, have no right to expect to be successful breeders; and if they do expect it, will certainly be disappointed. I believe the general opinion of breeders is, that it is disadvantageous to endeavor to correct any fault in the shape of a female by putting a male to her who possesses, in extraordinary perfection, the merit in which she is deficient, but who in some other part of his shape is faulty. My experience leads me to say that this mode of endeavoring to correct a fault is frequently successful. It would be better that none of the females from which a man intends to breed should be faulty in shape to any considerable degree, but it almost always will happen that some animals, possessing an excellent constitution, good blood, and a great propensity to fatten, and therefore such as the owner would very unwillingly cull, will fail decidedly in some part of their shape. I would say that, when this is the case, it is worth while to try the experiment of putting to them a male remarkable for his perfection in this failing part; and, in my opinion, such a male will be more likely to correct the fault, than one who shows no one part of his shape very superior to the rest.—The late Mr. Cline, whose eminence as a surgeon is very well known, published a tract upon the breeding of domestic animals, which contained, as might be expected, most valuable information. His suggestions are such as ought to be very carefully attended to; but it is probable that his meaning has been mistaken in one recommendation which he gives, namely, that in which he is understood to say that it is always desirable that the male should be smaller than the female. When he makes this observation he is speaking of the crossing of different breed, and probably only means that in a cross between a large breed and a small one, the male should be taken from the small breed, and the female from the large one. It is hardly possible that he intended to say that in the same breed the male ought to be smaller than the female, because this is contrary to the practice of nature. In every description of land animal with which I am acquainted, the males are of a larger size than the females. The attempt also to follow this advice would undoubtedly, in a few generations, so very much reduce the size both of males and females, as considerably to diminish their value. I can say, from my own experience, that some of the best shaped animals which I have bred have been produced by following a contrary course. I prefer breeding from large females; but if I do breed from one which I think too small, I put to her the largest male of good shape that I possess. As one instance among several to prove that this course may be successful, the ox which I showed in the fourth class, at the last Smithfield show, and which obtained the prize in that class, was by the largest bull I have, from a cow so small, that I culled her after she had bred that one calf. It must be admitted that the theoretical reasoning which Mr. Cline adduces in support of this recommendation appears to be very conclusive; but, even in the restricted sense in which I understand it, there is some doubts whether it is practically correct. The most successful cross between two different breeds of cattle, of which I am aware, was the one between a Durham bull and a Galloway Scotch cow, made by Mr. Charles Colling. The produce from this cross sold for enormous prices at his sale, and at the present day a majority of the best short-horned cattle are descended from it. My opinion, then, the result of my own practical experience, is, that if a man considers the female animals which he possesses to be smaller than he wishes, he may safely put them to a male of large size, provided he is well bred, of good quality, and is well shaped. But I am bound to add, that I know, in giving this opinion, I differ from the most skilful and successful breeders with whom I am acquainted.

It follows from the above observations, if they are correct, that the first and most indispensable object which all breeders must try to obtain, whatever may be the sort of animals they wish to have, whatever may be the shape or size they prefer, is that the male animal which they select shall possess a strong and healthy constitution. This is absolutely essential; but it is also most conducive to their success that they shall, after due consideration, make up their minds as to the qualities which they wish their stock to possess; that, having made this decision, they shall steadily pursue the object they have in view, and endeavor to select such males as shall be likely to get offspring possessing these qualities; that they shall carefully and candidly examine the females from which they intend to breed, observe the faults in shape or quality which prevail among them, and select males who shall possess corresponding perfections. That the safest mode of ascertaining what are likely to be the qualities of the produce from a male in future is, where there is the opportunity, to see what are the qualities of the offspring already produced from them; then, the next to this is, to observe what are the qualities of the family to which he belongs; and that in the case of not having the opportunity of making use of either of these guides, they may assume that it is probable that the qualities of the individual himself, which in all cases ought to be attended to, will, if he is well bred, descend to his offspring.

It has already been said that there are two classes among the farmers who breed cattle and sheep; the one, of those who breed bulls or rams, and the other, of those who breed oxen or wethers for the purpose of grazing only: the above observations are intended to apply to both. But much more attention ought to be paid by the first of these classes to the selection of the animals from which they breed than is absolutely necessary in the other. This is essential to their own interest, because a male animal very often shows faults in his shape which if he had been castrated, would not have appeared. It frequently, therefore, happens that the produce from a bull or ram may prove excellent cattle or sheep for grazing purposes only, but may be totally unfit to be kept as the sires of future stock. Their duty also to those who hire or buy from them imposes upon them the obligation to pay the strictest and most minute attention to the qualities of their male animals; more particularly, they are bound not to offer to their customers any one, of the health of which they have any reason whatever to doubt, whether this doubt arises from any weakness of constitution, which may have appeared in the individual himself, or whether it arises from their knowledge of the family from which he is descended. They are bound also, not to keep as males any animals who are not perfectly well bred. It does not follow from this, that a long pedigree is in all cases necessary, although it is generally desirable; but it sometimes happens that a female, of whose pedigree the owner is ignorant, will have produced offspring which have all possessed extraordinary merit, and which have proved themselves good breeders also; a male descended from such a female may be considered perfectly well bred on her side; and will, very possibly, prove a better sire than many whose pedigree on paper is much longer.

In paying this minute attention to their occupation, the breeders of male animals have some advantages not possessed by others: they have generally the opportunity of knowing accurately what are the characteristics of the families from which they breed, an opportunity not possessed by those who breed only for grazing purposes. In order to make a proper use of this advantage, they ought to keep accurate pedigrees of their cattle and of their sheep, and as far as possible, when they put the males and females together, recollect what have been the respective qualities of the ancestors of each. They have also the opportunity, by using a male cautiously at an early age, of knowing by experiment, whether the stock produced from him is good or bad, before they run the risk of injuring their stock materially by using him largely. This may be ascertained with sufficient accuracy when the produce are very young; for an experienced breeder can judge with tolerable certainty what will be the shape of a calf or a lamb when it grows up, by seeing it soon after it is born, and before it has begun to lay on fat. Nor is it necessary to see many of the produce for the purpose of deciding what its general characteristics will probably be. I admit that in saying this I am speaking more from my experience as a breeder of cattle than a breeder of sheep, but I believe the same observations will apply to both. It is certain, however, that seeing four or five calves from a bull, ought to be a sufficient guide to the breeder as to whether he will be valuable as a sire or not. Unless there is a family likeness which generally pervades through the produce from a bull, although he may be valuable as the sire of oxen, it will not be safe to use him as the sire of bulls. The seeing, therefore, four or five calves will prove to the breeder whether there is such a family likeness among them, and whether it exhibits itself in such qualities as indicate that when they grow up they will be valuable animals.

There is one failing to which all breeders are liable, but to which the breeder of male animals, from the greater interest attached to his occupation, is more peculiarly liable, and against which he ought most carefully to guard himself;

this is, too great a partiality for animals bred by himself. In order to guard against this he ought to occupy himself more in looking for faults than in discovering merits in his stock; he ought to listen to every criticism he hears made upon them, even by those whose judgment he does not hold in high estimation—not, of course, with the view of being satisfied at once that the criticism is correct, but with the view of satisfying himself, by accurate and candid examination, whether it is so or not; and he ought frequently to see the stock belonging to other breeders, and fairly compare its merits with those of his own.

I think it most probable, that in the foregoing observations nothing will be found which will give new and useful information to practical farmers; but I have been induced to submit them to the English Agricultural society, because I conceive that one of the great objects of that society is the diffusion of knowledge connected with every branch of farming. The best way in which it can be enabled to effect this object, is by those of its members who have paid attention to any of the divisions of farming operations, communicating to the society the results of their practice and experience. It will then be for the society to circulate, by any means in their power, such of these communications as it shall appear to them are likely to be useful to those engaged in the cultivation of the land. With this view I place this paper at their disposal.

Law Reforms.

It was, we believe, Sir Matthew Hale, who called law the perfection of reason; and as the means of right, and the prevention of wrong, it is entitled to the respectful consideration of all. There is reason, however, to fear, that law is sometimes perverted from its high purposes and legitimate functions, and made to minister to the ambitious, the selfish, the avaricious, and the baser passions of mankind; that right is forgotten in acquired power, and that wealth, rather than justice, is the lever that actuates too many of its ministers and professors. It cannot be disguised, that practices are covered with the sacred mantle of the law, and performed under its ostensible sanction, that, freed from this protection, would subject the performer to the most serious charges, affecting both honor and honesty. So flagrant have some of these practices become; so utterly subversive of all right and justice; so demoralizing and oppressive in their results; that public opinion had been gradually awakening to these enormities, and was prepared to demand their abatement. It has become apparent, that the system of law practice, or carrying into effect the decisions intended to give justice to all, the humblest as well as the highest, needs a thorough reform, or a state of things will soon, if it has not already in a great degree arrived, in which redress of wrong to the poor will be hopeless, the name of justice a mockery; petty quibbling and a scramble for costs reign triumphant in the temple of the laws; while the great mass of the people will be compelled to assume the power they have delegated but never alienated, the power of doing justice to themselves. These facts, so obvious to all, were regretted by the more honorable and high-minded part of the profession, who felt that the disgraceful practices of some, would be used as a reproach to all, and they were of course willing to adopt a system of reform that should remove the evils so justly obnoxious, and which had enabled the litigious pettifogger, the half learned practitioner in the courts of law, to cheat the public, accumulate costs, and ruin thousands.

The iniquities and extortions under colour of the law, though known to be frightful, had never been fully unveiled to the people; but now, when the public feeling seemed to demand expositions of this nature, the press began to cooperate in showing up the manner in which the framer, the expounder, and the administrator of the laws, in too many instances, acted more with regard to the fees, than the sacred principles of right. The leading paper of the Knickerbocker for January, 1839, evidently by 'authority,' was an admirable, though an alarming exposition of the practices resorted to, to delay justice, procrastinate causes, accumulate costs, and ruin the clients in our courts. The 'Memorial,' a paper conducted with spirit and ability at Seneca-Falls, was set up with the avowed purpose of advocating a reform in our system of jurisprudence, and its successive numbers have demonstrated beyond a peradventure the necessity existing for such a movement. The practices exposed in these papers, as resorted to by some from whom the public had a right to expect better things, are such as would, or should, exclude the perpetrators from the society of honest, honorable men. The quibblings, the repetitions, the endless accumulation of words and folios, resorted to, to increase the costs, and retard, if not utterly subvert all salutary action of the law, revealed in the official records and papers there published, show a system of peculation, not to say swindling, worthy of the best instructed disciples of Daines Barrington.

In compliance with the wishes and the demands of the people, a commencement was last winter made, which, if followed up as it must be, will restore the administration of the laws to its high standing, which in the nature of things it deserves. The great object must be, to simplify and render all the laws as easily understood as possible; to reduce the costs to a liberal, not an exorbitant compensation; to render the means of justice speedy, and open to all; and to punish without mitigation or escape, the man who degrades the name of lawyer by extortion, or legal dishonesty. A good beginning was made in the reduction of costs in some of our higher courts, at the last session; and the schedule of fees must undergo still further examinations and reductions.—None are more interested in these things than the farmer, from whose hard earnings so large a portion of these exorbitant fees are annually wrung. It is he who suffers most from the law's delay, and who pays most dearly for the vexations and wrongs, which the insolence of wealth enables the avaricious or the unprincipled to heap on the poor. On these and kindred subjects the people must and will be heard. In submitting to the government of laws, mankind yield or delegate a part of their native rights, to secure the peaceable use of all; when this concession fails, they are at liberty to resume. Men submit to laws to escape from oppression; when the elements of oppression and wrong become concentrated in the laws themselves, by the weakness or the wickedness of the enactors, then they come in contact with the unalienable rights of man, and will be found but threads of burnt tow on the limbs of a giant.

If the profession of law has become so thronged, that such practices are necessary to give its followers a living, then let them go back to the field or the workshop and obtain an honorable livelihood, where they can eat honest bread. Our country is broad, our lands are fertile, competence and honorable distinction may be found in pursuits where temptations to fraud are not so strong as in the profession alluded to, and in which a man may be useful without the constant danger of becoming infamous. Many of the noblest spirits of our land are lawyers; would that we were not compelled to add, some of the meanest and vilest are also lawyers. The first are as deserving of honor, as the latter are of contempt. Any system of reform that shall have a tendency to do away the evils so justly complained of; give equal and exact justice to all; strike at the root of all extortion and oppression, will be sure to receive the support of the first, and encounter the opposition of the last. By their fruits ye shall know them. We hope this subject will not be permitted to sleep; that the advantage gained will not be lost; but that a reform, equitable, just and thorough, will be carried through our system, retaining all that is valuable, giving ample compensation for services performed, but placing the power of oppression, contumely and wrong, beyond the reach of those who now are the dread and the scourge of the people. In this reform we are sure of the support of the intelligent, the able, and the honorable lawyer; while in the ranks of opposition will be found those who fight for spoils, and whose censure is praise.—*Genesee Farmer.*

Culture of Ruta Baga.

[*From the Farmers' Monthly Visitor.*]

Hon. Isaac Hill—Dear Sir—Believing ruta baga to be of great value to the stock farmers, and as the season for sowing it is at hand, I send you an extract from my farm journal relative to my mode of culture the first year, though, as it was my first experiment, I am far from thinking it to be the best mode. However, as I was pretty accurate in detail, its publication may be of use to my brother farmers, by inducing some one better acquainted with its culture than myself, to point out the errors in my process.

In the fall of 1836, I broke up three acres of green sward; the soil a stiff loam; upon which I carted 150 single loads of coarse manure, and in 1837 planted with potatoes, there being nothing peculiar in the management, or extraordinary in the crop.

In the spring of 1838, I carted on sixty loads of well rotted manure, which I ploughed in, so soon as the ground was sufficiently dry, and on the 27th May I again ploughed, harrowed, and after rolling smooth, marked it into squares of eighteen inches, and planted by dropping two or three seeds in each intersection, which was done by taking the seed from a box, say a common tin dropping box, with a single hole in the top. I sowed from the 1st to the 4th of June; on the 23d began to weed, thinning out where the plants were too crowded, and setting out where deficient, which I continued to do occasionally when other work did not press, till the 28th July. On the 26th October, I began to pull and cut, finishing on the 9th of November; and I found the plants last pulled as uninjured as the first, although they had been exposed to several severe frosts. They were pulled by hand, the workmen striking two plants together to shake off the dirt, and then throwing them down, where they lay spread for three hours to dry the loose dirt that still adhered to them; the tops were then twisted off, and the plants thrown into heaps for carting, so that each root was handled three several times. They might have been got into the cart with less labor, but my object was to get them into the cellar in a tolerably clean state. Having heard much of the difficulty of keeping them in cellars, from their tendency to rot, I stored in one cellar 1,500 bushels without injury to a single root, and I have now, (May 5,) more than 100 bushels as full and as fair as when first placed there. The cellar was thirty feet square, on the bottom of which, eight inch timbers were placed, and covered with plank two inches apart. The whole was divided into two bins, with one foot space between the bins, and one foot between the bins and cellar wall; the sides of the bins being made with narrow boards, with a space of four inches between each board.

I fed out my twelve hundred bushels to my sheep, six hundred to my horned cattle, and the remainder to my horses. They all ate with avidity, preferring them to potatoes. For my horses and cattle they were merely cut with a spade; for the sheep they were passed through a vegetable cutter. They were carted in two carts, each containing thirty baskets holding more than a bushel, and weighing seventy-four pounds. The number of baskets was twenty-one hundred, and the whole weight *seventy-seven tons.* Number of roots, 36,000—as put in the extract from my journal alluded to above. I am, sir, very respectfully, your ob't servant,

LEONARD JARVIS.

Ruta Baga,		*Dr.*
To interest on three acres, at $100 per acre, ...		$18
Twice ploughing three acres,........................		6
Harrowing and rolling, ...		4
Seed, ...		2
To 130 days' work on above, viz: 9 days sowing, 85 weeding, hoeing and setting, and 36 drying and cutting—130 days, or five months, at $13 per month,..		65
To 22 weeks' board, at 9s. per week,................		33
Cr.		$128
By 2,100 bushels, at 10 cents, ...	$210	
Profit, estimating at 10 cents, ...		82
Claremont, May 5, 1839.		$210

Remarks.—Compared with the price of other crops, this ruta baga was richly worth twenty cents the bushel: say it was worth only fifteen cents, the nett profits on these three acres of ground were *one hundred and eighty-seven dollars.*

We are highly pleased to exhibit this evidence from one of the first, and we believe the most extensive practical farmer in the state of New-Hampshire, in favor of the root culture. He shows by this experiment what much manure will do for the ground for a succession of years: it gives double payment in a single year for the labor bestowed; and this double payment will extend itself into a series of from four to ten years, according to the capacity for retention of the soil to which it is applied.—*Ed. Far. Mon. Vis.*

We call particular attention to the following article from the New-England Farmer. It is fraught with truth.

Cause of High Prices.

But one great and prolific source, as we honestly believe, of high prices, deficient labor, the luxury, waste and servility which prevail among us, is in the multiplication of banks beyond the business wants of the community, the extension of paper money, and the abuse of the credit system. Our honest conviction is, that the enormous increase of bank capital beyond all reasonable limits, is destined to prove to the country in its various influences a source of immense evil. The calamities from which we have just escaped, are to be directly traced to this as their great origin; and, as matters are now going on, we have only to look forward to another explosion, as disastrous as that from which we have so recently recovered—for come it must. Its arrival in the natural course of things is as certain as the descent of water upon an inclined plane, or the passing of the sun over the meridian. The creation of immense amounts of purely artificial and fictitious capital, produces a dangerous delusion with individuals and on the public mind. If its effect were merely to increase the facilities and stimulate the powers of production, it would so far be well; but this it does not do excepting in a very partial degree, and in an indirect form. This money is loaned to what are called men of business—a class of men, who as far as they are money brokers, are the mere exchangers of commercial products, without any increase of their value, or speculators in lands, who add little or nothing to the wealth of the community. The increase in the nominal value of real estate is of no advantage to the community, unless it is based upon some positive improvement, or increased productiveness of the soil. If a piece of land is sold to-day at five dollars an acre, and next week it is valued at ten dollars an acre, without any change whatever in its condition, how is the community in any respect benefitted, or its wealth increased? But on the other hand, the obtaining of land for agricultural purposes, for production, and the actual creation of wealth, is by this enhanced price rendered the more difficult to the man whose labor is his only capital—the man of all others in the community the most to be encouraged.

Then, again, the abundance of money itself lessens its value, and operates to raise the scale of prices. The facilities of procuring credit and money induce recklessness—lead to all kinds of speculation—create a distaste for labor—encourage the most luxurious expenditures—relax the bonds of moral principle—and convert the community into a population of gamblers. It is the true secret of the enormous frauds with which our community has been convulsed within the last two years, and of the prevalence of the gross and immoral principle, that a neglect to pay one's debts to a corporation, or a fraud upon a corporation, is a different matter from one committed upon an individual.

In fine, it is the moving cause and prolific source of speculation—speculation, a matter pregnant with evils, and from which no more good has accrued, or can ever accrue, to the community, than from any other form of lottery gambling. These are, to a certain and considerable extent, the causes of the high prices of living; and under this system they must continue until we have another periodical explosion. There is no cure or preventive. There is not moral soundness enough in the community to afford any hope of amendment or of change, until another fit of delirium tremens brings us up, as the sailors say, "all standing;" rubs out old scores, and then leaves us to start again in a new course of unbridled profligacy, vulgarly called prosperity.

Pruning.

A great variety of experiments made in Europe by Knight, Van Mons, and Thaer, and in this country by Buel, Kenrick, and others, have been made on the subject of pruning trees, and though the results did not perfectly agree on all points, yet they seem to fully justify the general conclusion that the best time for pruning trees is that period in midsummer in which there appears a cessation of the sap's ascent, and which lasts some three or four weeks. Those who have paid attention to the growth of trees must have remarked that the period of increase is divided into two seasons, during the first of which, or the one most active, the shoots that form fruit, flower or seed buds are formed; and the other or later summer's growth is confined to the shoots that produce wood buds only.* "After the second growth is completed, the effects of the descending sap in the formation of new bark, is apparent in the healing up of new wounds, in parts of the stem or branches, which now proceeds with more activity than during any other season of the year. Branches pruned off smooth at the stem, though the latter be young, healthy, and containing a perfect pith, before or shortly after the completion of the midsummer's growth, do not produce shoots from the edge of the wounds caused by their removal, which always happens, more or less, when pruning is performed on free growing trees after the fall of the leaf, and before the full development of the spring shoots and leaves. It is to be observed, however, that the reproduction of branches from the edge of a wound is greatly assisted by leaving a portion of the branch or shoot, on the parent branch or stem." [Treatise on Planting.]

The end desired to be attained by the operation of pruning must be kept steadily in view, or injury instead of benefit may be the result. If the tree is intended for timber, the leaves and buds that elaborate the sap, and increase the trunk by the formation of an annual circle of new wood, should be kept as far from the root as possible, as in this way only ean the greatest quantity of timber be produced. In this case, the trunk should be kept free from branches, the leading shoot should carefully be preserved, and the top kept in a crown like form. Nature must be followed in this respect, and the tall beautiful trunks of our native forest trees will be the result. For fruit, a low branching top, spread and exposed to the sun as widely as can be, is to be preferred; and hence, the leading shoot when the tree is at a proper height must be carefully cut out, and the lateral branches cut and pruned with direct reference to this effect. Fruit trees must be pruned frequently, or their tops become woody, close, and the fruit will necessarily prove inferior. —*Genesee Farmer.*

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* We believe this is an error. Nature provides wood buds first, and fruit buds last. Trees have always leaf buds, though they do not always have blossom buds. Hence, a tree that bears abundantly, and bears its fruit late in autumn, is seldom an annual bearer, because it requires all its sustenance to mature its fruit, and provide wood buds for the coming season. And hence, trees ripening their fruit early, as the cherry, gooseberry, currant, early apple, &c. are often annual bearers, because the season permits them to ripen their fruit, mature their wood buds, and also to produce new fruit buds for the coming season. A ring-barked limb will give fruit buds, because the elaborated sap is all retained in it; while if not ring-barked it might produce only wood buds, because a portion of the elaborated sap passes to the trunk and roots.—*Cultivator.*

Eggs.

Almost every body loves good fresh eggs, and with or without glasses or silver spoons, can contrive to eat them; whether boiled or fried, raw or roasted, made into custard with sugar and spices, or swallowed gently with a bordering of old port, they agree with the palate and the stomach, and neatly laid out with fair slices of bacon, they form a repast within the reach of all, and to be despised by none. But though most farmers keep fowls, and *raise* their own eggs, there are many who have not yet learned the difference there is in the richness and flavor of eggs produced by fat and well fed hens, and those from birds that have been half starved through our winters. There will be some difference in the size, but far more in the quality. The yolk of one will be large, fine coloured, and of good consistence, and the albumen or white, clear and pure; while the contents of the other will be watery and meagre, as though there was not vitality or substance enough in the parent fowl to properly carry out and complete the work that nature had sketched. In order to have good eggs, the hens should be well fed, and also provided during the months they are unable to come at the ground, with a box of earth containing abundance of fine gravel, (if of limestone, so much the better,) that they may be able to grind and prepare for digestion the food they receive. Fowls form no small item in the profits of the small farmer, and few creatures better repay the care and attention they receive. Of eggs, those of the domestic hen are decidedly the best; but those of both ducks and geese may be used for some of the purposes of domestic cookery. Eggs ean be kept any length of time, if the air is perfectly excluded, and the place of deposite kept at a low temperature.*—*Genesee Farmer.*

An account of a comparative trial of stable manure and bone dust for raising turnips on a clay soil.

BY MR. HENRY MAXWELL, OF CALDERWOOD.

The following are the particulars of the turnip crop which was raised by stable manure and bone dust on Sir William Maxwell's property of Calderwood, this season.

The nature of the soil where the turnips grow may be described as a strong loam on a retentive clay bottom. Before draining, the field generally was very wet and sour, but a thorough application of the cross or branch drain system completely divested it of all moisture; and as the ground was ploughed and cleared under favorable auspices, the condition of the land at the time of receiving the seed was very satisfactory. It may be proper to remark, that the field, which was old lea, was drained in the beginning of 1832, a crop of oats taken off it during that season, and prepared for turnips during last spring. In addition to the quantities of manure laid on the land, as will be found in the statement below, seven and a half chaldrons of lime, of excellent quality, were applied to each acre (the Scotch). The seed, which was of the finest quality (procured from Mr. Lawson,) was all deposited at rather an early period. Where stable manure was applied, the braird came away at first more rapidly and vigorously than was the case with the bones; but, ultimately, the bones gained ground, and, if any thing, got rather the start of the stable manure in point of *shaw* or leaves. The whole field brairded beautifully, with scarce an exception, and the crop did not suffer in any degree from the ravages of the fly. In order to ascertain the results of bone and stable manure in regard to the produce of turnip per acre, the most accurate calculations and trials were made; and I have no hesitation in affirming the correctness of the statement in all particulars. In conclusion, I have merely to remark, that the quality of the soil is by no means particularly well adapted for turnip culture, partaking, as it does, rather too much of the clayey character, for which reason also, there is little doubt that the comparatively unfavorably development of the effects of bones as a manure is chiefly to be ascribed. As to the quality of the turnips produced, the specimens which I have sent to Mr. Lawson's very interesting agricultural museum will best testify. They were carefully selected, with a view of furnishing a fair average of each description. This is the statement referred to.

Swedish—30 cart loads stable manure, per Scotch acre, produced	29 tons.
60 bushels crushed bones, per ditto,	24
Dale's Hybrid—30 cart loads stable manure, per ditto	33
60 bushels crushed bones, per ditto	31
45 ditto ditto, per ditto	29
Yellow Bullock—30 cart loads stable manure, per ditto	29
60 bushels crushed bones, per ditto	28
Globe—30 bushels crushed bones, per ditto.	25
25 ditto ditto, per ditto ditto	23 ton 18 cwt.

No stable manure.—*Quarterly Journal of Agriculture.*

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* As our cotemporary teaches us how to *make* good eggs, we beg to reciprocate the favor, by advising him how to *cook* them. To be nutritious and healthful, and to suit most palates, the yolk of an egg should not be cooked hard, and the white should be merely cooked to a jelly, the consistence of a custard. This is best accomplished, neither by boiling, frying nor roasting—but by caudling, that is, by turning upon it scalding water, either in a caudler or other close dish. In this way eggs may be properly cooked; and by repeating the hot water, or leaving them to lay in it a longer or shorter time, they may be easily graduated to the liking of every one, without trouble or waste.—*Cultivator.*

On the comparative value of the Turnip and Potato Crops.

Swedish turnips should be sown on or before the middle of next month; the different kinds of the Aberdeen and Dale's Hybrid, about the latter end of it, or early in June. The Globe, Norfolk, and Tankard turnips may be sown from the middle of June till the middle of July, but there is better chance of success when they are sown from the middle till the latter end of June.

Some farmers complain of the succeeding crop being less productive after turnips than after potatoes; for our own part, we never saw any just ground of complaint where the culture and management of the turnip crop was judiciously performed; and we consider the potato crop to be comparatively exhausting, and less profitable than turnips. This we shall endeavor to show. The same labor and manure is necessary for potatoes with this exception, that the farmer has the advantage of preparing his ground for turnips at a comparatively slack season, and every opportunity afforded for thoroughly eradicating weeds, which advantage, (and it is by no means a trifling one), is not allowable at the early period when potatoes are put into the ground. The potato crop is chiefly transferred to the market, and consequently returns a very inadequate quantity of manure to the soil; whereas the turnip crop, with rare exceptions, is consumed upon the farm where it is produced, and by the large quantity of valuable manure accumulated by their consumption, turnip is the most enriching crop under cultivation we know of.

TO SEED AN IRISH ACRE WITH TURNIPS.

The produce of an Irish acre of turnips may be reckoned at 40 tons, which will maintain (at least) four horned cattle for five months. Each of these will make 1*l.* per month in value during that time, amounting to		£20 0 0
And the quantity of manure made during that time will be worth		16 0 0
		£36 0 0
Deduct price of seed		4 0
		£35 16 0
On the other hand, an acre of potatoes may be calculated to produce upon a fair average about 400 bushels, which at 1s. per bushel, amounts to	£20 0 0	
Deduct price of seed	1 15 0	
		£18 5 0
Leaving a balance in favor of turnips of		£17 11 0

And the loss of labor, and expense of transferring the potato crop to market, far more than counterbalancing the expense of attendance of cattle, &c.

We are aware that many farmers derive a larger produce of potatoes per acre than we have mentioned, but this is only the exception, not the general or average produce.

No crop, which can be raised at so cheap a rate will maintain such a number of animals per acre the consumption of which will return such a large quantity of valuable manure to the soil, nor enable the farmer to increase the fertility of his farm equal to the turnip; and we are happy to see that their culture is yearly extending, and we hope ere long to see the whole farmers in the kingdom thoroughly alive to its advantages.—C. *in Farmers' Magazine.*

The Productive Powers of Nature.

The powers of nature to create vegetable productions appear never to diminish; the process goes on year after year with increasing energy, and brings forth an increase of vegetable matter to be again decomposed and returned to the soil. This is the natural process by which the decomposing vegetable matter which we find in the soil is formed; and there has been a continual succession of production, decay, and reproduction, of vegetable matter going on ever since nature first sprung into existence, producing vegetables which, when dead, are decomposed into the elements of which they were originally formed.

No loss is sustained by the decomposition of vegetable or animal matter in the soil; all is reduced to the first elements of plants which give fresh energy to vegetation by again entering into vegetable composition.

Thus the process of the growth and decay of vegetable matter goes on in a continual succession, and the decay of one crop becomes the nourishment of the next.

When nature is left to herself, the accumulation of decomposing vegetable matter on the surface becomes great; and if the soil is not possessed of the property of hastening their decay, the vegetable matter is merely increased on the soil, without adding to its productive powers.

On a careful examination, we think, it will be found that the production of vegetables never exhausts any soil; the yearly growth of grass with its decay, adds yearly to its productiveness, and even a plentiful crop of weeds, when allowed to decay on the land which produced them, has the same effect; and thus it is, that land, which has been worn out by close cropping, is by slovenly farmers left for nature to improve.

When the natural pasture is consumed by stock it is converted into animal food for man: and the excrement of the stock being left on the soil forms a rich decomposing animal manure, which gives to the soil increased energy to reproduce an increase of vegetable food for an additional quantity of stock.

Pasture land is full of vegetable fibre, from the surface down as low as the roots of plants descend. Some are the recent roots of grasses, others are those of every stage of decomposition. In arable land scarcely any vegetable fibre is to be found; this circumstance should teach us, that to form a good pasture, we should fill the soil with vegetable fibre as a manure, where we convert arable into pasture land.

The very small proportion of vegetable matter which is contained in the most productive arable soils, would almost seem to indicate that their richness does not depend on the decomposing vegetable matter, but on something else; for if all the straw or refuse of the crops it produced, was returned to it after it had passed through the stomach of some animal, this would scarcely be equal to one-third of what the earth produced.

A judicious succession of crops, and a profitable consumption of the produce by sheep on the ground, return to the soil such a quantity of manure as to give an additional means of increasing its productiveness.

"Water is necessary to the growth of plants. It is essential to the juices or extract of vegetable matter which they contain, and unless the soil, by means of comminution. be fitted to retain the quantity of water requisite to produce those juices, the addition of manure will be useless. Manure is ineffectual towards vegetation, until it becomes soluble in water; and it would even remain useless in a state of solution if it so absorbed the water as entirely to exclude the air: for in that case the fibres or mouths of the plants would be unable to perform their functions, and they would soon drop off by decay." 179, Steward.

It is necessary that the animal and vegetable matter in the soil should have this decomposing disposition, and the soil have it in proportion, to the proper admixture of the materials of which it is composed.

A certain degree of heat, the influence of the atmosphere and water, are necessary to carry on the decomposition of animal and vegetable matter in the soil. The best constituted soil therefore has the power of imbibing, retaining, and giving up to plants a proper degree of heat, air and moisture. When the atmosphere is warm, moist, and sultry, vegetable life is in the greatest vigor, which would indicate these to be necessary to vegetable life if not the very principles on which it depends.

Soil should not only have an affinity for the moisture of the atmosphere, but it should also have the property of readily transmitting it to the vegetables which grow in it.

The soil, therefore, which is best adapted for retaining and transmitting in all circumstances of wet and of dry weather, the necessary quantity of moisture to growing plants, may be reckoned the best and most productive.

If we impart to any soil that which induces vegetation, we improve it and increase its productiveness; but if we in any way withdraw from it that which tends to produce vegetation, we injure it and may make it steril. Barrenness in soil is produced when the component parts of it are so firmly united, that air, water, and the influence of the sun cannot enter into combination with it. When a soil is pure elay, it is sterile and worthless, and so is that which is pure sand. The former resists effectually the enriching influence of the rains and dews, which merely fall on its surface, and either run off or lie there, without penetrating into it. The sun and wind also may beat on it and blow over it, but they can never penetrate its mass to awaken up the dormant energy that lies within; they only have the effect of their repeated attacks to dry and harden the surface, crack it into irregular portions, and more firmly to lock up any languid and dormant principles of vegetable life that may be within the mass. The latter is so porous and loose in its texture that the rain and dews no sooner fall on it, than they pass through it rapidly like water through a sieve; the rays of the sun and the wind evaporate and dry up the last particles that remain, producing only a transitory effect on vegetation, and because they have no regular supply of moisture, the plants soon wither and decay.

The energies of the soil are frequently held in bondage by some pernicious quality inherent in it, or imparted to it, which if neutralized or extracted the soil would become productive.

When light, sandy, and vegetable soils are artificially made lighter, they possess little of the principles of vegetation. The mechanical disposition of a clayey soil is also deranged by improper treatment, such as trampling or ploughing it in wet weather; and although the soil has a full supply of animal and vegetable manure in it, yet the mechanical derangement so totally locks up all its energies, that the fermentation so necessary is altogether stopped, and complete barrenness is the result.

This we have frequently observed to occur from land being trampled by sheep in eating off turnips from strong clay soil during wet weather, in the early part of spring.

They convert the surface into a complete puddle, and when it becomes dry, the parts eomposing the soil are so closely united together, that it is like bricks dried for the kiln, and is entirely unfit for the production of plants. It is evident that the causes of sterility in these soils are opposed to each other; each therefore will require a mode of treatment peculiar to its case. The light, sandy, and vegetable soils, that are too friable, must be artificially rendered more firm; and the too tenacious clay soils must be made artificially friable and kept so, and be pulverized and mechanically altered before we can expect them to become productive. It is evident if these two soils could be mixed together, the mixture, with a proper quantity of vegetable and animal manure, would make a good productive soil.—*Morton on Soils.*

Young Men's Department.

Chemical Catechism—Chapter VIII.

[*From Parkes' Chemical Catechism.*]

OF SALTS.

What is a salt?

When an acid is combined with an alkali, an earth, or a metallic oxide, it forms what is called *a salt.* Such compounds were formerly called *neutral* salts; but that term is now applied only to those salts in which there is no excess either of acid or of base.*

How many salts are there?

As the acids are capable of forming various combinations with the different earthy, alkaline, and metallic bases,† the precise number of the salts is not known.* Probably they amount to nearly two thousand.†

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* To give the pupil a clear idea of this class of bodies, it may be advisable to set him to form some of the salts from their component parts. He might, for example, be directed to pour a little sulphuric acid into a solution of soda in water, to evaporate the superfluous water, and then to notice the crystallization of the newly-formed salt; for, if the liquor be allowed to stand for a few hours undisturbed in a cool plate, the salt will be seen to shoot into beautiful crystals of sulphate of soda.

† It should be recollected that, besides the various salts which are formed artificially in the laboratory of the chemist. there are many mineral bodies belonging to each of these

What method has been taken to distinguish the different salts?

Modern chemists have adopted a new nomenclature for this purpose, which is as simple and ingenious as it is useful.

How are the salts distinguished by this means?

In this nomenclature every salt has a double name, one part of which indicates its acid, and the other its base; so that, in a collection of many hundred different salts, the composition of each is immediately known by its appellation.

Can you explain the manner in which this is effected?

All substances which are compounds of metallic oxides, earths, or alkalies with the sulphuric acid, are called *sulphates;* with the muriatic acid, *muriates;* with the nitric acid, *nitrates;* with the carbonic acid, *carbonates, &c. &c.*

Do the advantages which we derive from this nomenclature compensate for the inconvenience of changing the names of so many substances?

The new nomenclature, by its scientific classification of bodies, gives such a facility to the acquisition of chemical knowledge, and this alone would have been sufficient to have justified chemists in adopting it; but its contrivance for pointing out the *nature* of the substances bearing the new names, gives it advantages far surpassing every inconvenience attending the alteration.

Describe the nature of some of these advantages.

In conformity with this plan the saline compound, formerly called *Glauber's* salt, is now called sulphate of soda, because it is a combination of sulphuric acid and soda;‡ what was called *gypsum,* or plaster of Paris, a compound of lime and sulphuric acid, is now called sulphate of lime; in like manner, what was called *green copperas* is now sulphate of iron, that substance being a compound, not of copper, as the old name seemed to import, but of *iron* and sulphuric acid.

Have the framers of this nomenclature been equally happy in the choice of names for the salts which are composed with the other acids?

Yes: the principle upon which the nomenclature is formed is such, that the composition of every salt is designated by an appropriate name with the utmost perspicuity.

According to the new nomenclature, what is the common culinary salt called?

Common salt is called *muriate of soda;*§ that is, a composition formed of soda and muriatic acid.

What do you call salt-petre?

Salt-petre is called *nitrate of potash;* it being composed of potash and nitric acid.

What is chalk now called?

Chalk, being a compound of lime and carbonic acid, is called *carbonate of lime.*

You have said that these bodies were formerly called neutral salts,—why is not that term now applied as before?

Because no salt can strictly be called *neutral,* except such in which the acid is completely neutralized by the base, and the base by the acid, so as to be mutually saturated by each other.‖

Is not that the case with all saline compounds?

No: some have an excess of acid, as cream of tartar and most of the metallic salts; others have an excess of base, as common borax.

How are such salts distinguished?

When a salt is found to contain an excess of acid, the preposition SUPER is generally prefixed to its name; but when it does not contain a sufficiency of acid to saturate the base, the preposition SUB is added: thus we say super-tartrate of potash, and sub-borate of soda.

Some salts are formed with acids not fully oxygenized, as the sulphurous and phosphorous acids: how are such salts distinguished?

All salts that are composed with acids ending in *ous,* take an ending in *ite,* instead of *ate;* as *sulphite* of lime, or *phosphite* of potash.¶

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Having shown the nature of the present chemical nomenclature as far as respects the salts, it will now be necessary to enter on the consideration of each genus separately:—Therefore, What are the generic characters of the SULPHATES?

The sulphates have generally a bitter taste; are always decomposed by the agency of a solution of barytes; and most of them afford sulphurets when heated red hot with charcoal.

Can you enumerate a few of the principal sulphuric salts?

Among the first of them, are sulphate of barytes,* sulphate of strontites, sulphate of potash, sulphate of soda,† sulphate of lime,‡ sulphate of magnesia,§ sulphate of ammonia, and sulphate of alumina and potash, commonly called alum. Besides these, sulphates of the earths, glucina, zirconia, and yttria have been formed, and their properties ascertained, but neither of them has been found useful.

What are the generic characteristics of the SULPHITES?

The sulphites have always a disagreeable sulphurous taste and smell; they are decomposed or changed by the nitric, muriatic, and some other acids which do not affect *sulphates;* if exposed to fire they yield sulphur, and become sulphates: and even by mere exposure to the action of the atmosphere, if moistened with water, they absorb oxygen, and are converted into sulphates. These salts when pure are not decomposable by a solution of barytes, as is the case with the sulphates.

Can you enumerate some of the sulphurous salts?

The principal are the sulphites of barytes, of lime, of potash, of soda, of ammonia, of magnesia, and of alumina.

What are the generic characteristics of the MURIATES?

The muriates, when acted upon by concentrated sulphuric acid, yield muriatic acid in the visible form of vapor. They are among the most volatile, and yet are the least decomposable by fire, of all the salts; not being perceptibly altered by combustibles, even when assisted by an intense heat. They are soluble in water, and are often dissolved in it for the purpose of raising the boiling point of that fluid. They evolve chlorine gas when treated with nitric acid.

Can you enumerate the chief of the muriatic salts?

The principal salts in the muriatic class, are the muriates of barytes, of potash, of soda,‖ of strontites, of lime, of magnesia, of ammonia, and the muriate of alumina.

What are the generic characteristics of the HYPEROXYMURIATES?

The hyperoxymuriates yield very pure oxygen gas by the action of fire, and are thus converted into common muriates; and the stronger acids expel the hyperoxymuriatic acid from these salts, without the assistance of heat. When mixed with combustibles, they detonate with great violence, by mere friction or percussion, and sometimes spontaneously. They are all soluble in water, and some of them dissolve readily in alcohol.

Can you enumerate the hyperoxymuriates?

The chief are the hyperoxymuriates of potash, of soda, of lime, of magnesia, of barytes, and of strontites.

What are the generic characteristics of the NITRATES?

The nitrates yield oxygen gas mingled with nitrogen gas by the action of fire; they give out a white vapor of nitric acid when acted on by concentrated sulphuric acid; and, when mixed with combustible substances, produce, at a red heat, inflammation and detonation. They are soluble in water, and capable of crystallization; and when heated with muriatic acid, chlorine is exhaled from that acid in the form of gas.

Can you enumerate some of the nitric salts?

The more noted are the nitrates of potash,* of barytes, of soda, of strontites, of lime, of magnesia, and of ammonia.

What are the generic characteristics of the CARBONATES?

All the alkaline carbonates are soluble in water, while those of the earths and metals are nearly insoluble, unless the acid be in excess; and they all effervesce, and give out the carbonic acid, when treated with the sulphuric and some other acids.† Some of the earthy carbonates are also decomposed by mere heat without the intervention of any other substance, as is exemplified in burning lime; in which process the carbonic acid is expelled, and the base remains pure.

Endeavor to enumerate the principal carbonates, or bases combined with this acid.

The carbonates of barytes, of strontites, of lime,‡ of magnesia, of potash,§ of soda,‖ and of ammonia,¶ are the principal salts of this class; and that of lime is probably the most abundant in nature.

What are the generic characteristics of the PHOSPHATES?

The phosphates are fusible either into opaque or transparent glass; are phosphorescent at a high temperature; are soluble in nitric acid without effervescence; and are precipitable from their solutions in that acid by lime water. They are partially decomposed by sulphuric acid, but neither the earthy nor alkaline phosphates are decomposable by being heated with combustible matter.

Which are the chief phosphoric salts?

The chief of them are phosphates of lime,** of soda, and of ammonia,†† and the phosphate of soda and ammonia, formerly called microcosmic salt.‡‡

What are the generic characteristics of the PHOSPHITES.

The phosphites yield a phosphorescent flame when heated; and in a strong fire give out a portion of phosphorous, by which they become converted into phosphates. By a very strong heat they are fusible into glass; but if heated with nitre they detonate, and become converted into phosphates. A similar change is also effected in them, if they are treated with chlorine or nitric acid.

Endeavor to enumerate the principal phosphites.

The chief of them are the phosphites of lime, of barytes, of potash, of soda, and of ammonia.

What are the generic characteristics of the FLUATES?

The fluates are decomposed by sulphuric acid, yielding a vapor which corrodes glass, and which, when condensed in water, forms liquid fluoric acid. They are not decomposa-

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classes which are found native. These will be noticed in their proper places as we proceed.

* Fourcroy reckons that there are 134 *species* of salts; but how many distinct salts there are he has not calculated. Having, says he, 32 acids, and 57 bases, it would appear at first sight that there must be 1824 salts: but there are several of the metallic oxides which cannot combine with many of the acids; which is also the case with silica, one of the earths. However, to compensate for this deficiency, there are several acids capable of combining with two bases at once. These are called *triple salts.* Besides these there are super-salts, and sub-salts.

† Should a young person express his surprise that the number of one class of bodies should be so great, he may be told that nature seems to aim at variety in all her productions. Saint Pierre informs us that there are 6000 species of flies, and 760 different butterflies. Ray computed the number of *species* of insects at ten thousand. There are above 1000 different species of beetles known to exist in Great Britain only, independent of what are found in various other parts of the world.

‡ It is necessary to remark, that when an acid is combined with *two* bases, the names of both are subjoined to that of the acid. Thus we say sulphate of alumina and potash, and tartrate of potash and soda.

§ Formerly the word SALT was confined to muriate of soda. No other substance was then known as a salt.

‖ The propriety of restricting the use of the term *neutral* will appear, if we consider that we have some bases that combine with more than one dose of acid, and thereby form salts which differ in their appearance and properties. Thus we have *sulphate* of potash, and *super*-sulphatet of potash. The one is a neutral salt, the other a salt with excess of acid. These salts are however now called sulphate of potash, and bi-sulphate of potash. These are more appropriate terms, because 100 parts of potash combine with 82 parts of sulphuric acid to form the sulphate; and with twice that quantity or 164 of acid to compose the bi-sulphate. In like manner we now speak of carbonates and bi-carbonates, and of oxalates and bi-oxalates.

¶ When sulphur is fully saturated with oxygen, it forms what is called sulphuric acid, and the salts composed with this acid are called sulphates. But when sulphur is partially oxygenized, an acid is produced called sulphurous acid, and the salts formed with it are called sulphites.

The new nomenclature enables us to distinguish between acids which are partially oxygenized, and those which contain a maximum of oxygen. This is of great importance, because the properties of the salts formed with these acids vary as much as the acids themselves. The salts formed with acids ending in *ic* are generally permanent; whereas salts formed with the same bases combined with acids ending in *ous* are seldom permanent, but by exposure to the air attract oxygen, and are changed into salts of the former kind.

* Sulphate of barytes, or *ponderous spar* as it has been called, is abundant in different parts of the earth. Sulphate of strontites is found near Bristol and elsewhere in abundance. Sulphate of potash, sulphate of soda, and sulphate of ammonia are prepared by chemical manufacturers in many of their processes. Sulphate of lime, sulphate of magnesia, and sulphate of alumina are native productions. Sulphate of ammonia has also been found native in the neighborhood of volcanoes, and sometimes occurs among the lavas of Ætna and Vesuvius. This native production is known to mineralogists by the name of *mascagnine.*

† Crystallized sulphate of soda is composed of about 19¼ per cent of soda, 24¾ sulphuric acid, and 56 water. The fused salt is a compound of 44 soda and 56 sulphuric acid.

‡ In America this substance has been long used as a manure; it is coming into use in this way also in some districts in England. It is plaster of Paris.

§ Sulphate of magnesia is a compound of 33 magnesia and 67 sulphuric acid. It occurs native in the quicksilver mines of Idria, and on the surface of the soil in some districts of Spain. A native combination of sulphate of magnesia and sulphate of soda is found in a crystallized state at Sedlitz.

‖ The most important salt in this class is muriate of soda, which consists of 46.5 of dry muriatic acid and 53.5 of soda. According to the new theory, however, this salt must be considered to be a true muriate of soda only while it remains in an aqueous solution; for when it is reduced to dryness, the muriatic acid and the soda become both decomposed, and the hydrogen of the muriatic acid uniting with the oxygen of the soda, they both pass off in the form of water, while the chlorine of the muriatic acid unites with the metallic base of the soda to form chloride of sodium, which is the true character of our common salt when in a dry state.

Mr. le Goux, in his history of the cocoa-nut-tree, tells us that the inhabitants of those parts of Hindoostan and China which border on the sea-coast sprinkle their rice-fields with sea-water, and use no other manure; and that in the interior of these countries they sprinkle the lands with salt before they are tilled; and that this practice has been followed for ages with the greatest advantage.

In a conversation with the late Mr. Hollinshead, a gentleman who spent many years of a valuable life in making experiments on the employment of salt in agriculture, and in endeavoring to procure an act of parliament to sanction its use, I was informed that from one bushel to six bushel to an acre of pasture land always makes such land more productive; but that a larger quantity would for two or three years afterwards render it actually steril.

* Nitrate of potash (salt-petre) is generated by nature in abundance, particularly in the east: in some districts it appears in an efflorescence on the surface of the soil, from whence, at a certain season of the year, it is regularly swept off two or three times a week, and as repeatedly renewed: it appears that nothing is necessary for its production but the presence of lime, animal and vegetable matters, heat, and dry atmospheric air. The atmosphere furnishes the acid; but how the [illegible] in it, is not known with certainty.

Notwithstanding the prodigious [illegible] of salt-petre collected in the East Indies, it has been calculated that two-thirds of the whole are annually sent into China and other parts of Asia to make artificial fire works. The fire works of the Chinese exceed those of all other nations in variety and beauty.

At Apulia near Naples, there is a natural nitre bed, in which the earth contains 40 per cent of nitre.

In Switzerland, the farmers extract an abundant quantity of very fine salt-petre from the earth under the stalls of the cattle. The urine of quadrupeds contains much potash, and this acquires nitric acid from the atmosphere.

Nitre is used in large quantities in the manufacture of *gunpowder,* every 100 parts of which are usually composed of about 76 parts nitre, 15 charcoal, and nine sulphur.

† There are eleven species of carbonic salts at present known; only four, however, of the native earths are found combined with this acid, viz: lime, barytes, strontites, and magnesia.

‡ Carbonate of lime is not soluble in water, unless the water itself be charged with carbonic acid: it is by this means that nature effects a solution of calcareous masses, to form stalactites, and other beautiful incrustations. Native carbonate of lime is a compound of lime 56, carbonic acid 44.

§ There are two carbonates of potash, the one consisting of 68 potash and 32 carbonic acid, possessing alkaline properties; and the *bi-carbonate,* which is formed with a double portion of carbonic acid, and is incapable of changing the colour of tumeric paper.

‖ Crystallized carbonate of soda consists of soda 21½, carbonic acid 15½, and water 63. The dry carbonate of soda consists of 58½ of soda, and 41½ of carbonic acid. Whereas the bi-carbonate is a compound of 37 per cent of soda, 52¼ of carbonic acid, and 10¾ water.

¶ Carbonate of ammonia, or the common smelling salt, is now much used by the bakers as a substitute for yeast. It consists of one volume of carbonic acid gas and two of ammoniacal gas. The bi-carbonate is composed of one volume of each gas, and consequently is less pungent than the former. The first is composed of 56 parts of carbonic acid and 44 parts of ammonia; the latter of 72 of carbonic acid and 28 of ammonia.

** Phosphate of lime is found in bones, milk, and some other animal matters. It is white, tasteless, and insoluble in water. Entire mountains in Spain are formed of this salt. It is composed according to Dr. Wollaston of 48.5 lime and 51.5 of phosphoric acid.

†† Phosphate of lime exists also in the farina of wheat. La Grange remarks, that a person who eats a pound of farina a day, will swallow 3 pounds 6 ounces 4 drachms and 44 grains of phosphate of lime in a year. It is a curious fact, that the grain of wheat should contain phosphate of lime, while the straw, which was *not* intended for our food, should contain *carbonate* of lime only.

It is remarkable, that though phosphate of lime is always found in the urine of adults, this salt is not evacuated by infants. The rapid formation of the bones, in the first periods of life, requires that there should be no waste of any of the phosphoric salts; and nature, ever provident, has provided accordingly.

‡‡ Phosphate of ammonia is found in urine, and is also prepared by art, to be used as an ingredient in making pastes, to imitate precious stones. It is one of the best fluxes for experiments with the blowpipe.

ble by mere heat, nor altered by combustibles. Some of them are insoluble in water, and others very sparingly soluble in that fluid. Some of them possess phosphorescent properties, and all of them combine with silica when intensely heated in connexion with that earth.

Which are the chief fluoric salts?

Fluate of lime,* fluate of soda, fluate of ammonia, fluate of alumina, and fluate of silica.

What are the generic characteristics of the BORATES?

The borates are all fusible into glass, and with several of the metallic oxides, form glass of different colours. Concentrated solutions of some of the borates, especially that of soda, afford, when decomposed by the stronger acids, scaly crystals of boracic acid. None of the combustible substances have the power of decomposing the boracic salts.

Can you enumerate the boracic salts?

The principal are the borates of lime, of magnesia, and of potash; and the sub-borate of soda, which is known in commerce by the name of borax.

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What are the generic characteristics of the ACETATES?

The acetates are all very soluble in water; are decomposed by the action of heat, and afford acetic acid when distilled with sulphuric acid. These salts, if exposed to the air when in a state of solution, are soon destroyed, owing to the gradual decomposition which the acid undergoes; an inconvenience which is experienced by the printers of calicoes whenever their red mordant (the acetate of alumina) has been long kept, without being properly preserved from the action of the atmosphere.

Which are the chief acetic salts?

We have the acetates of barytes, of potash, of soda, of lime, of ammonia,† and of magnesia, besides the acetate of alumina of the calico printer, just mentioned.

What are the generic characteristics of the OXALATES?

The oxalates are decomposable by a red heat; and those which are soluble in water are decomposed also by lime or barytes water; and the precipitated oxalate is soluble in an excess of oxalic or of most other acids.

Can you enumerate the principal oxalic salts?

Oxalate of lime, of barytes, of strontites, of alumina, of magnesia, of potash, of soda, and of ammonia.

What are the generic characteristics of the TARTRATES?

When the tartrates are exposed to a red heat, the acid is decomposed, and the base remains. The earthy tartrates are less soluble than the alkaline, but all are capable of combining with another base, and forming triple salts. The tartrates are also capable of combining with an excess of acid, and thus forming what are called super salts, of which common tartar or super-tartrate of potash is a well known instance.

Can you enumerate the principal tartaric salts?

The principal of them are the tartrates of lime, of strontites, and of potash; and the tartrates of potash and ammonia, and of potash and soda, commonly called Rochelle salt.

What are the generic characteristics of the CITRATES?

The citrates are decomposed by the strong mineral acids; they yield [illegible] acid when distilled; and the oxalic and tartaric acids decompose them, producing an insoluble precipitate in their solutions. The aqueous solutions of these salts are not permanent, but are liable to be decomposed by age.

Which are the principal citrates?

The citrates of lime,‡ of barytes, of potash, of soda, and of ammonia.

What are the generic characteristics of the CAMPHORATES?

The camphorates have generally a bitterish taste; they are decomposable by heat, and burn with a blue flame. The camphorate of potash and some other of these salts crystallize very readily.

Which are the principal camphorates?

The camphorates of lime, of potash, of soda, of barytes, of ammonia, of alumina, and of magnesia.

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What are the principle prussiates?

The prussiates, or triple prusiates of potash, soda, lime, or ammonia, with iron: that of potash was formerly called prussian alkali.

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* Phosphate of soda and ammonia is also found in human urine, from whence it may be procured by evaporation in the state of a triple salt.

According to some modern experiments, it appears that fluoric acid forms a part of the human teeth. It may be conjectured that this was a contrivance of nature, to give more durability to these important organs than they would have had by phosphate of lime only.

† A solution of acetate of ammonia has been used from a very early date in Pharmacy, under the name of *Mindererus's spirit*. It is not crystallizable; for, if evaporated with that intention, it volatilizes entirely.

‡ Citrate of lime is now formed in this country in large quantities, as a preliminary process in preparing the citric acid in a crystallized state. According to Vauquelin, it is composed of 63 acid and 37 lime. From actual experiment I have found that 100 gallons of good lemon juice will generally produce 90 pounds of dry citrate of lime well saturated.

ROHAN POTATOES—The high price of the Rohan Potato last spring, (from $10 to $20 per bushel,) the great demand for them, and their intrinsic value as a farm crop, induces us to give this early notice to the farmers who may wish to cultivate them, that on the receipt of five dollars, if before the 1st of Nov. we will forward to the address of the person sending it, in the manner he shall direct, and at his charge, one barrel of the Rohans, which will probably suffice to plant an acre of ground.

J. BUEL.

Seeds of Evergreens.

☞ WE want to purchase for our friends in the west, a quantity of seeds of the Balsam Fir, Spruce, Hemlock, White Cedar, or Arbor Vitæ, and of the White Pine, and will pay for them a liberal price. In the next Cultivator we will endeavor to suggest the time, and the manner at and in which these seeds should be collected and preserved.

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicesters flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 28, 1839.

Sept–tf JAMES A. HAMILTON.

ALBANY SEED STORE, GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholesale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.

Sept–tf WILLIAM THORBURN.

GREAT SALE of IMPROVED SHORT-HORN CATTLE AND BLOOD HORSES.—The subscribers will sell at auction, on *Tuesday the 10th day of September next*, at the farm of Samuel Allen, on the Niagara river, two miles below Black-Rock, the entire stock of Imported Short-Horn Cattle, for several years past bred on the farm of L. F. Allen, on Grand-Island.

The herd consists of about thirty, including Cows, Bulls, Heifers and Calves. Several of them have been imported by one of the subscribers, direct from England, and with their produce, are surpassed by few animals in the country. In addition to these, every animal offered is the direct descendant of thorough bred imported stock, and of unquestionable purity of blood.

With the above will be sold twenty select and beautiful animals, consisting of pure Devon; crosses of different degrees between the Devon and Improved Short-Horns; crosses of the Alderney and Ayreshire with the Short-Horns. These are Cows, Heifers and Calves, all superior animals.

ALSO—The superb horse "BELLFOUNDER," got by imported Bellfounder, the best thorough-bred trotting horse ever in America, and out of the imported mare Lady Allport, bred by T. T. Kissam, Esq. of Long-Island. The stock of this horse is unsurpassed in the country for size, speed and action—together with several elegant, thorough-bred breeding mares and fillies, and two or three young horse colts, the produce of the above. These animals are of the highest character as roadsters, and as trotters, no blood in the country has excelled them. They are all from the best stables of Long-Island. Also, a beautiful pair of full-bred matched fillies, five years old. All these horses are blood bay.

This entire stock will be sold without reserve, to the highest bidder, commencing at 10 o'clock A. M. They can be shipped within an hour from the farm, on board the steamboats to go up the Lakes, or on board canal boats at the farm.

Catalogues of the animals, with descriptions and pedigrees, will be prepared, and the stock may be viewed at the farm previous to the sale. A credit of sixty days will be given on approved notes or acceptances, payable at a bank either in Buffalo, Albany, or New-York, for all sums over $300.

SAMUEL ALLEN. LEWIS F. ALLEN.

Black-Rock, N. Y. June 25, 1839.

IMPROVED DURHAM SHORT-HORNS.—Mr. WHITAKER'S third sale of high bred improved Short-Horns, by the ship Napier, will be held at Powelton, near Philadelphia, on Friday Sept. 20, 1839, at 10 o'clock A. M.

The subscriber is authorised by Col. Powell to say, that all the best cattle which he has at any time imported, and the improved short-horns which he considered the best in England, were either in Mr. Whitaker's possession, or were derived from his fold. Col. Powell has not the slightest interest in Mr. Whitaker's sales. Philadelphia, July 15, 1839.

ts C. J. WOOLBERT, *Auctioneer.*

NEW-YORK URATE AND POUDRETTE COMPANY, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundance, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1,211, post-office, New-York; or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. *New-York, July* 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them.

aug–4t.

AGRICULTURAL WAREHOUSE and SEED STORE, 79 Barclay-street, New-York. At this old established stand, the subscribers take pleasure in announcing to the public, that they have made extensive arrangements to accommodate farmers in all articles connected with husbandry, viz:—Agricultural implements, a full and fresh supply of Field and Garden Seeds, Fruit Trees, Durham Cattle, Chinese and Berkshire pigs, 10,000 morus multicaulis mulberry trees, publications on rural subjects, &c.

July–3t J. W. WEAVER & Co. 79 Barclay-st. N.Y.

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*Moneys received between the 24th June and 1st of August, in sums of $5 and over. The total receipts are included from post-offices marked with an asterisk.**

	No. Vols.			No. Vols.	
Averysborough,	N.C.	6	Mocksville,	N.C.	41
*Augusta,	Ga.	55	Mount Sterling,	Ky.	5
*Auburn,	Va.	9	Milwood,	Va.	22
*Brandenburgh,	Ky.	7	*New-York city,		280
*Baltimore,	Md.	107	Nicholasville,	Ky.	29
Belleville,	Ill.	22	New-York mills,	N.Y.	27
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Brockville,	U.C.	8	New-Haven,	Ct.	5
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*Boston,	Mass.	168	*Poughkeepsie,	N.Y.	21
Chesnut Grove,	S.C.	7	Pine Lake,	Mich.	11
*Cambridge,	Md.	22	Peoria,	Illi.	39
*Chillicothe,	O.	8	Pittsylvania C. H.	Va.	5
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Dorset,	Vt.	5	Plymouth,	Ia.	5
*Dayton,	O.	64	*Plainfield,	N.J.	8
*Danville,	Pa.	18	*Rhinebeck,	N.Y.	29
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Deep River,	Ct.	6	Schoolcraft,	Mich.	6
Ellicotville,	N.Y.	6	Shelbyville,	Mass.	6
*Ellsworth,	O.	18	*Stony Point Mills,	Va.	26
East Wareham,	Mass.	5	*Springfield,	"	38
Elgin,	Ill.	5	Steeles,	S.C.	5
East Greenwich,	R.I.	6	*Springfield,	Mass.	40
Frankfort,	Ky.	22	Terre Haute,	Ia.	17
Gold Hill,	Ala.	5	Victoria,	L.C.	8
*Hartford,	Ct.	61	Westport,	Ct.	5
Heathsville,	Va.	16	*Wawarsing,	N.Y.	11
*Huntsville,	Ala.	43	*Westport,	Ky.	8
Indiantown,	Ill.	5	Wrentham,	Mass.	5
*Jackson C. H.	O.	12	Wheeling,	Va.	7
Leonardstown,	Md.	12	Williamsburgh,	Mo.	11
*Lake C. H.	Ia.	28	Woodstock,	Ct.	6
Louisville,	Va.	5	Watertown,	Mass.	5
Laporte,	Ia.	11	Waynesboro,	Va.	5
*Mount Vernon,	Ia.	30	*Washington city,	D.C.	47

PRICE CURRENT.

ARTICLES.	New-York, August 5.	Boston. August 3.	Philadelphia. August 3.	Baltimore. August 3.
Beans, white, per bushel,	2 00— 2 25	......	......	......
Beef, per cwt.	......	7 50— 8 25	......	7 00— 8 50
Bacon, western, per lb.	0 11— 0 12	......	......	0 11— 0 12
Butter, fresh, per lb.	0 16— 0 24	0 22— 0 25	......	......
Cheese, per lb.	0 08— 0 10	0 12— 0 16	......	......
Cotton, best per lb.	0 10— 0 14	0 09— 0 11	......	......
Flour, best, per barrel,	6 00— 7 50	5 87— 6 50	5 25— 5 50	5 87— 6 00
GRAIN—Wheat, per bushel,	1 25— 1 37	1 28— 1 33	1 23— 1 28	1 15— 1 33
Rye, per bushel,	0 80— 0 85	0 78— 0 80	0 70— 0 75	0 78— 0 82
Oats, per bushel,	0 41— 0 52	0 30— 0 35	0 33— 0 35	0 27— 0 30
Corn, per bushel,	0 81— 0 86	0 75— 0 78	0 76— 0 80	0 78— 0 79
Hams, pork, per lb.	0 12— 0 13	0 13— 0 14	0 11— 0 12	0 10— 0 11
Pork, in hog, per cwt.	......	7 00— 9 00	7 75— 8 25	9 00— 9 25
SEEDS—Red Clover, per bushel,	......	9 00—11 00	......	......
Timothy, per bushel,	......	2 50— 3 00	......	......
WOOL—Saxony, fleece, per lb.	0 55— 0 60	0 55— 0 60	......	......
Merino, per lb.	0 50— 0 52	0 45— 0 47	......	......
¼ and common, per lb.	0 37— 0 40	0 33— 0 35	......	......
Sheep, per head,	2 00— 5 50	1 25— 3 50	......	1 50— 3 25
Cows and Calves, each,	30 00—45 00	25 00—60 00	......	......

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. VI. NO. 5, WASHINGTON-ST. ALBANY, N. Y. SEPTEMBER 1839. No. 8.

Conducted by J. BUEL, of Albany.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Our Sheet and its Price.

The first volume of the Cultivator was published at twenty-five cents a year; the subsequent three volumes at fifty cents; and for the fifth and sixth, we have charged one dollar a volume. Many of our original subscribers have probably thought, that we have been extortionate in advancing our price, and that our profits are *now* unreasonable. A plain statement of facts is due alike to them and ourself.

The first volume contained no cuts. The cuts of our present volume will cost us, probably, $300; and the first volume run us in debt nearly $600. But the exhibit of the quantity of matter, and the price of paper—the type setting and paper being the prominent items of expense—will show something of the relative profits, under the different prices which we have charged for the Cultivator. Taking printer's computation, and disregarding fractions,

A No. of our 1st volume, at 25c. contained 50,000 ems.
" 2d volume, at 50c......... 76,000 ems.
" 6th volume, at $1,........ 156,000 ems.

while the price of the paper has correspondingly advanced, until it is now $8.50 the ream; the larger page, and the smaller type requiring stouter and finer paper.

It will thus be seen, that our expense for type-setting, paper and cuts, for our sixth volume is more than quadruple what it was for our first volume, and more than double what it was for the second volume. We gain something in the press-work and mailing, and our subscribers gain in postage—paying no more now than they formerly did for a quarter, or a half, of what they now receive.

Comparatively speaking, the agricultural journals of our country are the cheapest periodicals that are published any where; and as to their superior utility, in promoting the substantial interests of our country, we entertain not a doubt. Take, for comparison of contents, one of the literary quarterly journals, say the North American. This contains, in a number, 248 pages, or 1,000 in a year, and about 1,000 ems in a page—giving an aggregate of 1,000,000 of ems. The Cultivator gives in a year 1,881,000 ems, or nearly double. The North American is five dollars a year—the Cultivator one dollar a year. To correspond with the price of the North American Review, according to the quantity of matter it contains, the price of the Cultivator should be nine dollars a year. Surely no one can hereafter complain of price, however light they may value the matter. And we beg our readers to notice, that the Cultivator is now printed upon a beautiful new type.

The Agricultural State of Scotland.

And what has that to do with American husbandry? it may be asked. Much, we reply. We may learn, from what Scotland *was*, and what she *is*, in agriculture, many useful lessons in farming. We may learn our own errors in practice; and, if we are not too proud, or too conceited, we may learn, from Scotch lessons in farming how to correct them—we may learn from them how to double, at least, the products of our agricultural labor. The history of Scotch agriculture, for the last fifty years, is invaluable to every farmer who would improve his practice. History is wisdom, teaching by example.

We find a valuable essay in the Edinburgh Quarterly Journal of Agriculture, showing what Scotland *was*, and what she *is*, in regard to her agriculture. She was, in 1784, two years after the close of our revolution, as poor as a *church mouse.* She *is now*, perhaps, the richest, in agricultural products, of any portion of Great-Britain, at least so far as regards her arable lands.—The writer describes the face of the country, at the middle of the last century, "no better than that of a bleak howling wilderness," and well, he adds, might the poet at the inn window indite—

"Bleak are thy hills of north,
Not fertile are thy plains,
Bare-legged are thy nymphs,
And bare —— are thy swains."

"In 1784, a few gentlemen, full of zeal for their country, and it may be a little love of society, formed themselves into a sort of hole and corner club, in a coffee-house called the Exchange, situated in the court of that name, near 'the market cross of Edinburgh.' Here, in the enjoyment of agreeable conversation and a good supper, did those worthies talk over plans for the amelioration of the Highlands, and from this nucleus arose the now widely extended and powerful Highland Society." * * * "To say what was the state of agriculture in Scotland, at the date of the formation of the Highland Society, would, to treat of it minutely, require greater scope than the limits of a periodical admit."

* * * *

"But, to take one sweep over hill and dale, corn-field and meadow, we may at once pronounce the agriculture of Scotland, at that period, to have been wretched—execrably bad in all its localities! Hardly any wheat was attempted to be grown; oats full of thistles was the standard crop, and this was repeated on the greater part of the arable land, while it would produce twice the seed thrown into it;—turnips, as part of the rotation of crops, were unknown; few potatoes were raised, and no grass seeds or clover were sown. The whole manure of the farm being put on a little bit of ground near the farmstead, and there they grew some barley of the coarse sort, termed 'bere,' wherewith to make bannocks, broth and small beer, or peradventure, if the farm lay at the foot of the Grampians, to brew a portion of 'mountain dew!' Since the writer can recollect, a great part of the summer was employed in the now fertile shire of Fife, in pulling thistles out of the oats, and bringing them home for the horses, or mowing the rushes and other aquatic plants that grew on the bogs around the homestead. Such was the state of Scotland, with but little appearance of amendment, up to 1792."

The general outline of this picture of wretched husbandry is suited to the present condition of many districts on the eastern borders of our country, though the filling up of the picture would require to be somewhat different.

"Time, with her 'ceaseless wing,' had now brought in another century, and on the arrival of the nineteenth, the richer part of the low country had put on another aspect.—Beautiful fields of wheat were to be seen—drilled green crops and clean fallows every where abounded—the bogs had disappeared—the thistles no longer existed. In the Lothians, all this was carried on to a great extent. The farmers forgot themselves—they were coining money, and 'light come, light go,' was their motto. They went on in the most reckless manner—they began to keep greyhounds, to be members of coursing clubs, subscribed to the 'silver cup,' or 'puppy stakes,' and yelped the same note of folly as their betters in birth, their equals in extravagance and vice. Then followed yeomanry races—the good sturdy nag that would be of use *at a time* in the operations of the farm, was exchanged for a blood weed, and on market-day, instead of rational conversation about matters connected with their own calling, they began to talk '*knowingly*' about the turf. At this time, that is, from 1810 to 1814, the agricultural horizon was the brightest; the gas was fully up, the nation was alive, all was activity and business." * * *

But at this time the battle of Waterloo came, and with it peace and low prices. Farmers could not sustain their extravagance—they had been unable to bear prosperity—and their farms fell into the hands of more prudent managers. We have seen much of the same routine of industry, extravagance and poverty, among the farmers of our own country. Not willing to "*let well enough alone*," they have embarked in speculation, or in pursuits to which they were strangers, and have gone into extravagances and follies, to ape the great, which their means did not warrant, and which neither their comfort nor the welfare of their children required. The consequence often has been, that, like the indiscreet Scotch farmer, their lands have come into the possession of more prudent managers.

But though Scotch farmers failed, from not knowing how to bear prosperity, Scotch husbandry did not retrograde.

"In 1815, the turnip husbandry had got a firm hold in the country—the benefit accruing from it was so apparent, that no convulsion in the market prices could make the farmers forsake it."

Yet the culture was limited, owing first to the want of manure to feed the turnip crop, destined to fatten the farm stock; and 2dly, to the expense of driving their cattle to a distant market. Two discoveries removed these impediments. The first, "the most important," says our author, "that ever occurred in the annals of agriculture, viz. that of *bone-dust*," and the second, the *application of steam*, by our countryman, Fulton, to the propelling of vessels, which enabled the Scotch farmer to transport his fat animals to Smithfield market, at a moderate expense. "So palpable was the benefit to be derived from the use of bone manure, that in a few years there was not a farmer who did not avail himself of it. The farmers could now grow turnips to any extent, and the bare fallow was exploded." We have bone-dust, and poudrette, and other newly discovered means of fertility, which the farmer is shy of buying and using. We have tried them all, and are satisfied both of their utility, and the economy of their application, especially upon naturally dry or well drained soils. They add much to the products of agricultural labor, without any thing like a corresponding outlay. The Scotch farmer could now grow turnips to any extent. He could fatten upon these his stock: and he could send this stock to market at a trivial expense, for the "steam engine had become his drover."

But another—a third improvement followed, which we have yet to learn the value of—we mean *furrow draining*, on flat and tenacious soils. Hear what our author says upon this subject:—

"No man holding land ought to be ignorant of the thorough or Deanston drain. Mr. Smith, deeply engaged in the cotton spinning trade, could not procure a fall of water on the river Teith, ten miles west of the castle of Sterling, without renting along with it a considerable portion of very bad and wet land. Not liking to have a heavy rent to pay for such trash, Mr. Smith turned his powerful mind to the subject, and perceiving the folly of throwing away large sums of money on deep and useless drains, with all the stuff of tapping and boring, to *catch* the water as it were a wild beast for which gins and traps must be laid, hit on the idea of making drains in parallel lines in the hollow of every ridge, cutting them to the depth of thirty inches, filling them with small stones half-way to the surface, above this putting a green turf reversed, and replacing the mould. Following up his first discovery by ploughing deep, he has now a farm of the finest land ever seen; and so convinced is the writer of the utility of this mode of draining, that each year he has been increasing the quantity he has made, and during the last twelve months has put in above fifteen miles. Nor is the Deanston drain confined to those parts of the country where stone or gravel can be procured; the same system can be and is followed with the same effect, by using the Marquis of Tweeddale's tile; or even the poorest farmer, who has not capital to undertake costly improvements, can fertilize his farm by making the thirty inch drains and filling them with brushwood. It is perfectly wonderful to behold the mighty change this thorough-drain system is making in the different parts of the country where it is in operation: wet land is made dry, poor weeping clays are converted into turnip-soil, and even what would formerly have been accounted dry is advanced in quality. Whole parishes in the vicinity of Stirling are completely transformed from unsightly marshes into beautiful and rich wheat-fields, and where the plough could scarcely be driven for slush and water, we see heavy crops per acre and heavy weight per bushel, the quantity and the quality alike improved." * * *

"It is the greatest quantity produced at the cheapest rate that will ever make a prosperous trade. If wheat is low in price, the farmer must bestir himself." * * * "Let him remember that if he can but grow one or two quarters more per acre, he will be in a better position, even with the low price, than he was before." * * *

In speaking of the Highland Society, the writer enumerates the following means which that society adopted as contributing largely to the mighty advance of the agriculture of Scotland:—

"In the days of its youth and feebleness, the Highland Society sent the leaven of the turnip husbandry into all the glens and straths of the north, by offers of small prizes to certain Highland parishes; and the same may be said as to the growth of clover and the finer grasses. As it advanced in strength, (as to numbers and as to cash,) attention was turned to premiums for stock; then came offers of reward to men of science to discover better implements and machines, to diminish friction and consequently draught, such as in the thrashing mill and other parts of agricultural machinery. Still advancing in the scale of intellect and of science, premiums were offered for essays to bring to light the facts connected with chemistry and natural philosophy; and, under the auspices of the society, was set up the Quarterly Journal of Agriculture, a work which has been the vehicle of conveying so much useful information to the agriculturist, that, we humbly venture to say, it ought to appear on the table and book-shelf of every farmer's parlor. After this, the great stock-shows were resolved upon, as another link of union between the society and the practical farmer, at the same time throwing aside all paltry feeling, and making them open to stock from both sides of the Tweed, [*i. e.* from England as well as Scotland.] How well they have succeeded, let the last one at Glasgow bear witness. [This was the most splendid show of fine cattle ever exhibited.] Nor has the society forgotten the beauty of the country, as the premiums offered in regard to planting trees and such-like subjects fully testify; and to sum up all, it may be said, the Highland Society has been a '*point d'appui*,' a rallying point, to which the agriculturists of Scotland might look, and a fostering mother to all who, although strong in talent, were weak in interest to make it public. An ardent lover of the plough and all that can speed it, the writer of this article would advise the society of England [and all other agricultural societies who would be useful to their country,] to look into the annals of the Highland Society, and from them to cull whatever may be of use in the advancement of the delightful science, the culture of the fields.

————————"'the men
Whom nature's works can charm, with God himself
Hold converse; grow familiar day by day
With his conceptions; act upon his plans,
And form to his the relish of their souls.'"

The Highland Society have this year offered prizes to the amount of $17,000, under the following classification:—

Class I.—Agricultural machinery, 500 sovereigns and a gold and silver medal.

Class II.—Essays and reports on various subjects, embracing thirty-one subjects of high interest to the farmer, viz:

1. Geological surveys.
2. Reports on coal districts.
3. Mines and minerals.
4. Products of peat moss, &c.
5. Comparison between different kinds of manure in raising potatoes.
6. Extended application of water and other power to farm purposes.
7. Comparative efficacy of the two modes of thorough-draining.
8. Reports on irrigation.
9. Forest planting.
10. Sheep pastures at high elevations.
11. Improved sheep salve.
12. On crossing the Cheviot with the New Leicester Ram.
13. Cultivation of the recently introduced cereal and other grains.
14. Feeding farm horses on raw and prepared food.
15. Early rearing and fattening of lambs.
16. Insects injurious to agricultural plants.
17. Insects injurious to forest trees.
18. Comparative nutritive properties of grasses.
19. Extirpating ferns from pastures.
20. Thorough-draining.
21. Subsoil ploughing of thorough-drained land.
22. Mole plough.
23. Experiments with manures.
24. Analysis of bone or rape dust.
25. On the effects of altitude on vegetation.
26. Feeding of cattle.
27. Forests of larch.
28. On raising improved varieties of grains.
29. Reports on improved rural economy abroad.
30. Honorary premium for reports on certain districts in Scotland.
31. Investigation of certain points connected with the science of agriculture, viz:

    An essay or memoir explaining, on scientific principles, the mode in which soil operates in producing or facilitating the germination and growth of vegetables.

    An essay or memoir describing and proving, on scientific principles, what is the best admixture of the ordinary elements of soil, for promoting the germination and growth of particular vegetables.

    An essay or memoir describing, on scientific principles, the mode in which lime operates in rendering the soil better adapted for the germination and growth of particular vegetables.

    An essay or memoir explaining, on scientific principles, the effect of drainage, in altering the constitution or qualities of the soil, and increasing its fertility.

    An essay or memoir, showing the nature of the atmospheric influences on soil, in promoting its fertility, including the modification of these influences arising from heat and cold, dryness and moisture.

Class III.—Waste lands—their improvement by tillage.

Class IV.—Crops and culture.

Class V.—Pastures—their management.

Class VI.—Live stock—district competitors.

Class VII.—Products of live stock—butter and cheese.

Class VIII.—The best kept cottages and cottage gardens.

Class IX.—Woods and plantations.

Class X.—General show of live stock and agricultural meeting at Inverness.

Having shown, by our quotations, something of the vast extent of the recent improvements in the agriculture of Scotland, and the influence which its agricultural society has had in promoting these improvements, we have given the above sketch of their premiums, as indicating the means they have adopted, and are adopting, to bring about this great and salutary change—to show how vast a field they occupy—and the great bearing which science is made to have in the improvement of the soil, and in the operations of the farm.

Transactions of the Essex Agricultural Society.

Although we consider our practice in reclaiming wet grounds, as very defective, and not managed upon scientific principles—neither so economical as to ultimate profits, or permanent in improvement as it might be—yet the advantages are so palpable, even under our defective mode of management, as to make it the interest of every farmer, who possesses grounds of this description, immediately to commence this branch of improvement.

The Essex County Agricultural Society have wisely turned their attention to this matter, and made it the subject of premiums. In the pamphlet under consideration, we find five claimants for the prize; and we propose to give an abstract of two of these communications, by way of inducing others to commence the like improvements, as matter of profit, as well as promotive of health, and of the beauty of rural scenery. For there are few things more obnoxious to health than stagnant waters, and there is nothing more disgusting to the eye, in an old settled district, than noisome swamps and marshes.

Timothy H. Brown, attacked a swamp of between five or six acres, in Saugus, the mud in which was from two to twelve feet deep, and which was so thickly covered with briers and bushes, that a dog would have found difficulty in passing through it—and so many stumps and logs that the plough could not enter the soil, though it had been dry. It was of course worth nothing in its then condition. He cut and burnt the brush, dug out the stumps and roots, and reversed the turf, by hand labor, and dug a drain. In the winter following, he drew off the logs and stumps, harrowed the ground thoroughly, in the spring, when but a few inches of the surface was thawed, and about the first of May, planted potatoes. His crop was 927 bushels. His logs and stumps were converted into charcoal.—The land is now, says Mr. Brown, in a state that I can plough it at pleasure. Mr. Brown states the debtor and credit account of the improvement as below.

VALUE OF PRODUCTS.

Proceeds of coal in 1837,	$166 40
do do 1838,	333 33
Value of crop of potatoes, at 50c.	463 50
Value of ashes for manure,	75 00
Value of wood sold,	50 00
Value of wood used,	50 00
Increased value of the land, it being now worth $125 an acre, and originally worth only $12 an acre,	565 00
	$1,703 23

EXPENSE OF IMPROVEMENT.

Levelling and clearing the land,...	$504 00	
Carting the wood and roots,	35 00	
Harrowing, &c.	12 00	
Planting, hoeing, harvesting, &c...	117 00	
Coaling in 1837,	40 00	
Coaling in 1838,	100 00	
		808 00
Profit by the improvement,		$895 23

William Osborn, Jr. made an experiment upon four acres of like conditioned swamp, in the same town, commencing in the autumn of 1837. He adopted much the same course as Mr. Brown in clearing the land, and run a ditch around the piece, and four ditches across it, three feet deep and four feet wide. He put on different crops, as indicated in the following statement of his expenses and value of his crops.

CROPS.

320 bushels potatoes, at 60c.	$196 20
5½ do rye, at $1.25,	6 87
8½ do corn, at $1,	8 50
100 do ruta baga, at 30c.	30 00
20 cwt. hay,	12 00
50 dozen cabbages, at 50c.	25 00
2,000 lbs. squashes,	20 00
Value of fuel,	25 00
	$323 57

EXPENSE.

Cost of land,	$25 00	
Labor, per contract,	86 50	
94 days by help on farm,	70 50	
Seed potatoes,	15 00	
Rye and grass seed,	1 17	
Six cords manure, at $5,	30 00	
Two casks lime,	2 00	
22 days' labor, gathering crops,	16 50	
		246 67
Nett profit,		$77 90

And the land in the bargain, probably worth $400 more.

Experiments with manures.—We subjoin the report of the committee upon this branch of farm economy. It contains suggestions which are of great value; and where manure sells for $5 a cord, as it does in Essex, no branch of farm economy is entitled to higher consideration.

"The Committee report:—That they consider the subject of the making and application of manures, one of the greatest importance to the agricultural interest. Manure and labor are to the farmer, what capital and credit are to the merchant. With them, well applied, the one will add barn to barn, the other store house to store house, till there shall be no room to contain their several wealth; without them they must soon suspend operations, and their farms and their ships pass into the hands of more skilful and industrious owners.

"Many farmers think they cannot afford to purchase manure, and the price *does* seem disproportioned to the immediate profits; but no farmer will say that he cannot afford to make the most of what he has, and to apply it to the best advantage. Many take an honest pride in being able to say, I have raised so many hundred bushels of corn, or so many tons of hay; now to be able to say I have made five hundred loads of manure, is just as much a matter of boasting, for manure will make corn, and hay, and other valuable products, if it be only judiciously applied. Put in the seed and the manure, and the grateful soil will make you a liberal return. It is held to be true by experienced farmers, that he who doubles the expense of labor and manure, will increase his profits and products in nearly a four-fold proportion. In other words, the man who spends half his time upon his farm, and skims over one hundred acres of land and gleans from it fifty bushels of corn and twenty tons of hay, if he should devote his whole energies to his farm and improve his means of making manure, might raise nearly two hundred bushels of corn and eighty tons of hay.

"Some have, in their natural situation and proximity to the sea-board, greater facilities for making and obtaining manure, but every substance of animal and vegetable matter can be mixed with the soil in such a manner as to increase the fertility of the earth; and even the different soils may be mingled so as to produce the same effect.

"The quantity of manure a farmer uses, is a pretty fair criterion by which to judge his character. In Plymouth co. where a premium is awarded to the man who makes the greatest number of loads, a most worthy and truly respectable farmer, the last year, reached the very enviable eminence of 798 loads; the lowest competitor claimed for 350 loads, and bis must be allowed to be an *improving* character. William Clark, Jr. of Northampton, in his statement to the Hampshire, Franklin and Hampden Agricultural Society, represents that he keeps an average stock of eight swine, three horses, and eight oxen and cows; from this stock, with the skilful use of all his advantages, which are not superior to those of many of our farmers, he made from June, 1837, to June, 1838, 920 loads, an honorable monument to his intelligence and industry, which compensates in utility and solid value for what it may want in taste and splendor. Mr. Clark used for compost, 300 loads of sods and soil and 247 loads of swamp muck. His yards were supplied with corn stalks and refuse hay during the winter, and brakes and weeds in the summer, and cleared out twice during the year. It might be supposed that manure so made could possess but little of the quickening and strengthening principles, but those who have visited his farm and seen his fields burdened with their heavy crops, are satisfied that Mr. Clark knows how to make manure and to apply it, and that his fields acknowledge their obligation and pay their due return. Mr. Clark, from such manure, has raised more than one thousand bushels of corn in a year.

"The committee award to Daniel Putnam, of Danvers, for the satisfactory experiment and the full and explicit statement made by him, a premium of twenty dollars.

"They recommend that Mr. Putnam's statement and the letter addressed by Joseph How, Esq. of Methuen, to the committee, be published. For the committee,

"DANIEL P. KING.

"*Topsfield, December* 25, 1838."

[The letters of Messrs. Putnam & How in our next.]

Notes on New-Jersey Farming.

A recent visit to New-Jersey, has enabled us to see more of its husbandry than we have before witnessed in passing across the state by the ordinary routes of travel, and to judge better of its capacities for agricultural improvement. The few remarks which we have to offer, are the result of incidental observations which we were enabled to make on our passage from Newark to Trenton, and from Burlington, through Bordentown, Haightstown, Freehold, Shrewsbury and Middletown to Keyport on Amboy Bay.

New-Jersey is very advantageously situated for marketing the products of her soil. Surrounded, except on her northern border, by navigable waters, with several boatable streams coming from the interior, and two canals and two rail-roads extending from her eastern to her western border, the agricultural productions of the state, may be sent to either New-York or Philadelphia in a few hours, and converted into money; and a great many farm productions, which are perishable, or which would not bear the expense of ordinary inland transportation, are thus rendered sources of immediate and substantial profit. Thus, for instance, the fruits and garden productions of the valley of the Delaware, where the season is earlier than on the Atlantic border, are sent off in the afternoon, by the rail-road, and are in the New-York market the next morning before sunrise, in excellent condition. We returned, a part of the route, in what is termed the *truck* train, which, before it reached Haightstown, or the half-way station, consisted of eighteen cars, filled principally with melons, peaches, and other garden truck. The facilities for transporting lime, marl, manure, &c. are equally advantageous.

The soil of those parts of New-Jersey through which we passed, is mostly sandy, frequently with a tenacious subsoil. The surface in the interior, is gently undulating, but more so near the eastern and western borders; while a ridge, extending from southwest to northeast, may in some parts be called hilly. Many of the lands are consequently too much saturated with water in the spring, and in wet summers, for profitable husbandry. When laid dry, these lands are wonderfully improved by the application of lime or marl, aided by ordinary manures. We were shown a farm of this character, which the present owner purchased a few years since at seven dollars an acre, and which he had since drained, marled, &c. and which was now considered worth $125 an acre. We examined the crops on another farm, and they were fine, which a short time since was purchased for about the same price, and which is now estimated to be worth $100 an acre. It may be still much improved by underdrains and a further application of fertilizing materials.

The defects in New-Jersey farming seem to have been the same as have too generally prevailed in all the Atlantic states:—a system of continued cropping, without regard to draining, manuring or alternating crops. The fact seems to have been but little known, or little regarded in olden time, that plants, like animals, feed and fatten—not upon mere earths—but upon the organic matters in the soil—and that every crop taken from a field diminishes its fertility. Another fault in New-Jersey, as well as in American farming generally, has been spreading the farming capital and farm labor over too broad a surface—in cultivating one hundred acres poorly, instead of cultivating ten, twenty or thirty acres well—the returns and profits of the latter generally exceeding those of the former, of which New-Jersey herself exhibits many notable and highly commendable examples. Draining is essential, in many places, to the healthy growth of clover, in which New-Jersey farming seems very deficient; and, indeed, all grass seeds are too much neglected. We saw several fields which had been cropt with corn and rye, and turned into pasture without grass seeds. We suspect that another defect in New-Jersey husbandry is, the small number of neat cattle which are reared and fattened. In this matter, the Jersey farmers might learn a useful lesson from the neighboring counties of Pennsylvania, where lean cattle are purchased in autumn, and fattened upon roots and coarse grain, for the great markets. They leave upon the farm the elements of fertility to the soil. If the products of the farm are consumed upon it, that is, the hay, straw and roots, and the dung carefully husbanded and applied, the fertility and profits of the farm will certainly, under a suitable alternation of crops, progressively increase.—But if these products are all carried off, and nothing returned, sterility will certainly ensue. Dung feeds crops, crops feed and fatten cattle, and cattle manufacture dung. We have another example to offer to our Jersey friends, of the facilities of enriching their lands. We called upon a gentleman upon the confines of their state, W. A. Seeley, Esq. of Staten-Island, who has a farm of 200 acres, which he has brought into an excellent condition from an impoverished state. His crops were all well manured and fine, and he showed us piles of surplus manure, estimated to contain 2,500 loads, composed of yard dung, peat earth, peat ashes, seaweed and fish, all furnished by his own farm and his own shores. Such is the effect of capital and skill judiciously applied. We will not say we saw the *best* corn growing upon these grounds—but we think we saw *as good* as we saw any where in New-Jersey. The Jersey and Dutton corn were growing side by side; and we are promised a statement of their relative products.

The means of fertilizing the lands of New-Jersey are abundant, the facilities of procuring them great, and a disposition to employ them rapidly extending. We saw near the boatable waters great quantities of lime, marl, green sand, oyster shells, ashes and manure, and in many places marl pits which had been extensively excavated, and were told that the use of all these fertilizing materials was sensibly increasing.

The *Morus Multicaulis* is at present the staple product of New-Jersey, particularly about the cities and villages. On asking a grower near Burlington, what portion of the land in that vicinity was appropriated to the growth of this plant, he replied, between a third and a quarter. Many gentlemen have made fortunes by the sale of the trees and buds, and many, very many, *expect* to make fortunes in a like way, and some by feeding worms. We saw several extensive cocooneries, but principally, at present, appropriated to the production of eggs, which have borne a very high price.—Lands have let for $50 an acre, for raising the multicaulis. There are considerable failures in the crop, owing to the unfavorable spring, the plants having generally been grown from single buds. Actual sales have been made at 15, 20 and 25 cents. We heard of none being sold higher. The plants are from one to five feet high. In Virginia and Maryland, sales are said to have been made at 34, 50 and 100 cents. We saw at Haightstown, many of the multicaulis grafted, at the ground, upon the white mulberry. Their growth had been surprising. We measured some on the grounds of Mr. Coward, which had grown, during the season, 8 feet 4 inches.

Lime is principally brought from Pennsylvania, and sold at 10 and 12 cents per bushel, slaked. It is applied, in rather an effete state, at the rate of 50 to 100 bushels an acre, the poorer land receiving the smaller, and the richer land the larger dressing. It is generally mixed with arable lands by the harrow. Its benefits are palpable; and the increase of the first crop often pays the outlay.

Marl, which includes green sand as well as shell marl, abounds in Monmouth county. That procured from the southern border of the county is deemed best. The expense of dressing an acre at Shrewsbury, with a charge of twelve miles of land carriage, is from $15 to $20. Inferior qualities are procured there cheaper, though a greater dressing of these is required. It amply repays charges in the first crops, and permanently improves the land.

Among other fertilizing materials, we saw *barilla ashes*, and the *fleshings, hair* and *tan* from morocco factories, and great quantities of *sea-weed*, collected on the beach, and afterwards spread in the hog and cattle-yards. Sea-weed forms an important item of manure on the seaboard. We should be pleased to receive a communication, from some gentleman familiar with the subject, as to the best mode of preparing it and applying it to the soil.

Peaches are a profitable article of culture in the country through which we travelled. The fruit is convertible into money in twenty-four hours after it is gathered. The profits would be far greater, if means could be adopted to prevent the early decay of the trees. The average continuance of a peach orchard is from six to eight years; and four crops of fruit are considered a liberal return. The disease which destroys the trees is termed *the yellows*. Would it not be commendable in the New-Jersey State Agricultural Society, which has just been organized, or even in the legislature of that state, to offer a bounty for the discovery of a cure or preventive of this disease? It is preferred by the peach growers to leave the trees without pruning, even in the nursery, that the branches may spread naturally. A Delaware peach grower practises cutting in the branches, after they have borne two crops, and thereby gets newer and better bearing wood. By planting thick, and heading in a portion every year, alternately, the fruit is very much improved, without being sensibly diminished.

The extent of the peach plantations will seem extravagant to some of our northern readers. Many growers have 10,000 trees, one 30,000; and at one place in Shrewsbury, there are 50,000 trees growing contiguous and forming as it were one magnificent orchard.

Melons also constitute one of the staple products of some parts of New-Jersey. Sloop loads are daily taken to the New-York and Philadelphia markets, and sold at ten and twelve dollars a hundred. Some idea of the profits of the melon culture may be formed from data which we obtained at Keyport.

P. Hopkins bought twelve acres of land, in 1837, in Middletown, for which he paid $30 per acre. In 1838, he put four acres in melons; his crop averaged $150 per acre. He put the same in rye in the autumn, and in 1839, got 30 bushels the acre. And in the present year he put six other acres in melons, the average value of which is estimated at $150 to $200 per acre. The expense of lime, manure and fish was $32, and of labor $10 per acre. The account for the two years would therefore stand as below.

Cost of 12 acres of land, at $30,	$360
Cost of manure and labor on 10 acres, at $42....	420
Total outlay,	$780
Receipts from melons, 4 ac. $150 per ac. in 1837,	$600
do do 6 do do 1838,	900
do from rye, 4 acres, 120 bushels,	120
	$1,620
Deduct cost of land and charges,	600
Nett profits in two years,	$1,020

and the land in the bargain.

Green crop of Indian Corn.—N. Shotwell, of Rahway, has made an experiment with corn, as a green crop, which proved highly advantageous, and which, if we mistake not, affords a valuable suggestion to the farmer; as there is probably no green crop which will impart so much fertility to the soil as Indian corn. Mr. Shotwell sowed four acres with corn, broadcast, four bushels to the acre, at the usual planting time. When the corn was about breast high, he ploughed it under, affixing a chain to the whiffletrees, to break down the stalks; at the usual time, he sowed timothy seed, and obtained a greater crop of grass than he ever got after clover, buckwheat, or other green crops.

New mode of preserving Apples.—We were presented by our host, at Trenton, Aug. 10, with a pippin of last year's growth, as crisp, juicy, and of as fine flavor as those we have eaten at midwinter; and on inquiry were told, that they had been kept in a tight cask in an ice-house.

With regard to the state of society in New-Jersey, we are disposed, from the observation we were able to make, to think highly favorable of it. A greater equality seems to exist among the inhabitants, and more good feeling and kind-heartedness towards each other, than is commonly witnessed. All seem to be well off to live; and there are few of those artificial or aristocratic distinctions which are the bane of social and friendly intercourse, and inimical to republican habits and institutions.

Agricultural Geology.

We are indebted to Prof. Jackson for his Third Annual Report on the Geology of Maine, for which we tender him our thanks. We have commenced extracting from it, in to-day's paper, an interesting article on agricultural geology, which cannot fail of being interesting to the enlightened reader. It furnishes another and a strong evidence of the great importance of establishing professional schools of agriculture, as the most, if not the only, effectual means, of learning how to manage our soils, and of developing their hidden riches. The main objection to establishing such schools has been, the want of competent instructors. Do we want better instructors for the scientific department than can be furnished from the geological corps of the several states? And as for practical instruction, we have certainly men enough competent to undertake to give it. And if we had not, the geologists, with their zeal to apply science to this all important business, would soon become practical men. They are now working, hard working men—and many of them would delight in blending science with practice, in schools of instruction. Four years, the period often devoted, in schools, to acquire a knowledge of Greek and Latin, which Dr. Rush says makes learned fools, would suffice to make a young man familiar with agricultural science, to give him the best practical instructions in the art or practice, and to fit him for the highest duties in civil life. And when he came forth from such an institution, upon the broad theatre of active life, he would not be as a light hid under a bushel, but would diffuse spirit, and knowledge, and improvement, all around him.

Among other useful labors which Prof. Jackson has rendered to the agriculture of Maine, is the analysis of fifty-six specimens of limestone, taken from different localities, or quarries. Nearly every variety of limestone found in the state, he burnt in his laboratory, to know exactly how they burnt, the quality of lime that resulted, and the particular purposes for which they were fitted, as for agriculture, mortar, hydraulic uses, &c. These results are given in a tabular form, and show, at a glance, the constituent parts, and the relative value for particular purposes of each specimen.—We will publish in our next, the Professor's directions for constructing lime-kilns, and burning lime, with diagrams of lime-kilns.

Meteorological Comparison between 1838 and 1839.*

	1838.							1839.						
	Jan.	Feb.	Mar.	April	May.	June.	July.	Jan.	Feb.	Mar.	April	May.	June.	July.
Mean temperature of first half the month,	35.42	18.85	35.46	39.72	51.91	71.11	71.04	28.03	21.11	31.22	49.09	54.87	62.65	69.33
Mean temperature of second half the month,	27.51	13.25	38.69	42.13	61.93	72.99	74.02	18.73	36.35	39.18	50.12	61.10	65.41	75.43
Mean temperature of the month,	31.46	16.05	37.07	40.92	56.92	72.05	72.73	23.38	28.73	35.20	49.60	57.98	64.03	72.38
Highest degree during the month,	54.	39.	58.	68.	89.	94.	96.	55.	50.	64.	74.	83.	86.	92.
Lowest degree during the month,	—3	—6	3.	21.	33.	52.	54.	12.	5.	2.	30.	34.	48.	55.
Range,	57.	45.	55.	47.	56.	42.	42.	67.	55.	66.	44.	49.	36.	37.
WEATHER—No. of fair days,	19	18	17	17	15½	20	21½	14	10	18½	17	18½	15	17½
No. of cloudy days,	12	10	14	13	15½	10	9½	17	18	12½	13	12½	15	13½
Rain or snow on No. of days,	9	6	9	11	11	13	10	8	12	11	9	12	14	15
Raingauge, including snow, inches,	2.25	2.20	2.09	1.53	7.45	7.60	1.72	2.17	1.59	1.52	4.75	3.83	5.12	5.77
WINDS—North, (No. of days,)	2	2	8½	3½	3½	3	3½	6	2½	9	7	4	3½	3½
Northeast,	2½	5½	4½	2½	2½	½	1½	2½	3½	2	4½	2¼	3	½
East,	0	½	1½	1½	2	½	.....	2	1	1	½	1	2	2½
Southeast,	½	1	2½	1	1	2	2	2½	2½	1½	1½	3	2½	3
South,	9	3	6½	4½	11	13½	10½	8½	9	7½	9½	6	8½	15½
Southwest,	6	½	.....	2½	2	4	3½	3½	4½	2	½	3½	1	1
West,	1½	1	½	3½	5½	½	1	½	1½	½	1	1½	1½	1
Northwest,	9½	14½	7	11	3½	6	9	5½	3½	7½	5½	9½	10	4
Prevailing wind,	N.W.	N.W.	N.	N.W.	S.	S.	S.	S.	S.	N.	S.	N.W.	N.W.	S.

Quantity of rain and snow in 7 months of	1838,	24.83 inch.
do	do	do	1839, 24.75 inch.

Fair days in 7 months of 1838, ... 128
do do 1839, ... 110

Tropical Plants—Spices.

Cinnamon, a tropical plant, growing in the East Indies, and is largely cultivated in the island of Ceylon, where there are more than 16,000 acres in cinnamon plantations. The bark of larger shoots or thick branches is coarse, the finer kinds are obtained from the smaller or more delicate shoots. The best is thin, smooth, shining, and of a light yellow color, bends before breaking, and is splintery in its fracture.

Cassia.—The cassia of commerce is nothing but an inferior quality of cinnamon. The finest cinnamon brings two dollars a pound, the second sort from one dollar thirty to one dollar fifty cents, and the third sort about a dollar. These are the prices in England, where the duties are from twenty-two to seventy-five cents per pound.

Pepper grows on a perennial climbing plant. The leaves are heart-shaped, with a glossy surface, and have little smell or pungency. Small white flowers grow abundantly on all the branches, and these are succeeded by the berries, which are green when young, and become of a bright red when approaching maturity. They hang in large clusters, like bunches of grapes; but the berries grow distinct, more in the manner of currants. It is raised in plantations of 500 to 1,000 plants, divided by hedges. Sumatra and the neighboring islands in the Indian Archipelago, produce the greatest abundance of this spice.

Ginger grows both in the East and West-Indies. It has a perennial root, with annual stems. The roots creep and extend under ground in joints, from each of which a slender stem shoots forth in spring, and attains a height of two or three feet. On the top of the stalk is a scaly spike, from each of which scales a blue flower appears. When arrived at maturity, the root is taken up, and forms the ginger of commerce. It is afterwards ground in flour or other mills for use.

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* We are indebted for these data to Dr. T. R. BECK, Principal of the Albany Academy.

Nutmeg and mace are the produce of the same plant. It has its male or barren flowers upon one tree, and female or fertile flowers upon another, being a diœcious plant. The flowers are white, bell shaped, and grow at the extremities of the branches, two or three together. The embryo fruit lies at the bottom of the female flower, like a little red knob, which afterwards expands, and at the end of nine or ten months it has the appearance of a peach. The outer coat is fibrous and hard, about half an inch thick; and when arrived at maturity, this bursts, and a membraneous covering of a fine red colour is seen, enveloping the thin black shell which encloses the kernel or nutmeg. This covering is the mace of commerce. The mace resembles a verdant net-work; and, when collected, is left in the shade to dry, after which it is pressed closely in bags and exported. The shell of the nutmeg is hard, and is subjected to the heat of fire before being broken. The kernel thus shrivels up, and is then subjected to the action of lime and sea water to destroy the vegetating principle.

Honey-Dew.

George W. Johnson, in the Quarterly Journal of Agriculture, after enumerating, and, as he supposes, disproving the several theories which ascribes the honey dew upon plants, to insects and to the atmosphere, traces it, we think correctly, to a morbid state of the sap. He says—

> "Heat, attended by dryness of the soil, as during the drought of summer, is very liable to produce an unnatural exudation. This is especially noticed upon the leaves of some plants, and is popularly known as *honey-dew.* It is somewhat analogous to that outbreak of blood which in such seasons is apt to occur to man, and arises from the increased action of the secretory and circulatory systems to which it affords relief. There is this great and essential difference, that in the case of the plants, the extravasation is upon the surface of the leaves, and consequently in proportion to the extruded sap, is their respiration and digestion impaired."

The remedy which Mr. Johnson prescribes for this disease, for such it evidently is, is a solution of common salt and water, applied to a soil in which the plant is growing. For, says he,

> "If we admit that the irregular action of the sap is the cause of the disorder, then we can understand that a portion of salt, introduced into the juices of the plant, would naturally have a tendency to correct or vary any morbid tendency, either correcting the too rapid secretion of sap, stimulating it in promoting its regular formation, or preserving its fluidity. And that, by such a treatment, the honey-dew may be entirely prevented. I have often myself witnessed in my own garden, when experimentalizing with totally different objects. Thus I have seen plants of various kinds which have been treated with a weak solution of common salt and water totally escape the honey-dew, where trees of the same kind, growing in the same plot of ground, not so treated, have been materially injured by its ravages. I have noticed that standard fruit trees, around which, at the distance of six or eight feet from the stem, I had deposited, at the depth of twelve inches, a quantity of salt, to promote the general health and fruitfulness of the tree, according to the manner formerly adopted to some extent in the apple orchards of cider countries, that these escaped the honey-dew, which infected adjacent trees, just as well as those which had been watered with salt and water. I am of opinion that one ounce of salt (chloride of sodium,) to a gallon of water is quite powerful enough for the intended purpose."

Economy of Fuel.

We published in our second volume an abstract of Dr. Bull's experiments with fuel, showing the quantity of heat produced by the several kinds of wood and coal, with many other facts of interest to the buyer and seller. Of Dr. Bull's work, Prof. Silliman remarked, that it was "one of the most important contributions of science to the arts and domestic economy, which had been made in a long time in this country." Mr. WILLIAM YATES, of Troy, has just published, on a broad sheet, a "Guide to economy in Fuel," in which he has comprised in a tabular form, the result of Dr. Bull's experiments, and added a scale of prices, which shows at a glance, the relative value of the different kinds of fuel, and which will enable the purchaser to decide correctly which it is the most economical for him to buy, at the market prices. Say, for illustration, that if hickory wood is $8 the cord, the relative value of other kinds of fuel are as follows: White oak $6.88, white ash $6.54, white beech $5.52, hard maple $4.80, white elm $4.64, soft maple $4.32, button wood $4.16, pitch pine $3.65, white pine $3.59, Schuylkill coal $7.79 the ton, Lehigh $7.48, Lackawana $7.48, Rhode-Island $5.41, Worcester $4.46, Liverpool coal $18.27 the 100 bushels, Richmond coal $17.42, hickory charcoal $14.11, maple $9.69, oak $9.01, pine $6.37, &c. &c. The scale is graduated for the prices of hickory from $6 to $12 a cord. The table will be of great use to every buyer of fuel, who wishes to study economy in his purchases of this article, and is for sale at the bookstores. It should be recollected by the seller, that wood, upon an average, loses 42 in 100 lbs. by drying. Hence the disadvantage of taking green wood to market. And the buyer should remember, that he loses 13 per cent of the value of his wood by burning it when green. See vol. ii. p. 122, Cultivator.

Sowing Evergreens.

A correspondent on Rock River, Ill. writes us as follows:—"In the month of April, 1838, I took about half a bushel of Red Cedar seeds* to my garden, poured them down, and mixed them with about four bushels of earth. This pile I mixed up and turned over four or five times during the summer. In April, 1839, I planted these seeds, dirt and all, in drills; every seed vegetated, and came up as well as wheat. Many of the plants died by the dry weather, but millions were growing finely in July.

"The white cedar (*Thuya orientalis,*) seed, sown in the fall, vegetates and comes up the following spring." This tree is usually called the Chinese arbor vitæ, and differs somewhat from the American species, best known by the name of white cedar. The American species grows to the height of 45 to 50 feet, has a beautiful foliage, and the timber is valuable for a great many purposes. The seed may be obtained in any quantity, and would be a valuable acquisition to the prairie west. The tree likes a moist cold soil.

* Probably cones, containing seeds.

Crops, &c. in Virginia.

A correspondent writes from Columbus, Va. July 29: "Our crops in this section, (Fluviana county, in the valley of James' River,) are chiefly corn, wheat and tobacco, which are cultivated on the three field rotation. Thus corn or tobacco, wheat and a year of rest in clover, applying our manure in the spring to the corn or tobacco crops. The wheat crop just harvested is an inferior one, in quantity and quality, having been much injured early in the spring, by the Hessian fly, and afterwards more seriously attacked by swarms of the chinck-bug, together with rust in the late wheat, gave the crop the 'coup de grace.' Great apprehensions were entertained for the corn crop, from the swarms of the chinck-bug, which have always been one of its worst enemies; but they have fortunately passed off without much injury to it. The corn and tobacco crops are unusually promising."

Another letter, dated Greene C. H. July 15, says:—"The crop of wheat in this section, I do not think an average one. Oats and grass very heavy. Clover of last spring's sowing failed, owing to the drought. Corn very promising at this time."

A New Implement,

Which promises to do the work effectually of a subsoil plough, taking only *half* the draught, and stones being little or no obstruction to it, has been announced in the Quarterly Journal of Agriculture, by Lawson & Son, as having been invented by a shoemaker. It is simply a heavy metal wheel, of about five feet in diameter, with slightly curved iron spikes or teeth inserted in its broad rim. It is drawn by a pair of horses, while a man steadies it behind with a pair of stilts, similar to those of a common plough, the which is fixed in a frame similar to that of a roller, but without support on either side. Messrs. Lawson suggest, that a pair of light wheels might be added with advantage, as tending to relieve the man considerably.

Furrow-Draining.

This modern mode of improving lands is coming into extensive use in Scotland, as will be seen by the following quotation from the Quarterly Journal of Agriculture.

> "One cannot go a distance from home without observing the extent to which furrow-draining is now practised. Almost every stubble and grass-field that is intended to be ploughed up, especially at the commencement of a lease, presents, by cuttings, stones and tiles, a pleasing scene of industrious enterprise, and of determined desire of improvement. At some places drains are cut in every furrow, [between the ridges,] from 15 to 18 feet asunder, at others in every other furrow, the distance no doubt, being regulated by the nature of the subsoil. Stones are entirely used in some places, but, in general, we should say, tiles alone are used, though in others, stones are used in conjunetion with tile. This last mode is perhaps the best for filling drains, and is certainly preferable to tiles alone; but where stones are really scarce, much rather use tiles alone than neglect draining."
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> * * * "We are too apt to argue as if the properties of thoroughly drained land remained the same as undrained.—It is difficult to find an object to compare land with; but we may compare undrained land to a sponge containing a considerable quantity of water; a small addition to which makes the sponge overflow, and it is ever ready so to do. Drained land, on the other hand, may be compared to a sponge recently squeezed out and dried on the surface, which is ever ready to receive a considerable quantity of water, without making much difference on its appearance. Thorough-drains become almost dry in a few years; nevertheless, they are in constant requisition, and, but for them, water would be retained in the soil; but they are only completely tried as water-runs after heavy rains. Thorough-drained land may be laid perfectly flat, in which case water enters the drains from every quarter."

Economy of Power.

There are a great many operations on the farm which may be economically performed by a stationary power, that is, by water, by wind, by horses or oxen, or by steam. The same power that is applied to the thrashing of grain, or to the grinding of apples, may, if properly adjusted, and with a trifling additional expense, be applied to the crushing of grain for farm stock, or even grinding it for family use—to the cutting of hay and straw—to the sawing of wood, slitting boards, &c.—to turning the grindstone, pumping water, and various other stationary uses. A friend, whom we visited on Staten-Island, applied, he told us, his wind-mill, to either fourteen or eighteen different purposes. There is no doubt in our mind, that a vast economy of human power is capable of being made, and will be ere long saved, by a stationary power about the farm buildings. The thrashing machine is an indication of what may be done, in other branches of farm labor, in economizing time and money. A stationary power which can be applied to the various operations of the farm and out-buildings, must be a desideratum with every farmer, whose business is on any thing like an enlarged scale.

The Highland Society of Scotland, fully appreciating the importance of determining the most economical power to be employed in propelling the thrashing machine, offered a premium for the best essay upon the subject; and Mr. Robert Bridges became a competitor for the prize. In discussing the merits of the different moving powers, we find some data which, though not exactly adapted to our practice, are nevertheless worth recording in the Cultivator.

1. Mr. Bridges estimates the expense of a substantial *water-wheel,* including mason-work of fall or mill-race, from £70 to £110—average £90; reservoir, water course and tail-race, say £150.

2. The cost of erecting a *wind-mill,* of the best materials and construction, including tower, at £350.

3. The expense of a *horse-wheel,* including the building to cover it, at £120; and the annual expense incurred by a pair of farm-horses, taking the average of half a dozen estimates of the best authorities, at £112.7.7. And that,

4. A four-horse power *steam-engine,* on the high pressure principle, which Mr. B. considers sufficient for farm purposes, will cost £110; engine house and chimney about £70; making a well from £5 to £7.

The cost of the several powers, including 10 per cent on the outlay, and the expense of driving them 42 days, the estimated time of thrashing yearly, are stated as below.

Water Power—Cost,..................		£240	0	0
	Yearly expense, inc. int..	30	0	0
		£270	0	0
Wind Power—Cost,..................		£350	0	0
	Interest and attendance,..	39	4	0
		£389	4	0
Horse Power—Cost,..................		£120	0	0
	Yearly expense,........	130	17	7
		£250	17	1
Steam Power—Cost,..................		£187	0	0
	Yearly expense,........	33	18	6
		£220	18	6

Mr. Bridges draws the following inferences from his estimates.

1. That water, where it can be obtained, is the cheapest moving power that can be applied to the thrashing machine; and that the advantage, in point of economy, is so obvious as to warrant the outlay of a much greater sum than that specified in the comparative estimate.

2. That next to water power, steam is the cheapest and most economical; and, in absence of a sufficient supply of water, nothing but the total want, or high price of fuel, can prevent its universal adoption.

A Horticultural Exhibition

Will be held in Albany on the 18th of September, at which prizes will be awarded for the finest flowers, fruits and vegetables, and the competition unlimited. There are five dahlia prizes, of 20, 15, 10, 5 and 3 dollars, to the exhibitors of 25 flowers. A like exhibition will be held at Philadelphia on the same day, and at N. York on the 12th.

Clayed Maple Sugar.

We have received from Henry Muzzy, of Rutland, Vt. 10 lbs. of maple sugar, of very superior quality, equal to sugar which sells at fourteen to sixteen cents per pound in the cities. Mr. Muzzy is a competitor for our premium for the best sample of this domestic sugar. We would hope to have many *such* competitors. By the bye, will Mr. Muzzy be so kind as to favor us with his mode of manufacturing and refining the article, with the estimated cost, for the benefit of sugar-boiling customers?

Pitt's Thrashing Machine

Is highly commended in the American Farmer, by R. I. Jones. He states, that in the presence of his neighbors, he got out in fifteen minutes, ten bushels of wheat, "as clean as could be done by passing it through the fan three times, if got out in the ordinary way." He also got out in 4¾ days, 1,081 bushels of wheat, and 336 bushels of oats, making an average of 240 bushels per day. The wheat was so thoroughly cleaned in the process, that it brought three cents per bushel above the market price. See our account of this machine in our Feb. No. of 1839, and Oct. No. of 1838.

Agricultural School Books.

There are two works in the course of publication, which we hope to see published in volumes, and introduced as class books for the senior boys, in our common schools. They will effect more, in inculcating a taste for rural pursuits, and in advancing the substantial interests of the commonwealth, than all the English Readers, Columbian Orators, and such like books, which now constitute the popular class books of our common schools. We want more working, and fewer idle men. Teach the young, that they can find profit and honor, and happiness in rural pursuits, and they certainly are to be found there in a greater measure than any where else,—the producing classes will be increased—the state will be correspondingly benefitted, and we shall be exempt from those commercial panics which periodically convulse the nation, and which may now be inflicted upon us at any time by our European creditors.

The two works to which we allude, are, first, "*Dictionary of terms used in agriculture, and in the sciences most intimately connected with its advancement,*" published in the *Genesce Farmer*, and written by Willis Gaylord, Esq. The *second* is "*Early lessons in scientific agriculture, or conversations on agriculture and the subjects connected with it, intended for the use of young men in and out of school.*" This is now publishing in the *Franklin Farmer*, and is said to be written by a Mr. Lewis, brother of the late Meriwether Lewis, but, at all events, a gentleman of an enlightened and useful mind.

Short Horned Cattle.

Eleven short horned cattle, ten cows and a bull, passed through our city a few days since, on their way to Kentucky. They are described as first rate animals. They were purchased under the direction of Lord Althorp, in England, for Henry Clay, Jr. of Kentucky.

THE BUDGET.

Millers' Tolls.—This subject has degenerated into a personal controversy, of little interest to our readers. Our determination to publish nothing further on the subject, we hope will be approbated by our respectable correspondent, if he will for a moment divest himself of personal feelings.

Carbonate of Lime as a dressing for land.—We have a communication from Mr. Joseph Warbasse, of Newton, N. J. who has been in the habit of applying to stiff clays a dressing of ground limestone, of a soft kind which abounds in his neighborhood, with very good effect. Mr. W. we believe, is a very good farmer, and has represented correctly the beneficial effects of the carbonate of lime upon his clays; but his philosophy is of the by-gone age. Carbonate of lime benefits clays by rendering them more porous, and consequently relieves them in some measure from surface water, but it will not render wet clays dry, without draining. It improves its mechanical texture, and adds to its chemical powers, and therefore promotes fertility.

Buckwheat Straw.—A Herkimer correspondent inquires in what manner buckwheat straw must be saved to render it good food for neat cattle? We cannot answer him from experience, as we do not cultivate buckwheat. But we have no hesitation in saying, that buckwheat straw, when intended for cattle food, should be saved with the like care as hay or corn stalks, that is, dried so that it will not heat and mould in the mow or stack, with the least possible exposure to rain and dew. The stalks being very succulent, we think the curing can best be effected in small heaps, or cocks, in the field, before the grain is thrashed.

Queries.—Mr. J. Robinson, of Marbletown, asks us several questions—as how he shall prepare his ground for wheat? How to rot his flax? If he had better put lime in his compost? If liming seed wheat will preserve the crop from insects? Whether seed wheat is best covered with the plough or harrow? &c. We have stated our opinions, and given directions on all these matters, in our previous volumes, so far as related to general practice, and we must refer to them for answers; for Mr. R. must be sensible of the impropriety of our repeating what we have recently published. But we will summarily observe, that his wheat ground should be *well* prepared, that is, made clean, and fine, and rich, by the compost he is preparing as a top-dressing; that his flax should be water-rotted, as directed in the Cultivator, vol. iii. p. 193; that a small portion of lime will benefit his compost; and that wheat may be ploughed shallow, or harrowed in, as the soil is heavy or light, wet or dry, the light or dry soil requiring the most covering—the object being to cover all the seed, as near the surface as can be to secure a healthy germination and growth.

Italian rye grass.—Mr. Benfoot, Richmond, Va. can obtain seed of Italian rye grass, of Thorburn, or Smith, or Weaver, seedsmen, New-York, at least in time for spring sowing, which season is to be preferred for sowing it. It may be sown precisely like other grass seeds, broadcast, by itself or with other seeds, and harrowed or bushed in.

"*Medicus*" will, on reflection, see the impropriety of answering his *special* inquiries through the Cultivator, inasmuch as our readers would not be likely to be profited by our answers, and he has not given us the opportunity of anwering them by letter. In regard to the corn, nineteen-twentieths of which was pulled up by the crows; a recurrence of the evil may easily be prevented by simply steeping the seed, and then mixing with the steep some tar dissolved in hot water. We are sure the crows will not eat it.

CORRESPONDENCE.

Diseases of Sheep.

Mr. Cultivator—In your May number, there is a letter from Lewis Bailey, of Fairfax co. Va. who desires information respecting the cause and cure of a peculiar disease which had attacked his sheep. From Mr. Bailey's description of the disease, I should infer that it was an inflammation of the brain, caused by confinement and bad air, which, it is well known in the "old country," will produce symptoms similar to those he mentions.

The following is the common and usually successful method of treating it in Great-Britain:—Two ounces of castor oil are given to each animal, and its head washed with spirits of hartshorn, or (as some prefer,) cold vinegar and water; and if affected with blindness, it is bled in the veins which run from the corners of the eyes towards the nose. Until recovered, the sheep are not allowed water, but supplied instead with as much strong green tea, sweetened with molasses, as they will drink. Of course, in order to ensure success, they must have roomy pens and plenty of air.

A SCOTCH PLOUGHMAN.

Mildew—Root Culture.

In looking through vol. iv. p. 159, of the Cultivator, my attention was drawn to the comments of the conductor on an article headed "Mildew on Gooseberries and Grapes." The comments are based on the theory, that mildew is produced by a parasitic plant. If this theory be correct, it *will* or *ought* to apply to wheat and other grain. Facts,* reason and observation certainly go far to prove this theory fallacious. Mildew on wheat cannot be traced to the same cause, because the effects would disprove the cause. Were it occasioned by the parasite, the disease would be gradual and could be noticed in its progress, while on the contrary, it is known to be sudden, the effect attending the cause. One year ago, a farmer of my acquaintance had a beautiful field of wheat, which he examined in the morning, and found the grain had nearly approached the dough state, and the straw had a bright, healthy appearance. Being absent through the day, he found to his great surprise, in the evening, that his whole field was "struck with mildew," the straw much affected and discolored, entirely disappointing his hopes, in a single day. The grain weighed only forty pounds per bushel; the maturing process having been suddenly arrested. It is presumed, the wheat was affected the preceding night, and the effect was made visible by the sun's influence the following day, something like frost. Flat and low grounds are most liable to mildew, while those elevated and undulating escape. My opinion is—although there may be a combination of causes—yet in the main, it must be attributed to atmospheric influence, instead of the parasitic plant. The critical period is about the time of full moon, a fact not unsupported by philosophy.

Root culture has fairly commenced in this vicinity—our farmers are making large calculations in relation to its benefit. The early season was full wet and cool, which prevented the beets from vegetating well. The sugar beets prevail at present, but I expect to see the farmers give mangel wurzel the preference, when they shall have acquainted themselves with the diuretic character of the sugar beet. Mangel wurzel possesses also the important advantage of keeping longer and better. The vernacular name of this root being still preserved and perpetuated, I was amused to see the honorable conductor attempt, in a late number of the Cultivator, to translate pure German into English: "mangold," according to the translator, signifying "beet," and "wurzel, root, beet root." The conductor is unsparing occasionally of sarcasm and strictures with the correspondents of the Cultivator; so I hope I shall be pardoned for the censorial notice I have taken, either of his theory of mildew, or his German and English translation. Mangel signifies scarcity, making the literal translation scarcity root.†

We have just finished a very abundant harvest.

W. PENN KINZER.

Spring Lawn Farm, Pequea, Lan. co. Pa. July 27, 1839.

The Peach Tree Grub—The Bee Moth.

Jackson, Tenn. Aug. 16, 1839.

Judge Buel—Dear Sir—I have noticed in your valuable paper several things recommended to destroy the grub in the peach tree; but from the experience I have had on the subject, I have seen nothing recommended, in my opinion, to cure the evil. Being myself fond of good fruit and raising fruit trees, I have for the last five years paid particular attention to the movements of the grub on the peach tree. I first discovered, during the summer and fall, in and under the glue near the roots of the tree, small knots of worms of different lengths, with a black or brown head. After making this discovery, the next winter and spring I commenced cutting in with a knife at the place I found they had entered the bark, and frequently found them eating under the bark of the root; and in taking up small trees to set out in the spring, I made it a rule to take a knife and follow them from the place they had entered, and would frequently find them under the bark, five or six inches from the place of entrance. After making this discovery I commenced clearing round the trees during the summer and fall, leaving the tops of the roots naked; and put round them fresh dry ashes, and sometimes tan from the tan-yard. This I found to be of considerable benefit in destroying the young grubs before they entered the root. Wishing to ascertain at what time the grub changes or leaves the root, I commenced an examination at different times during the spring and summer, and on the 20th day of August last, I discovered a a great number had come out; and under almost every place where I found old glue at the surface, and from that 1½ inches under ground, I found the grub encased, sticking to the root of the tree. I found some of the grubs had changed and left the encasement; and at those trees I found a black, slender looking bug which seemed to be cutting the bark near the surface; and at those trees I found fresh glue and small young grubs. I then had all the grubs destroyed, the trees cleaned round, and fresh ashes put round some and tan round others. This year I commenced my examinations the 1st June; found no grubs out encased: on the 18th July I discovered a few; and up to this time I have not found more than 1½ doz. on from 55 to 60 trees. Last summer I had several old trees which appeared much on the decline; leaves yellow and fruit small; this season the leaves look well and fruit very good.

I saw last year recommended in your paper to plant peach trees in the yard so that the fowls could destroy the grub: this, I believe, will not answer, unless the grass, &c. is kept from about the roots; as the first grub discovered by me encased was on a tree in the yard, where the fowls had free access. I have taken up at different times peach trees on the decline, and found that the decline of the tree goes on in proportion to the number of grubs and the distance they have cut round the root. Some trees planted at the same time die earlier than others; this is owing to the number of grubs first deposited; the greater the increase, the sooner they cut round the root. From the discoveries I have made of the grubs, and the different experiments to destroy them, I am now fully convinced the better way to destroy them is while they are encased and about to change; and while the young grubs are in the glue before they enter the bark. Last spring I raised the earth a little on the roots of some of my trees, which I found an advantage in getting at the grub while encased, as they will approach near the surface; when the earth is raised and light it is very easy to get at them. I had concluded to send you in a newspaper which will go by this mail, four of the grubs incased, and two of the bugs, which you can examine. I think it likely by the time this reaches you, it will be a good time to examine for them in your country.

I see from your paper the bee moth is very troublesome in your section of country. When I commenced house keeping, I purchased a few stands of bees and the moth destroyed them all the first year. Upon examination, I found that the moth deposited the eggs in a web between the bench and the box: and as soon as they hatched they crawled up to the comb, and formed a web round them so the bees could not destroy them. I made it a rule to go to the stands two or three times a week, and brush off the eggs and web deposited; but finding this troublesome, I concluded to raise the boxes by putting small wedges under each corner: this I found of great service; but I discovered, unless the wedges were made very smooth, the eggs were frequently deposited under the wedges. I then concluded to drive a ten-penny nail into each corner and let the box rest on them, so the bees could pass under all round. Since I adopted this plan which has been twelve years, I have not, as I recollect, been troubled with a single bee moth. I am not in the habit of writing any thing to go in a newspaper,—but if you think the experiments I have made will be of service to the public you can publish them. Very respectfully your ob't servant.

SAMUEL LANCASTER.

Various matters considered.

Dear Sir—A few days ago one of our most respectable physicians came into our store, opened a volume of the Cultivator, and read the communication of mine, saying that bots never injured the horse. He then remarked with emphasis, that he had seen the maw of a horse where the bots had eaten through it, the evidence of injury and consequent death of the horse. I answered, that in my view, it was evidence of another fact. That when the horse was dying and dead, his maw became cold and uncomfortable to the bots, and they would "go ahead" by perforating the maw, to escape from the cold. I asked if he had seen parasites crawl from animals soon after their death, to escape from the uncomfortable cold? That head lice run over the face of the human subject, after death, when the head becomes cold. He left us abruptly, without answering.

On reading the remarks of your scientific correspondent, J. M. Garnet, in favor of applying manures to the surface, rather than ploughing them under: I ask, whether the value of his experiment of spring ploughing over that of autumn, is not to be attributed to the warmth the surface had received from the sun, together with looseness and mellow state of the ground, thereby admitting more air and rays of the sun, and rain, to promote the chemical action of the manure, which also had become warm from the sun?

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* The "facts and reasons" of our correspondent go rather to confirm, in our opinion, than to disprove our theory, that mildew is a parasitic plant. Had the state of the atmosphere been noted when the wheat crop of his neighbor was struck with rust, we presume our correspondent would have described it as humid, hot and light, which is that condition, and perhaps the only condition, in which the seeds of this parasite are wafted on the "wings of the wind," attach themselves to the stems of plants congenial to their growth, and feed upon their juices. If the mushroom springs up in a night, is it at all strange that the minute plants of mildew should grow to maturity in a few hours? There are innumerable animalcula, whose figures cannot be discerned without the aid of a magnifying glass; and there are innumerable parasitic plants, whose seeds escape our observation. And if mildew is not a vegetable, we beg to ask, what is it?

† Loudon spells this root *mangold wurzel*, and gives the derivation of the term, which we adopted from memory.—*Scarcity* is the name of a *species* of the *beet* family. Our error consisted in translating mangel wurzel *beet root*, instead of *scarcity* beet root.

We invite, on all occasions, liberal criticism. It is the collision of flint and steel that elicits light.—*Cond.*

Many farmers think fall ploughing best: others plough in the fall to forward their spring work: and others, who have tried it, think fall ploughing very injurious. I am not a farmer, and cannot give experiments. What I say on the subject is theory and observation.

It has been the practice of some farmers to make a dung heap, and let the dung rot for a year or more, before applying it to the land. Such manure retains all the earthy part, which I suppose the least valuable, and is in a delightful state to breed and feed grubs and other worms, to be carried with it into the field, and feed on the young plants. The grubs could not live in the early dung heap, while the heat and caustic gases are let loose by chemical action, causing the decomposition.

My observation has induced me to believe, that all manures produce their greatest effect on vegetable growth, when decomposed under the surface of the ground. Heat and moisture are the great moving causes of vegetation, and promote vegetable and animal growth. Without heat, we and every thing would be as adamant, as marble. All organized matter is hastened in its decomposition by chemical heat. The heated gases let loose during decomposition, I conceive, are good nourishment to, and great promoters of, vegetable life. The coarsest manure, even new straw, if ploughed under, will probably furnish the most nutriment, and best for Indian corn and potatoes, for the first season, and leave all the value of the manure of the dung heap for the next year's nutriment for wheat, and other vegetables or small roots,—so that the whole value of vegetable manure is obtained by ploughing under the coarse manure, and nothing is lost: which I suppose is nearly twice as much as when rotted in the dung heap; and more than when left on the surface of the ground.

I suppose that double the usual quantity of potatoes may be produced on an acre as are ordinarily raised, (particularly on alluvial ground, where the soil is rich and apt to pack hard,) by ploughing under so much as can be covered by the plough of coarse vegetable manure; even pea and rye straw, if the ground be ploughed deep and in narrow furrows, to make it perfectly fine and loose. The coarse manure keeps the ground loose, and enables the roots to extend,—retains moisture, so necessary to the growth of potatoes; and the gases let loose, stimulate the plants to vigorous growth. If these remarks meet the approbation of some farmers of liberal views, who believe that some improvements may yet be made in agriculture, I hope the experiment may be made, and reported in the Cultivator. By this mode of culture, I suppose the greatest possible produce of potatoes may be had.

Man is called a reasonable being, and he is so: that is, he has the faculties of reason given to him, and yet there exists not so unreasonable an animal as man. I stated to you in a former communication, the manner of the great gifts of the Creator to man above other animals, in improving the volume and faculties of the brain after birth: yet man, with all these gifts and faculties, is guilty of the greatest aberrations from duty, by omission and commission, in disobedience, in idleness and obstinacy, in refusing to cultivate and improve them.

What a wonderful and heinous crime was committed by our first parents, so to offend their Maker, as to entail so many and so painful diseases and death on all their progeny, even the innocent and amiable little cherubs of infancy and youth! It was disobedience. As we shall have to account for all these gifts and faculties, let us be obedient and active in their improvement, to the honor of the great donor, and our own profit; and not say *we have no time*, and that there is no improvement to be made, like the servant "who rolled his talent in a napkin and buried it in the earth."

We despise the reptile and little insects, because we are too indolent in observing their obedience to the Great Spirit, who whispers his laws to their inward ear; and how strictly they obey by industry and improvement of the talents committed to them.

See the little despised caterpillar, in her winged state, not carelessly depositing her egg for her future progeny, on a fence, the ground, or even on the trunk of the tree on which it is to feed, when called into active life in the future spring. No, with more skill than man ordinarily uses, she seeks a suitable tree, and deposites her eggs on the twig, near to a bud, where the leaves must shoot out by the genial warmth of the vernal sun, a little before it has wakened the egg into active life, ready for its food. Can she do any thing with more design and intelligence? So the honey bee builds its cell for the deposite of the honey, its food, and birth place and cradle of its future young, with the greatest possible economy for strength and space. No shape but the hexagon can furnish the greatest and most useful space and strength of structure. The bee has not to learn this by apprenticeship; its faculties are complete at its birth. They are natural mechanics, of the highest order, and all the workers understand and apply their labor alike. So the little mason bee, after perforating the hard cemented wall, to deposite its eggs, adds a store of food, and then closes the cradle with a door of moistened clay, to shut out enemies. The food is deposited with as much design, and probably intelligence, as man provides for his offspring, because the insect knows its young must feed while a helpless nymph or aurelia. You call this instinct. What is instinct? It is the knowledge of the law given by the Great Spirit, and obedience thereto. Would to God than man cultivated his faculties so industriously, and obeyed so faithfully and certainly.

These evidences in the insect family show their strict obedience to the commands of their maker; yet a mistake or interruption by man, or other means, may be fatal to them; as their faculties are complete at birth, they have not the gift of reason and reflection to improve and repair damages, as reasonable man can; and they will not be called to account for that which was not committed to them.

Should rational man alone be guilty of wasting such precious gifts in idleness? No, man, to whom much has been given, of him more will be required.

The Good Spirit has bestowed on him greater powers of intellect, with wonderful faculties of reasoning and improvement, that he might be constantly employed in providing sustenance for himself and family. Most judiciously given, that he should not be idle. And enough is given, that he should not say that he has no leisure to contemplate and worship the giver with gratitude and joy. There is no age nor state of man, when he can say there is nothing more to be done or learned.

Being desirous of improving the agricultural interests, and believing your Cultivator to be eminently calculated to aid that laudable object, I have accordingly given you some of my cogitations. I am a merchant, and if I have an interval from business or conversation of three minutes only, I take a book or a pen, and never waste a fragment of time. As cents added make dollars, so minutes make hours. My offerings to you are a sacrifice, and not the product of leisure. I offer them as a setting pole to you in your arduous duties. When I write what you judge may not be of relief to you, nor of use to the public, cast them under your table. Most respectfully, DAVID TOMLINSON.

Schenectady, Aug. 14, 1839.

How to pickle Tomatoes.

Pickle tomatoes in September, when they are just ripe (red.) Put them in layers in a jar with garlick, mustard seed, horse-radish, spices, &c. as you like; filling up the jar; occasionally putting a little fine salt proportionably to the quantity laid down; and which is intended to preserve the tomato. When the jar is full, pour on the tomato cold *cider* vinegar, (it must be pure) till all is covered; and then cork up tight, and set away for winter.

DAILY USE OF THE TOMATO.

1. Cut up with salt, vinegar and pepper, (as you do cucumbers) and eat away as fast as you can.

HOW TO STEW TOMATOES.

2. Take your tomato from the vine, ripe; slice up; put in a pot over the fire without water; stew them slow, and when just done put in a small lump of fresh butter, and eat as you do apple sauce. What you have left, put away in a jar for winter.

3. When stewed, beat up half dozen fresh new laid eggs, the yolks and whites separate; when each are well beaten, mix them with the tomato,—put them in a pan, and heat them up; you have a fine tomato omelet. C.

Remarks on the Grain Worm.

Princeton, Schenectady co. August, 1839.

Mr. Buel—Dear Sir—The early sowed barley has suffered more than usual this season, from the ravages of the grain worm, which may be owing to the fact, that there was very little grain of any other description, in this vicinity, in a proper state of forwardness at the time the parent fly made its appearance. There was no winter wheat sowed. Rye was beyond their reach, and spring wheat, except a few pieces, too early sowed, had not yet headed out. The early pieces of spring wheat have been much injured. It is worthy of remark, that in the immediate neighborhood of fields on which winter wheat was raised last year, (and of course destroyed,) the destruction is much greater this season, than it is generally in other places. The fly seems to prefer the wheat to every other kind of grain; it never escapes if in a proper state for their purpose. Rye is their next choice—then barley when neither of the others can be obtained. As far as I know, the grain worm has not yet been detected in any other kind of grain than the above. The experience of several years has taught us that the injury to spring wheat will be avoided, if not sowed sooner than the 15th or 20th of May, and that a good return may be realized. Rye, if sowed early, on land in good condition, will also escape, if it has not, from some cause, been retarded in its growth. The two-rowed barley, likewise, by delaying the sowing for a short period, will be out of the time of the fly; it is the early sowed only that is injured. I think the four-rowed, if sowed early, will escape—at least I have never detected the grain worm in it. Would it not, then, be well for our farmers, as far as the grain worm extends, to sow only such kinds of grain, and those kinds at such a time as will insure their escape from the ravages of that insect? Were such a measure simultaneously carried into effect, I have no doubt but that, in a short time, the grain worm would either entirely disappear, or become so reduced in numbers that their effects would be little observed.

When propagation ceases, the species whether animal or vegetable must soon become extinct. Now certain grains in a certain state of forwardness must be ready for the *parent fly* to deposite its young, which grain is the aliment of the grain worm for a time, and if these can by any means be withheld, it is reasonable to suppose that the propagation of that insect will be much diminished. Man has control over the increase of many animals, and this extends even to some of the insect tribes. The silk worm cannot propagate if the proper food is withheld, neither can those vermin who multiply in filth or putridity, when the cleansing process deprives them of their natural aliment, and I do not see why the increase of the grain worm may not also be kept in check on the same principle. If you conceive the above observations to be pertinent, you are at liberty to make such use of them as you think proper. Your opinion is respectfully solicited, as to the practicability of effecting, and probable result, if effected, of such a measure. I am, dear sir, yours respectfully,

JAS. SMEALLE.

Remarks on Farm Dwelling Houses.

Judge Buel—Perceiving by the number of the Cultivator for the 1st of August, which has just reached me, that you propose inserting in the number for the 15th, essays and diagrams on "Farm Dwelling Houses," I would draw your attention to the remark of Mr. Sedgwick, in part first of his "Public and Private Economy," that "we have no good farm houses in America, and that he would be a public benefactor who should furnish a plan for general use." The English are too ornate and expensive; implying cheapness and subdivision of labor, and long tenure; the Americans are too large, ill contrived, and regardless of proportions, commenced on too large a scale, and never finished, or even if finished, most of the rooms kept for show, not use. It is bad enough where there is but one room, to sit, cook, wash, eat and sleep in that one room; but it is still worse to do so, as is very customary among our farmers, when you have a number of other rooms unoccupied. Nothing can be more ludicrous than to approach a house with lofty Corinthian pillars in front, and then enter by a back door, and find the whole family huddled together in the kitchen.

The only branch of the fine arts with which we really have any thing to do in this country, architecture, is sadly neglected. Would not articles upon the subject, particularly upon domestic architecture, come within the scope of your journal, and be of great benefit to your readers?

After fitness, convenience, and comfort, comes ornament—and the only ornament necessary in a farm house is that which is never considered, to wit, *proportion.*—With it, a house may be beautiful, though perfectly plain—without it, all the ornament in the world will but make it an object of ridicule to correct taste.

Intending to build a farm house shortly, my object however is to avail myself of your proposed publication, and with this view to inquire, what are the advantages of stone? Would not one story houses be better than two? Is it not advisable to dispense with chimnies altogether? And do we not have too many small windows instead of a few double windows, opening in the middle up and down? MOHAWK.

The Silk Business.

J. Buel, Esq.—Dear Sir—You are aware that I am strong in the faith, that this country will ere long, not only supply her own wants in the article of raw silk, but have a large surplus for Europe. You are also aware, that I have given much attention to the subject; in fact, have devoted my whole time to it for the last nine years, and that I have plantations for making silk, and factories for working it, and that thousands are now engaged in the same pursuit. Well, sir, notwithstanding all this, we have daily accounts of persons, who assert that the whole affair of silk culture is a "Humbug." Almost every paper I take up, has something of the kind, intimating that all the excitement on the subject at present, is merely for the sale of trees, "speculation," &c. and advising all within their influence to have "nothing to do with it"—that "we cannot raise silk in this country, and that it is preposterous to think of it." May I ask you, sir, to permit me the use of your columns to discuss the matter with any or all who make those assertions? My object is, to have the question settled beyond a doubt, and if any of the doubters will favor us with the grounds of their unbelief, in our ability to raise silk, or that we shall not in ten years, supply our wants, at least, from our soil, I pledge myself to examine the subject fully, and if I cannot answer them, will confess that I have been deluded and have deluded others into the belief, that *we can raise silk on all our farms, amd to more profit than any other agricultural production; cotton not excepted.* I will now assert that we can raise silk *cheaper than France or Italy*, in any part of our country from Maine to Mexico, of a *quality equal to any in the world;* and shall esteem it a favor to all who are engaged in the business—in fact to the country at large, if any of your numerous readers, will, in reply to this, state *why* we cannot do it, or if they cannot refute the above, then *why* we shall not seriously engage in the cultivation of raw silk for exportation. SAMUEL WHITMARSH.

Northampton, Mass. August 8, 1839.

SOUTH-DOWN BUCKS.—Two two year old very superior South Down Bucks, clothed with fine wool and long enough for combing, were imported last April, direct from England, from the flock of the late John Ellman, Esq. of Glynde, near Lewes, Sussex, and are for sale at one hundred dollars each, or to be let for the season at fifty dollars each, by the personal friend of the breeder.

Elizabethtown, N. J. Aug. 20, 1839. OB. ELLIOT.

☞ The Genesee Farmer and Farmers' Cabinet, will give the above two insertions, and send bill to advertiser.

EXTRACTS.

Agricultural Chemistry.

BY HENRY R. MADDEN, ESQ. L. R. C. S. EDINBURGH.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

We have now to commence the most important, but at the same time by far the most difficult branch of our subject; namely, the *Philosophy of Manure*, or the scientific principles upon which the cultivation of plants is founded. To accomplish this, with facility and perspicuity, it will be necessary to divide the subject into the following heads.

I. To give a clear view of the objects to be attained by the application of manure.

II. An account of the composition, and respective value, of some of the more important manures.

III. An account of the circumstances which should guide us in the choice of manure, and its application to various crops.

IV. The economy of manure, or the methods to be adopted in order to produce manure as quickly as possible, and likewise to apply it to the greatest advantage.

I. There is no point connected with agriculture, in reference to which more incomprehensible statements have been laid before the public, than those which have from time to time, and more especially lately, been published upon the subject, of manure; and it appears to me that these could never have been conceived, far less made public, had due attention been given to that branch of the subject, to which the present section is devoted, namely, the objects to be attained by the application of manure: these we shall now consider. We have already shewn that by far the most essential point to be attended to in the cultivation of plants, is to present to them a constant supply of organic matter, in a state capable of being rendered soluble in water; and we have moreover seen that this is accomplished, by adding to the soil, at certain intervals, various refuse matters, which are technically denominated *manure*, by which means all kinds of *dead* organic matter, are re-converted into *living* organized bodies; and consequently the objects of manuring may be described to be, the conversion of refuse matters into useful food; or in other words the duty and object of the farmer, is to *convert manure into crops*. This fact, however, appears to have been most determinedly overlooked by many late writers upon the subject, and in consequence there has been more nonsense and absurdity published in reference to this point, than one could have possibly imagined. Thus, for example we are most seriously told by a late writer upon fluid manure, that "there are many plants which by distillation yield a strong *spirit*, which is so powerful a manure, that, from some experiments he has *himself* performed, he confidently looks forwards to the time when the *manure* for an *acre of land* shall be contained in a *quart bottle*." This statement is really almost too absurd too refute, were it not that the opinion appears to be gaining ground in some parts of England. I trust therefore that my more enlightened readers will excuse me for occupying some space in proving the impossibility of such a thing being accomplished. It must be evident to all, who will take the trouble to think of the subject, that the weight of the crop must always bear some proportion to the weight of the organic matter in the soil; for, of what do vegetables consist?—Of *water*, *organic matter* and *earthy particles*. Now the first and last of these are supplied by the soil itself (considered as a mineral substance;) but the organized portions can be supplied to the plant only by organic matter, previously existing in the soil; for although plants do obtain some of their *carbon* from the air, still this is but an inconsiderable portion, and moreover much of the *carbonic acid* which yields that portion, has been supplied by the previous decomposition of organic matter. We may therefore infer, that should the above-mentioned author succeed in manuring an acre of land with the *contents of a quart bottle*, he will in time discover that the same article will be almost sufficient to contain his crop. But the believers of the above doctrine may say that the author has proved it by direct experiment, and consequently he must be either willingly deceiving the public, or must have some grounds for his statement. Now I have no doubt that the author is perfectly satisfied in his own mind that he is writing the truth, and I shall endeavor to shew how he has been misled. His *powerful spirit*, was of course applied to *soil*, (probably very rich garden mould) and the result was that it had a most powerful effect upon the vegetation of that soil, and in fact its influence was felt by "many succeeding crops:" but this by no means proves that his spirit is really a manure at all; it may act only as a *chemical* agent in producing the more rapid decomposition of the vegetable fibre of the soil, and thus rendering it soluble; and consequently his crops were produced by the *original organic matter* of the soil, and not by his *powerful spirit*. For had he continued its application from time to time, and taken care to prevent any subsequent addition of fresh organic matter, he would have undoubtedly found that his soil became exhausted. Let any one who doubts this statement, take soil free from all organic matter whatever; for example, let him mix artificially chemically pure sand, clay, and chalk in the same proportions as they exist in the best soils; let him sow his seed, and then apply this *powerful spirit*, and observe the results; let him weigh the products, and then be will, beyond doubt, see the truth of the fact, that the weight of the crop is proportional to the weight of organic matter in the soil. If the object of a farmer was merely to obtain good crops for a few years, and afterwards to allow the land to lie waste and useless, then, indeed, some powerful stimulus, such as the spirit in question, would be of great value; but, what farmer, I ask, would so wilfully injure his own interest, by thus exhausting his soil, for the sake of procuring one or two good crops?* Some persons, however, may remark, that it would be extremely difficult to prove the relation between the organic matter in the soil and the crop; for example, they might quote the case of turnips, where, in a good crop, two or more tons are produced, by a space of ground, upon which not more than one ton of farm-yard manure has been spread; and nevertheless there is sufficient nourishment left for several crops afterwards without any addition. I shall therefore shew the manner in which this relation is to be discovered, or at least point out some circumstances, which are liable to be overlooked, but which are of the utmost importance in any investigation of the kind. In the first place, the real weight of dry organic matter in a crop is extremely small in comparison to the weight of the crop itself; for instance 25 tons of globe turnips are calculated to contain only two tons of solid matter, of which a part of course is saline. Hence in that turnip there is not 8 per cent of organic matter. The grain crops of course contain a far greater quantity, but even in them more than one-fifth is composed of water and saline substances. Secondly, the quantity of organic matter in a soil is very liable to be underrated; as will be shewn by the following calculation. According to the analysis of Sir Humphrey Davy and others, good soil contains about 11 per cent at least of dry organic matter; now, taking nine inches as the depth of such a soil (which is by no means great,) it will be found by calculation that one imperial acre will contain no less than 91 tons of dry organic matter, and hence, were the whole capable of being converted into turnips without loss, each acre of good soil would (theoretically at least) be capable of producing upwards of 1200 tons of globe turnips before the land would be completely exhausted! A careful examination of these facts cannot fail to shew to all, the fallacy of judging of the power of a manure by its effects when mixed with *soil*. Of course I do not mean by this to dispute the value of experiments with different kinds of manure on various crops; but merely have endeavored to shew that, when authors attempt to talk about concentrating manure to such an extent, that the contents of a *quart bottle* will supply nourishment to the crop upon *an acre of land*, they should, in the first place, prove whether their substance is really a manure, or merely a chemical agent; and certainly ought not to give publicity to any opinions performed in a manner so replete with fallacies. The following fact alone should be sufficient to silence at once all such idle propositions. We have every reason to believe that "*creation* has long since ceased and *conversion* alone continues to take place," or in other words, "*new matter* is never now produced, but merely *matter already existing* is constantly *changing its form*." Much more might be said with reference to this point, but we have subjects of far greater importance to engage our attention, than the refuting of such visionary speculations. To recapitulate, therefore, the objects to be attained by the application of manure may be stated to be, the preservation of a certain degree of richness in the soil, in order that the seed sown may be furnished during all the stages of its growth, with a constant supply of organic matter, in such a form as to be capable of being absorbed; and moreover this organized matter being supplied by otherwise useless, and in fact injurious, substances, one of the national advantages of manuring land may be said to consist in the conversion of noxious matters into useful and wholesome food.

II. In giving a general account of the composition and respective value of the more important manures, we must remember that there are many collateral circumstances to be taken into consideration, which, although they may be of no importance theoretically, are nevertheless of such great practical consequence, that, without due attention to them, no scientific account of manure can be of any value to the farmer. *Manures* are generally divided into *organic* and *inorganic or mineral*. Professor Low, in his excellent work on practical agriculture, adds an intermediate division of *mixed manures*, which will aid greatly the consideration of this extensive class of substances. Properly speaking, the organic and mixed are the only true manures, the purely mineral ones acting either as *chemical* aids by promoting putrefaction; as *mechanical* agents by altering the texture of the soil; or probably also as stimulants, by acting directly upon the roots of the plants themselves.

I. *Organic manures.*—By adding organic matter to the soil, we are of course supplying plants with all that they require for their nourishment; nevertheless it is not sufficient that this organic matter should exist in the soil, it must be in such a state as to be capable of being absorbed by the roots of the plants; for which purpose we have already seen that its elements must be in that peculiar state of combination which has received the name of *humin*; or, to express it otherwise, in such a form as to be rendered soluble in water when exposed to the action of the spongioles. From this fact we may make several generalizations with reference to the respective value of different kinds of organic manure. Thus *scientifically* speaking, a manure may be said to be valuable in direct proportion to the quantity of pure organic matter it contains, its tendency to decomposition, and its facility of being rendered soluble by this, and other changes which take place in it: *practically*, however, a manure may be said to be valuable in direct proportion to the length of time during which its influence is felt by the crops on the land to which it is applied: as also to its portability, to the facility with which it can be incorporated with the soil, and, *last not least*, to its cheapness and the readiness with which it can be procured. Hence the most useful manure would be one which combined these several advantages, namely, one which was cheaply produced, easily carried, readily mingled with the soil, and when there, keeping up, by its gradual decomposition, a steady supply of *humin*, or other soluble organic matter. To discover such a manure, or, still better, to ascertain some method of imparting such properties to the manures in common use, would be one of the most valuable acquisitions to modern husbandry. That *chemistry* may in time be capable of doing this, there is little reason to doubt, all that seems, necessary, being, that some person properly qualified should earnestly devote himself to the task. In the following remarks upon the nature and composition of the different species of manure, particular attention will be paid to these qualifications. For the sake of perspicuity I shall subdivide that class of organic manures into the *purely vegetable*, the *purely animal*, and the *vegeto-animal*.

(1.) The *purely vegetable manures* are, green plants, rape-cake, malt-dust, the steepings of the flax and hemp, straw, woody fibre, tanners' spent bark, &c.

Green plants are constantly used as manure, and are very useful for that purpose; they are seldom collected expressly, but are made use of on the spot where they grow; as examples of this, we may mention the ploughing in of grass, and the ploughing and hoeing of weeds during fallow and green crops. This manure consists chiefly of saccharine and mucilaginous matters mixed with ligneous fibre; and it consequently will be observed that it requires no preparation whatever; that it contains organic matter already in a soluble state, namely the sugar and gum, and the ligneous fibre itself is so moist and so completely impregnated with vegetable juices, that fermentation rapidly commences, and consequently a supply of soluble matter will be kept up until the whole is consumed. Care must be taken, however, in ploughing in green crops for manure, not to make too deep a furrow, especially on strong lands; as in that case the quantity of soil which covers the vegetable matter is so thick that it diminishes the action of the air, &c. upon it; and it is a well ascertained fact, that fermentation is retarded, if not altogether prevented, by compression and the exclusion of air. The best period for ploughing in green crops (provided other circumstances permit of it,) is undoubtedly when the plants are in flower, as at this period they contain the greatest quantity of sugar and mucilaginous matter; and, moreover, in the instance of weeds, it prevents the possibility of their propagating their species by the scattering of their seed. The importance of allowing this species of manure to ferment in the ground, instead of in a heap, is, that (in addition to the great saving of labor) the slowness with which the decomposition takes place, is supposed to tend to produce much more soluble matter and less gas than when it proceeds above ground. The parings at hedge roots, scourings of ditches, pond-weeds, &c. may be used in this manner.

Rape-Cake has been used with great success as a manure: this, like the preceding, contains a large quantity of vegetable matter, already in a state capable of being dissolved in water, its composition being mucilage, a large quantity of vegetable albumen, a little oil, and woody fibre. It has the advantage over the former of being much drier, and hence containing far more manure in the same bulk of material; but, on the other hand, it is by no means so easily procured, and is much more costly. It is chiefly used in fallow, before wheat, and should be sown *fresh;* and before its application, should be kept as dry as possible, as moisture readily causes fermentation to commence, which, when once set in, will undoubtedly proceed with rapidity, unless the substance is carefully dried. And here we may make the general remark, that all substances which contain much fluid, and more especially such as are composed of mucilage, sugar, and other soluble matters, should be used when perfectly fresh.

Malt-Dust is mentioned by Sir Humphrey Davy as a good manure, on account of the quantity of sugar it contains. I have not, however, been enabled to meet with any particular account of its application; of course, if used, it should be allowed to ferment in the soil. The washings and other refuse of distilleries, I am informed, are much used in some parts of Ireland, as an application to grass lands, and their effects are stated to be very powerful. This, of course, will depend upon all the vegetable matter which it contains being soluble, and therefore very probably absorbed at once, without undergoing any decomposition whatever.

The next manure we shall mention, is one which can be applicable in a few cases only, on account of the local nature of its production; we refer to the *water in which the flax and hemp have been steeped*. It is well known that flax and hemp consist of the woody fibres of these plants, and that one of the first steps in their manufacture is the steeping of the plants in water, in order that the softer tissues may ferment, and the ligneous fibre be thus freed from the useless parts of the vegetable: of course, therefore, the water in which these plants have been steeped, becomes fully charged with *soluble* and putrescent vegetable matter, and consequently acts powerfully as a manure, and moreover requires no preparation whatever, as fermentation has already commenced. It is not necessary, however, to dwell much upon this subject, as its use must, of course, be confined to those districts where flax and hemp are cultivated.

Sea-weeds.—All sea-shore plants, especially those which grow below highwater mark, and which belong to the natural families of *Algæ* and *Fuci*, &c. contain more or less *mineral alkali (carbonate of soda,)* and have long been used as manure by the farmers in the neighborhood of the sea. They are, however, so succulent and mucilaginous, that their effects are by no means lasting; even when placed in heaps and allowed to ferment, they produce but very little heat; in fact, appear rather to dissolve away. They consist chiefly of water, mucilage, a small quantity of woody fibre, and saline matter; according to the analysis of Sir Humphrey Davy, nearly four-fifths was water, which contained no *ammonia*, and consequently the plants possess no *azote*. When applied to land, their effects are felt almost immediately, as the mucilage dissolves as soon as the outer covering of the plants is destroyed by fermentation; but from its soluble nature, its effects are but slight, and after the first year, are no longer perceptible. The alkali they contain must also act as a chemical solvent, which will hasten their consumption. It has been proposed, (see vol. iii. of this Journal, 1831-2,) to collect the sea-ware, and dry it by spreading it like hay, by which means, of course, nothing but water will be lost, and at the same time, the bulk will be reduced to one-fifth, in which state the author considers it to be a very valuable manure, and calculates that it can be procured and carted off at half the price of straw. This suggestion, I think, might probably be useful in some of the farming districts which are situated near the sea, but still not close enough to use the ware in its fresh state, as undoubtedly the manure is a good one as long as it lasts. The drying, also, will prevent the decomposition from taking place so rapidly as if applied when fresh.

Dry straw of wheat, barley, and other grain crops, and spoiled hay, are always useful manures. Sir Humphrey Davy, in speaking of these, adheres to the opinion which pervades the whole of his work upon Agricultural Chemistry, namely, that they should be applied fresh, and that if allowed to ferment, a large quantity of nutritious matter is lost. As this is a point more severely criticised than any other statement which his work contains, and as, moreover, it is one of extreme importance, I shall here enter fully into the subject, and endeavor to reconcile, if possible, the exceedingly discordant opinions which are entertained regarding it. To proceed, let us state the question. *Theorists* say all manures should be applied to the soil as fresh as possible, because, during the process of fermentation, if allowed to proceed above ground, much valuable matter is lost which would otherwise have been available to the crops. *Practical farmers*, on the contrary, maintain, that experience has proved to them, that, unless the manure is fermented to a certain degree before it is applied, it is not of half the value; in fact, in many nstances it greatly endangers the success of the crop. How, herefore, can these be reconciled? On careful examination we shall see, that here, as elsewhere, all the difficulties will vanish when *theory and practice* are brought jointly to bear upon the subject, in such a manner that the one shall correct the other; or, in other words, when the question at issue is compromised, so as to suit the purposes of the *farmer*, and at the same time, not contradict the statements of the *philosopher*. In the first place, we may take it for granted, that in all cases where *theory* is opposed to *successful practice*, the former will eventually be found to be at fault, for it is perfectly evident that the knowledge of the true theory must improve, instead of opposing those practices which time has shewn to be the most successful. Nevertheless, in the case before us, there is nothing *radically* wrong in the theory, but it has evidently been carried too far; in fact, it has been worked out, (if we may use the expression,) as a chemical problem, without due attention having been paid to the end in view; namely, the rendering of assistance to the farmer in his all-important operations. There is no doubt, for instance, that *carbonic acid* and *aqueous vapor*, are given out in abundance during fermentation, and also in the case of animal manures, *carbonate* and *hydrosulphate of ammonia*, all of which are in certain cases of great importance to plants. But it is not sufficient to prove a fact scientifically, and at once apply it to practice, for, unfortunately, such is the imperfect state of science at present, that there is scarcely a single instance where some modification is not required, when the two are brought to bear upon each other. For example in the case in question, it is not sufficient to discover that some of the value of the manure is lost during fermentation, and in consequence, to argue at once that manure should be applied fresh; we must prove in addition, that by so doing the farmer will not injure his interests in any other way; that, when so applied, it will serve all his purposes as well as when previously fermented. This, however, we shall not be able to do, for the following reasons. What the farmer wants when he applies manure to his land, is, 1, to enrich the land in such a manner that it shall be immediately fitted for cropping, and hence, a part of his manure must be *already* prepared for use, namely, rendered *soluble*. 2, The substance applied, must be in such a condition as to be easily incorporated with the soil, by the subsequent operation of tillage; and consequently must be in such a mechanical state, as not to interfere with these operations. Now, it has been proved scientifically, first, that when vegetable matter, and still more so, when a mixture of animal and vegetable matters, are exposed in a heap to the joint action of air and moisture, the temperature soon rises; chemical changes take place; part of the *oxygen, hydrogen* and *carbon*, go off in the form of *aqueous vapor*, and *carbonic acid;* and at the same time a part of the remainder is rendered soluble, either in the form of *humin* or some such combination; but, secondly, it has been proved that when these materials, instead of being heaped up, are spread out, and mixed with mineral matter, as when ploughed into the soil, the changes take place much more slowly; and lastly, it has been *conjectured*, but by no means proved, that when those changes take place in the soil, more soluble matter and less gas, is formed, and consequently that the effects upon vegetables are more powerful. Let us compare notes: The first object of the farmer is to have a supply of nourishment in a state fit for immediate use; but this can only be obtained by fermentation; and in the soil fermentation takes place very slowly; consequently, when fresh manure is applied, the seeds run a chance of having to wait for their food: and, moreover, it is a generally acknowledged fact, with reference to all chemical changes which masses of matter undergo, that these changes proceed much more rapidly after they are once fairly commenced, than in the first instance. Again fermenmentation softens and breaks down long straws, &c. which would otherwise make the husbandry extremely foul. This objection, in fact, presented itself to Sir Humphrey Davy, and to obviate it, he proposes the straw to be chopped before it is spread. The proper question for discussion, therefore, is not merely, as we have seen, whether fermentation is accompanied with loss; but whether the extra advantages attending the use of previously fermented dung will compensate for the loss sustained during its preparation. All practical farmers will doubtless answer in the affirmative; but even here we must be cautious how we generalize the principle. Practical men are at all times too fond of making general rules; for example, in the case before us, most farmers ferment their dung to a certain extent, *often much too far*, and then apply it to all purposes indiscriminately, whereas it is clear that the necessity of fermentation holds good only in those cases where an immediate supply of nutriment is required; and consequently, when a fallow is manured, or when the manure is ploughed in with the stubble in autumn, in preparation for the next year's green crop, the manure may be used in a much fresher state, especially on strong soils. This fact has been well illustrated in a paper, on "A new method of applying manure," by Mr. Baker of Nassau Cottage, near Leeds, which appeared in the 6th volume of this journal in 1836-7. The same plan is likewise mentioned in British Husbandry, in the Library of Useful Knowledge, under the article manure, where it recommends the fresh manure to be laid on the stubble during winter, and the long-straws raked off before the spring ploughing. It has been remarked, however, that the practice of ploughing-in raw manure in autumn, as preparative for the next year's crop, will not answer on light soils, as in this case a large quantity of the manure is lost; in fact I have been informed by an excellent authority upon such subjects, that nearly double the quantity in such soil, is required to produce the same effect when applied in this way, as when fermented above ground, and ploughed-in immediately before the spring sowing. This I presume must depend upon the open texture of such soil, by permitting rapid fermentation and allowing the gaseous parts to escape, and likewise the soluble matters to be washed deep into the soil as soon as they are produced. Thus we at once see how to compromise the question, and we consequently leave it in the following position, namely, that undoubtedly loss of manure is sustained by allowing fermentation to take place before it is applied to the land; but that this loss is more than compensated for, by the peculiar advantages of fermented dung in all cases where an immediate supply of nourishment is required. But on the other hand, that in those cases where the manure is to remain some months in the soil before the seed is sown, it should unquestionably be applied in a much fresher state, although even in this instance incipient fermentation may be useful, by rendering it capable of being kept up with greater facility, under the disadvantageous circumstances in which the manure is placed, when mixed with soil. I do not, however, by any means wish it to be supposed, that I consider the question as settled; far from it; the above statement is merely a representation of the case as it at present stands; but obviously a great deal has yet to be learned, more especially with regard to the *science* of the subject. We must return, however, to the consideration of the individual manures.

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* And yet there are thousands of American farmers who are continually pursuing this *sinful* practice.—*Cond.*

Mere Woody Fibre.—At first sight one would be inclined to ask, when is mere woody fibre ever employed as a manure? But if we consider a little, we shall find two substances at least, which have been proposed as manures, to consist chiefly if not solely of this chemical compound—I refer to the refuse of the *tan-pit*, and *peat*. Both of these contain little or no substance besides mere woody fibre; for example, the operations of the tanner have removed all the soluble matter from the bark which he employs in his manufacture; and the long continued action of water has had the same effect upon peat. When we remember that the prime object of manuring, is to supply the plant with organic matter in such a state as to be capable of being dissolved in water, we must at once perceive that, theoretically, this manure is one of the worst possible kinds, if used in an unaltered condition, and practice has long ago proved the same fact; for Mr. Arthur Young, in his valuable "*Essay on Manure*," states, that "spent bark seems rather to injure than assist vegetation;" and it is well known that no plant can grow in soil where there is an accumulation of peaty matter. Mr. Young supposed that the injurious nature of tanners' spent bark depended upon the astringent matter that it contained; but Sir Humphrey Davy has shewn, that the processes to which the bark is subjected, free it entirely from soluble matter, and that the injurious action most probably depends upon the bark having a great attraction for fluids, and at the same time being impervious to the roots of vegetables. On this account, therefore, the bark would absorb the soluble parts of the manure, and thus deprive the plants of their food as soon as it was prepared for them. Even Sir Humphrey Davy, therefore, allows that *mere woody fibre* requires to be fermented before being used as manure; since, from the absence of all mucilaginous, saccharine, and other soluble matters, there is little or no tendency to decomposition, and consequently this must be brought about artificially; the best mode of doing which, is either to mix it with a quantity of hot lime, or to follow the plan proposed by Lord Meadowbank, of mixing it with farm-yard manure. The success of this latter method being dependent upon the fact, that if putrefaction commences at one point of a heap of organic matter, it will undoubtedly spread through the whole mass. In reference to the action of lime upon peat, &c. we shall say nothing at present, as this will be fully treated of when we consider the mixed manures.

(2.) *Animal manures.*—It is generally allowed that these require far less preparation, than those derived from the vegetable kingdom, since they have a much greater tendency to putrify, and hence of course do not require to be heaped together in order to produce this effect; besides their mechanical form is seldom such as to interfere materially with the various operations of tillage. They are comparatively seldom used alone, but nevertheless require consideration here, in order that the subsequent remarks upon the *vegeto-animal* composts may be more fully understood. The chief of them are—the various kinds of excrement, urine, hair, woollen rags, feathers, dead animals, fish, blubber and horn.*

Of the various kinds of *excrement*, *night-soil* is by far the most valuable. This substance has been long used by the Chinese, who mix it with one-third of its weight of marl, and dry it in cakes by exposure to the sun. These cakes are said to be void of all disagreeable smell. It is likewise prepared with quick-lime in France, and sold in the form of a dry powder, under the name of "*poudrette*," in which state it is sown with the seed in the same manner as rape-cake; the admixture of lime is merely to prevent the disagreeable odour which this substance otherwise possesses. There exists many prejudices against the use of this truly valuable manure, but it is needless to say that these are entirely without foundation.† The other species of excrement which have been used as manure, are those produced by the various birds and animals which are kept in a domesticated state. These have been found to be of very different degrees of power; the most valuable is supposed to be that of the *pigeon:* this, however, can only be used where great numbers of these birds are kept. It is stated to contain 23 per cent of soluble matter when recent, and hence will require no preparation before it is used. The next in order is the cleaning of *poultry-houses;* this is very similar to the last, and of course is produced in much greater quantity. A good method of using these manures, would probably be, to form them into compost with earth, dry leaves, &c. thus imitating the process which goes on in woods frequented by the wild pigeon, where the soil is found to be peculiarly rich and valuable. Of the excrementitious matters produced by the various domesticated animals, that of the *rabbit* is stated to be the most valuable; but of course it is liable to the same objections as those above mentioned, namely, the small quantity in which it is generally procured. Some farmers, however, have gone so far as to say, that is is profitable to keep rabbits for the sake of their manure; this, however, must be under very peculiar circumstances. Of the remaining manures of this order, that of the *sheep*, *horse*, and *swine*, are generally considered more powerful than that produced by *cows*. It is needless, however, to enter fully into the consideration of all these, as the whole of them act in pretty nearly the same manner, only with slight differences in their power. The composition of all this class of substances is the debris of the food taken by the animals, mixed up with bile and various other matters.

Urines.—These are all very powerful manures, but it is curious enough that, with one exception, they are all improved by putrefaction. The best way of using them undoubtedly is, to have the stables, &c. so constructed that all the fluid parts are carried into underground tanks, where they accumulate, and can either be raised by a pump and applied in the liquid form, or, which is probably the better plan when circumstances will permit of it, the tanks may be filled with porous earth, and the whole will then form an exceedingly rich compost: probably peat might be advantageously used for this purpose. In whatever way, however, this manure is applied, it is at all times most valuable. It abounds in *ammoniacal salts,* which have been supposed to be the cause of their injurious action when fresh, as it has been proved that solutions of these salts, unless extremely dilute, act injuriously upon plants; this, however, can hardly be the cause, as putrefaction increases instead of diminishes the quantity of ammonia. The one exception which I mentioned is the urine of the *sheep,* which is stated by all practical farmers to act as manure as soon as it is formed. Now, it is not easy to understand how this should differ from all other kinds of urine; but with the testimony of all farmers in its favor, it would certainly be worth while to have the point carefully examined into, before we endeavor to explain it.

Hair, Woollen Rags Feathers, &c. are all valuable manures, when they can be procured in sufficient quantity. All woollen rags are carefully collected by the inhabitants of the South of France, for the purpose of burying them at the foot of their olive-trees. Their composition appears to be chiefly gelatine and albumen. They decompose much more slowly than the generality of animal manures, and consequently, will probably be found particularly useful in those cases where a supply of *nitrogen* is required during the latter part of the growth of a crop, as for example in wheat. This subject I shall revert to when speaking of the application of manure to various crops. In the manufacturing districts the refuse of the different woollen factories will be extremely useful in this respect.

Dead Animals and Fish.—The former of these are very seldom used by the farmer, although it is evident that they would be extremely useful. Sir Humphrey Davy very properly proposes, that animals which die from disease or accident should (after having the skin removed) be covered with five or six times their bulk of soil mixed with lime, and allowed to decompose for some months, when the whole will be found to constitute a rich compost; the disagreeble smell of which may be prevented, by mixing lime with it when about to be turned. The refuse of slaughter-houses might be advantageously employed in this manner. Dead fish have been long known as a very powerful manure; they of course, however, are liable to the objection already stated, namely, the difficulty with which they are procured, except in certain situations. When employed, they must be mixed with soil and applied fresh, care being taken not to use too great a quantity, as they are very liable to produce rankness in the crop; their effects are felt for many years. The refuse of the fishmarkets, and that of fishing-villages, ought on this account to be carefully collected, and made into compost. *Guano*, a most valuable manure, which occurs in the South Sea Islands, in beds of from fifty to sixty feet thick, has been analyzed by Fourcroy and Vauquelin, and found to have a composition similar to the dung of sea-birds. This will account for its value, as in that case it will consist chiefly of the debris of fishes, mixed up with the ordinary constituents of the dung of birds.

Blubber and Horn are both very useful manures, when they can be procured; they both are composed almost entirely of animal substances, capable of being rendered soluble in water during putrefaction, and are at the same time in such a state that decomposition goes on slowly. We now come to the consideration of by far the most important of all species of manure, namely,

(3.) The *Vegeto-Animal* manures, or those which contain a mixture of animal and vegetable substances. These are chiefly the different varieties of stable-manure, &c. which are known under the name of "*farm-yard dung.*" This, from its abundant production, and many other causes, is beyond doubt by far the most valuable manure at present known. For example, it is valuable in a scientific point of view, because, being a mixture of animal and vegetable matter, it ferments easily, supplies a large quantity of soluble matter, and from its nature is capable of yielding nourishment to *all* kinds of vegetables. And practically, this manure recommends itself to the farmer,—1, Because it is necessarily produced in considerable quantities upon all farms where stock is kept; 2, Because, from this circumstance, it is evident that none of the crops consumed on the farm can be considered as lost; and 3, Because experience has long ago shewn that no manure is so generally useful.

It is needless to attempt to state the composition of a substance which must be of necessity so various; a few practical remarks will be, therefore, all that I shall introduce here. In the first place, it will be evident to all that the value of this manure will differ greatly according to the relative importance of its different ingredients; as, of course, since animal matters produce the greatest quantity of soluble nourishment, the greater the proportion of this class of substances the more useful will the compound prove. Again, it has been shewn that the period at which it is applied influences greatly its beneficial effects; for if allowed to rot away until it is reduced to the state of *soft, dark, unctuous mass,* not retaining any remains of vegetable structure, it can be easily shewn that more than one-half of its most valuable constituents have been lost. The remarks, however, which we have already made upon this subject of fermentation will, of course, apply here. It is stated in the Library of Useful Knowledge, in the article on British Husbandry, that the manure of fat beasts is much more valuable than that of lean cattle: this will very probably be the case, and, of course, depends upon the food with which the animals have been supplied. Thus, ten carts of dung from animals fed with oil-cake, were found equal to sixteen from those fed upon turnips. From this fact, therefore, it would appear necessary, that, in experimenting with this manure, we should pay attention to the food with which the animals have been supplied during its production. Much more might be said regarding the formation and management of dung-heaps; but this would involve us too much in pure practical farming.

Twelfth Annual Fair of the American Institute.

This anniversary celebration of industry and the arts will open to visiters at Niblo's Garden, in the city of New-York, the 7th of October next, at 10 o'clock, A. M. All articles brought to the garden are required to be entered by the clerk of the fair in a book. Those intended for competition for premium must be delivered either on Thursday, Friday, or Saturday, October the 3d, 4th and 5th, and reported to the clerk as for competition. If they are delivered at an early hour, and places assigned in the beginning of the fair, their location will not be changed, unless the general arrangements of the exhibition, in the opinion of the managers, render it desirable. They should be accompanied with a written description, as an effort will be made to publish a catalogue the first week of the fair. The accommodations of the garden have been greatly extended and improved since the last year. Two rooms, each 110 by 25 feet, have been added, adjoining and communicating with the great saloon, directly north.—All the departments of industry and of the arts, in the various sections of our country, are invited to make contributions of their choice specimens.

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* *Bones* are often enumerated among animal manures, and their origin would certainly justify such an arrangement, but from the large proportion of earthy and saline matter they contain, they will be more conveniently treated of under the head of mixed manures.

† Animalized carbon appears to owe its fertilizing powers to this substance.

The deep interest taken at the last fair in the exhibition of cattle and farming stocks, and their importance to agriculture, the promotion of which is enjoined foremost in our charter, and the consideration that agriculture lies at the foundation of all production, has induced the Institute to resolve on another cattle exhibition and sale. Accommodations will be provided for pure blood cattle, horses, and extraordinary breeds of sheep, swine, &c. contiguous to the garden. Certificates of pedigree should be provided.

Much the greatest proportion of manual labor employed in production, is applied to agriculture. Here, then, is presented the widest field for the introduction of labor-saving machines. The farmer is much more secluded from the knowledge of these improvements than the manufacturer. The latter, availing himself of his advantageous situation, has, by the employment of machinery, dispensed with the greatest part of the most irksome toil and drudgery formerly required in his occupation.

The coming fair will present to the farmer the best opportunity of which he can possibly avail himself, for learning the properties of the newly invented, and the most valuable agricultural implements and machines, as they will be brought together for his examination. Those we intend particularly to benefit should not fail to be present.

We hope to see all the varieties and improvements of the plough. The Institute, by turning their attention to this indispensable instrument of husbandry, begin already to witness the benefits. One of its members has been induced to attempt the construction of a sub-plough, which promises great utility. Another has produced a steam plough, which has gone to the western prairies. It is ascertained that many of the ploughs in ordinary use require from 25 to 33 per cent more power to operate them, than those of the best improved construction. Even in Great Britain, with all their boasted culture, it is estimated that more than 1,000,000 of horses are employed in husbandry, and to a great extent the ploughs in use require 33 per cent more team than those of the best formation. The annual cost, only, at $25 each, amounts to $25,000,000. It will be evident, therefore, that in so great an agricultural country as ours, in many parts of which very defective ploughs are in use, the substitution of the most perfect construction, universally, would save millions in horses every year, and essentially contribute to our agricultural resources and national independence.

Inventors, manufacturers and owners of machinery are informed, that the Institute, to prevent disappointments, have purchased and located on the premises a steam boiler, of sufficient capacity to operate machines of the most massive construction.

Arrangements are making for a full display of American silk in all forms, from the cocoon to the finished fabric. Much good, we think, will result to the country from the preparations for the raising of silk. Our climate is peculiarly congenial to the insect that produces. The women, children and infirm persons scattered among our population, from whose labors little or nothing is realized, are competent to supply twenty millions of dollars value in silk per annum, instead of which we have imported in a single year more than that amount.—a sum double the value of the whole exported products of the United States, for the same period, from all our boasted fisheries, with all the exports from our forests, of skins and furs, lumber, masts, and all our manufactures of wood; our naval stores, tar, pitch, turpentine, pot and pearl ashes, &c. and also from our almost innumerable farms; all our exported beef, tallow, hides and cattle, butter, cheese, pork, bacon, horses, mules, sheep, &c. with our entire exports of wheat, corn, and flour, superadded. The whole catalogue of this formidable portion of a nation's hard earnings for foreign exportation, did not in 1836 equal twelve millions of dollars, while the imports of silks the same year, exceeded twenty millions of dollars; and by including silk and worsted goods, of which silk constituted an important part, they amounted to over twenty-three millions five hundred thousand dollars. This alarming statement, the report from the treasury department will fully verify. Is it not high time that silk should command our attention? The mulberry is essential to the worm that produces it. All its varieties should be collected at this fair, with detailed facts, showing their adaptation to soil and climate, and the quantity of sustenance they afford.

The general effect of the silk excitement, we think, cannot but be beneficial, as it will fill our country with mulberries, and every where afford food for silkworms; but it is vastly important in the commencement, that the kind best suited to our soil and our climate, and most bountiful in their healthy foliage, should be selected.

The early success of the silk culture will depend much on the perfection of machinery. The reel ought first to engage our attention. For ordinary household use, it should be cheap and simple in its construction, and its merits should be made public. For this purpose a gold medal will be awarded at the coming fair, for the reel which shall best answer the above description.

The public are looking with great interest to the investigations and experiments for deriving sugar from the beet.—We anticipate important improvements from the ingenuity and perseverance of a member of this institute, whose indefatigable exertions have been for several years applied in accomplishing a speedy and economical process for its extraction. Those who have witnessed some of the experiments have become convinced, that the sugar beet will, ere long, successfully compete with the sugar cane.

The manufacturers of cottons and woollens have at out latter fairs, come forward with renewed spirit. It is hoped that it will not only continue, but increase. The additional room which the new buildings afford, will enable the managers most advantageously to accommodate the exhibitors of cloths.

New machinery for the spinning of flax has been constructed. Specimens of the yarn should be forwarded, detailing the preparations necessary, the construction and operations of the machinery, together with their cost. Flax formerly ranked among our principal staples. For the last fifty years its culture has been on the decline. A perfect flax spinning machine would create a demand for flax, and soon cause it to be extensively cultivated.

Manufactures from various metals have, within a few years, increased and improved with great rapidity. Twenty-five years ago, domestic hardware was scarcely known in the New-York market. In 1836, it was ascertained that there had been actually sold within the city, in one year, more than seven millions of dollars value.

The specimens of iron castings brought to the last fair, conferred on the manufacturers the highest credit. The varied and perfect fabrics from malleable iron, (unknown until recently among us,) in an economical point of view, afford great promise.

In the manufactures of wood, particularly household furniture, useful and ornamental, we need not fear a comparison with the workmanship of any country. A few years since, most of our fashionable furniture was imported; our ingenious and skilful mechanics now successfully compete in foreign markets.

We now supply a great proportion of the glass which we consume, and have made profitable shipments abroad. The skill we possess has all been acquired within a few years.—The acquisition of the same skill in other countries, has required centuries.

Our hats and leather are not only sufficient for the home demand, with the exception of small quantities of the latter article for particular uses, but a large amount is also realized from their exportation. There are thousands of other articles worthy of particular notice, and many, perhaps more worthy than some we have named. To show the magnitude of our manufactures, we feel warranted in stating in general terms, that the exports to the south and to foreign countries of all the varieties of our manufactures, (produced in the northern and middle states,) though yet in their infancy, far exceed all our exports of agriculture from the same sections, and constitute our main reliance for meeting the demands continually accruing from abroad. Every thing in the past, promises well to our country for the future. We have only to rely on our own energies and resources.

An annual display, in this great emporium, of our best specimens, is signally calculated to awaken the genius of invention. Accordingly, every exhibition has brought forth some new improvement, till then not known. The multitude of competitors, the vast assemblage of inquisitive and scrutinizing visitors, whose attendance is anticipated by the exhibitors even before they commence making their specimens, the desire and the hope of winning the prizes, create an intensity of emulation among the competitors, that brings into action all their energies, and draws forth all their resources.

There were, at the least, 150,000 visiters entered the garden at the last fair, and about 1800 exhibitors presented themselves. Contributions were received from about 1500; they being all that were deemed worthy of exhibition. Among them were many entirely new; and others, not new, greatly improved. It will be readily seen, when each contributor brought on an average ten to fifteen articles, that even the names would occupy more than the space devoted to an ordinary circular.

The excitement created does not terminate with the fair. A determined purpose, an abiding resolution is made, to persevere, so that the close of one fair is only the signal of preparation for another. It is not within the scope of human invention to devise a plan, for carrying out the noble work of national industry and improvement, more general, pervading, and effectual. The belief that our country required a national institute for the general promotion of industry and the arts, induced tho proposition for a charter, and the city of New-York was selected as the appropriate location. The provisions of the charter were accordingly made to embrace the whole Union. Contributors and visitors, of all occupations and of every state, are therefore invited to join in the celebration.

A formal *resolution* of a large meeting, consisting of most of the distinguished members of the legislature, and others, held at the Capitol in Albany, was unanimously adopted, requesting 'the American Institute to call a convention of silk culturists, and those friendly to their interests during the ensuing fair. We, in conformity to that resolution and in behalf of the institute, hereby give notice that a suitable room will be provided for that purpose, on the evening next succeeding the evening on which the anniversary address is delivered. All who feel an interest in this subject are invited from this and other states. Silk culturists and silk manufacturers are particularly requested to bring forward all their best specimens, and to prepare themselves to give such useful information and explanations as will best promote this new branch of domestic industry. An examination of the best specimens that can be produced, and the interchange of ideas among experienced silk culturists, cannot fail to elicit important information, which, through the convention, may be spread before the public.

The essential prerequisite for the production of silk is already accomplished. Numerical calculation can scarcely keep pace with the multiplication of the mulberry. Should the enthusiasm for its propagation continue, America will soon afford more sustenance for the silkworm than the whole globe beside.

The encouragement given by the presence of such of our fellow-citizens as have been distinguished by high official stations, or for their wisdom or their learning, is most propitious to emulation and improvement. While they confer dignity on the anniversary, they operate as a powerful stimulus to greater and nobler efforts. Much profound reflection will be afforded them by this compressed view of a nation's unparalleled progress in the arts. The effect of minds and hands operating under the genial influences of constitutional liberty, will be impressively illustrated, imparting life and energy and confidence to industry, and awakening and quickening the latent powers of invention and genius.

At each of the eleven preceding fairs, the exhibition rooms have uniformly, at an early hour, been adorned with the delicate and tasteful productions of female ingenuity and skill, and the gaiety, fashion and beauty displayed through the day and evening by the fair visitors, have always been among the strongest attractions of the celebrations. They have shown that our Institute is their favorite institution. It has not been the gay tinsel and the glare of unsubstantial show, or unmeaning curiosity, that have moved them. It is a portion of that diffusive patriotism and pride of country which they have imbibed, and which every real American experiences, from the proud reflection that the triumphant displays are the exclusive products of their own native America.—They are respectfully solicited to honor the Twelfth Annual Fair by a continuance of their exhibitions, and with their accustomed cheering presence and approbation.

At the four last fairs, there were awarded as premiums, one hundred and twenty gold medals; six hundred silver medals; and about fifteen hundred diplomas—solely at the expense of the Institute. The managers do not intend to diminish the appropriations for rewarding merit, whilst the liberality of the public confers the power to bestow them. The determination of the merits of the respective articles entered for competition, will be submitted to competent and disinterested judges. If within the short space allowed for receiving, entering, arranging, and delivering articles, amidst the throngs of exhibitors and visitors, some errors should occur, or some omissions happen, which provoke the vociferations of disappointed expectation and passion, or which inconsiderate wantonness may distort and magnify—still, we trust, a considerate and liberal public will not expect the managers to be diverted from their arduous, engrossing and important duties, to indite contradictions and replies. Twelve years of faithful disinterested devotion to a cause which lies near the heart of every genuine American, have placed the American Institute in a position from which it cannot be expected to descend to repel attacks which have always proved harmless in effect, whatever may have been their design.

Agricultural Geology.

[*From Prof. Jackson's Third Geological Report.*]

Of all the arts, I know of none more likely to be improved by geological examinations, than that of Agriculture; since the composition of soils indicates their fertility, or capabilities of improvement, and the causes of barrenness. The science of geology demonstrates the origin, and distribution of the mineral matters, constituting the basis of all soils, to which they chiefly owe their peculiarities. I know that it is a favorite opinion with many agriculturists, that the mineral constituents of a soil have but little, if any influence on their fertility; and that they suppose the whole secret resides in the presence of certain vegetable or animal matters; but such a theory is at once exploded by an attentive examination of the natural soils, with their peculiar vegetation; for it will be seen that there are regular zones of vegetation, peculiar to each geological district, in which the same vegetable or animal matters are present, but which differ essentially in their mineral constitution. Thus how different is the soil derived from granitic rocks, from that which is formed by the disintegration and decomposition of limestones and slates. How peculiar is the vegetation which follows the great bands of trap rocks, and how remarkable is the growth on the ancient clay loams, of tertiary deposition. Whoever considers the attempts made to raise wheat upon soil totally destitute of lime, will at once appreciate the value of that mineral substance, and its importance in the production of grain. An imperfect or blighted product is sure to follow the planting of this grain upon soils destitute of lime, while it is well known that certain districts, where the soil contains this mineral, are always favored with luxuriant and heavy crops. This is one of the settled points in agriculture, and one which every farmer should duly appreciate, if he wishes to prosper in his art. Indian corn requires but little, if any lime, and hence we see excellent crops of that grain raised upon sandy plains, unsuited to wheat. Rye, likewise, will do pretty well without it, but it is always more full and heavy where it exists in the soil; and by attending to this circumstance, the value of the crop may be greatly improved.

The overlapping of soils, from diluvial causes, is also a point greatly illuminated by a knowledge of geology; and we are able, by means of a good geological map, to predict the nature of a soil in a given district, with as much certainty as we refer back certain rounded and transported stones to their native beds. It is also easy by the geological and topographical features of a country, to predict the nature of the alluvial or intervale soils, which have been washed down from the hills and mountains by brooks, rivers and rain; and such knowledge not only helps us to account for the phenomena in question, but also in the selection of suitable grounds for our various crops.

The situations in which are found substances capable of being used for the amelioration of soils, is also pointed out in a geological survey; and a scientific farmer soon learns to avail himself of the natural resources of the country. We also are able to indicate by the natural growth, the nature of the soil, and to point out to the farmer tracts of country which will form the best settling lands; and by the application of the science of chemistry, we indicate to him the peculiarities of the different kinds of soils, and the modes of renovating those which are deemed to be exhausted.

There are certain tracts, upon which gypsum acts favorably, while on others it does no good; and there are those where liming is required, and others where it is not. Some soils require the introduction of a quantity of vegetable matter, and we show the farmer the cheapest mode of introducing it; others are wanting in certain saline matters, required for peculiar vegetation, and the nature and quantity of such matter required, is indicated by a chemical analysis of the soil. Enormous quantities of valuable materials in manures, are lost by a want of chemical art in preserving them, and still more is wasted by improper application. The causes which effect these results, are well known to chemists and geologists, and by special examinations, the knowledge is applied to particular cases with skill, and with certainty in the result; whereas vast amounts of both time and money are lavished in idle experiments, by those who are unacquainted with the laws of nature.

It is to correct these errors in agriculture, that science, "the handmaid of the arts," comes to our aid, and by learning and following her laws, we soon come to a more perfect knowledge of the subject, and with the lever which she puts in our hands, overthrow all obstacles. Why is it that the noble art of agriculture, holds so low a rank in the opinion of men, if it be not that reason has left the field, and given place to empyricism? If it is ever to be restored to its pristine rank, and a new Eden is to bloom, with its fruitful fields, it must be by bringing the GOD-LIKE attribute of man to the task of renovation. I have always been startled with the gratuitous assumption, that knowledge and reason were not to be the rules of agricultural labor. That any one knows enough to be a farmer, and that the *concentrated experience of the world was not to be put in competition with the narrow circle of individual experience!* Is it indeed so with any other science or art? Or should we not conceive it to be arrant folly for any one to pretend to learn any other business, without availing himself of the knowledge of others? I know that intelligent men make no such gratuitous assumptions; but still there may be many, who are not aware of the application of certain sciences which I mention, to the improvement of this most important of arts, or they may have but a partial glimpse into the arcana of science. Others may have formed an opinion, that since science is confessedly imperfect, that it cannot meet the exigencies of the case, but that innovations upon ancient customs are fraught with danger. To such we may reply, that enough is already known to render the art great service, and that knowledge is marching on with such rapid strides, that we should hasten in our movements, lest all hope of overtaking her should be lost.

I knew a gentleman once, who stated that he was waiting for the science of chemistry to come to a stop, before he engaged in the study. It was then comparatively easy to acquire the mass of information requisite for the comprehension of that science. But now look back to the accumulated knowledge on this subject, which has loaded our shelves with ponderous volumes. Is there now any better opportunity of overcoming the difficulty? So it will shortly be with scientific agriculture. But comparatively few are the records now—but with the new impulse it has received, in a few years it will cause "meek-eyed patience to fold her arms in despair," when contemplating the mass of materials that will be collected for our instruction. "Little by little the bird makes its nest;" and so must we gradually collect the materials of knowledge. Let the young farmer, therefore, be on the alert, and not let the rest of the world get the start of him in his art. Agricultural colleges are required throughout our country, and the time is not far distant when we shall see them in full operation. Analytical chemistry and geology will be among the essential principles of a farmer's education. Botanical knowledge will teach the peculiarities of plants, and their adaptation to peculiar soils; and chemistry will teach us so to modify our soils as to produce such results as are required. In the mean time, a few professional men must take the burthen upon their shoulders, and aid the farmer in his first steps in science. Mutual aid and good fellowship, will make the burthen light, and both parties will profit by their association. The farmer, attached to one spot, has great advantages in obtaining facts, which more fully illustrate the knowledge of that particular district. The facts so obtained, are to be collated and duly explained, so as to become capable of forming general rules or principles, for the guidance of others. Soils remarkable for peculiar vegetation, luxuriant or barren, form subjects of particular interest, capable of explanation by chemical analysis.—The present state and future condition of a soil, can in a certain degree be ascertained by a knowledge of their geological origin, and the nature of the chemical reactions which will take place in it. Advantage may sometimes be taken of defects in soils, to render them the most powerfully beneficial. Thus, in the town of Saco, there is an intervale plain, belonging to Mr. I. Jordan, having several remarkable substances in it, which nothing but a knowledge of geology and chemistry could explain or improve. There is a kind of clay marl, filled with minute and almost invisible particles of pyrites or bi-sulphuret of iron, composed of 54 parts sulphur and 46 of iron. The marl also contains three per cent of carbonate of lime, and the remainder is clay.—When this substance is first dug up, it is without any saline taste, and nearly inert; but upon exposure to the air, it crumbles, and after a while, becomes charged with copperas or sulphate of iron, which is formed by the oxidation of the sulphur and the iron, by atmospheric action. While in its first stages, it acts as a powerful fertilizer, for the sulphuric acid is taken from the iron and combines with the lime, forming gypsum or sulphate of lime, while the oxide of iron is deposited. After a while, the copperas or sulphate of iron, constantly forming, gains the ascendency, and then has powerful corrosive properties, nine or ten per cent of sulphuric acid being produced; and having no lime with which to combine, it attacks the roots of the plants and kills them. (See chemical analysis of this copperas marl.) Thus, as Mr. Jordan happily expressed himself, "it first makes the corn grow, and then eats off its roots and kills it." Certain other plants of the *gramineæ*, are capable of withstanding this substance, if not in great excess; and hence herd's grass, rye and wheat, are not so likely to be destroyed by it, since they are armed with a coat of mail composed of silex, which envelops their whole surface; but all herbaceous or tender plants are cut off by it.

Here, then, we have a defect to remedy, and to turn to our account, and it is an extremely simple case, for we have only to add a sufficiency of lime to the copperas marl to render it one of the most valuable and powerful fertilizers. Thus a compost heap affords us an accessible remedy, and the enemy is soon tamed and made subservient to our will. The origin of this pyritiferous clay is at once explained by geology, which teaches us that it is composed of the fine particles of pyritiferous slate rocks, that have been deposited by water. So also the occurrence of nodules of shot and nut iron ore in it, and the mineral waters which flow from the meadows charged with sulphate of lime, explain themselves by the reaction of carbonate of lime upon sulphate of iron, an exchange of elements taking place in accordance with the well known laws of chemical affinity.

Peat also occurs abundantly in the same meadow, and by a little chemical skill may be converted into an excellent manure, by means of a mixture of lime and a little barn-yard manure or any animal matter. Thus three or four cords of the peat mixed with one cord of animal manure, and treated with a cask or two of slaked lime, will make a compost superior in value to five cords of the best stable manure alone. They ought to be placed in alternating layers, thus:

PEAT,
LIME,
ANIMAL MANURE,
PEAT,
&c.

The whole forming a regular compost heap. The chemical reactions which follow are chiefly thus:—

The lime extricates a large quantity of gaseous ammonia from the animal matter, which is absorbed by and enters into combination with the peat, and is thus retained ready for use in the state of ulmate or geate of ammonia—(a most powerful manure)—and the lime becomes completely carbonated or air slaked by the carbonic acid given out during fermentation, and in this state is a proper and permanent ameliorator of the soil. The peat is converted into a powder and soluble pulp, and becomes more suitable for the nutriment of plants. While if lime and animal matter was used in excess we shall have also a considerable quantity of carbonate of ammonia, in the peat, a well known and powerful saline manure.

In case the soil is sandy, the clay marl, neutralized with lime, is the most proper amendment for it, and such is generally the condition of the fields in Saco, so that by a proper use of this marl, the happiest effects may be realized by the farmers in that town.

I could quote other instances of the kind, but the above fully illustrates my meaning, and will show how favorable an influence scientific knowledge would exert in agriculture, were it more generally appreciated.

The principles which I have laid down, have been adopted by several distinguished farmers of Massachusetts, and their experience most fully corroborates the truth of the theory inculcated.

I need but appeal to the experience of one of our most intelligent farmers in Massachusetts, Elias Phinney, Esq. of Lexington, to demonstrate the correctness of the rules we have laid down, with regard to the use of peat for compost manure, or to the beautiful farm of Benjamin Bussey, Esq. of Jamaica Plain, Roxbury, where similar results have been obtained.

"*Lexington, January* 30, 1839.

"DR. CHARLES T. JACKSON—Dear Sir—I herewith send you a sample of my peat. I am very desirous of availing myself of the benefit to be derived from a chemical analysis of the same, which you kindly offered to make. A more intimate knowledge of the nature and properties of peat, which can be obtained only by a scientific examination of its constituent parts, would enable farmers more justly to appreciate this valuable species of land. It is from a want of this knowledge, that our extensive tracts of low meadow and swamp lands have hitherto been esteemed of little or no value.—Allow me to say, sir, that I know of no way, in which you could render a more essential service to the public, more especially to farmers, than by enabling them to convert their unproductive and unsightly bogs and morasses into luxuriant fields and sources of wealth. I consider my peat grounds by far the most valuable part of my farm; more valuable than my wood lots for fuel, and more than double the value of an equal number of acres of my uplands, for the purpose cultivation.

"In addition to these, they furnish an inexhaustible supply of the most essential ingredient for the manure heap. A statement of the uses, to which I have appropriated peat lands, and my management of them, though very imperfect, may serve to give you a partial conception of their value and uses, and at the same time enable you to see how important it is that the farming community should have more information on this subject.

"In the first place they are valuable for fuel. I have for twenty years past resorted to my peat meadows for fuel.—These, with the prunings of my fruit trees, and the brush from my uncleared lands, have given me my whole supply. The prunings and brush are bound in bundles, and housed, and with the help of a small bundle of these faggots and peat, a quick and durable fire is made. It gives a summer-like atmosphere, and lights a room better than a wood fire. The smoke from peat has no irritating effect upon the eyes, and does not in the slightest degree obstruct respiration, like the smoke of wood; and it has none of that drying, unpleasant effect of a coal fire. The ashes of peat are, to be sure, more abundant, but not more troublesome, and are less injurious to the furniture of a room, than the ashes of coal.

"The best peat is found in meadows, which have for many years been destitute of trees and brush, and well drained, and where the surface has become so dry, and the accumulation of decayed vegetable matter so great, that but little grass or herbage of any description is seen upon the surface. If the meadows are suffered to remain in a wet and miry condition, the wild grasses and coarse herbage will continue to grow, and the peat be of a light and chaffy texture, fixed with undecayed fibrous roots. By draining they become hard, and the peat becomes compact and solid, and the cutting out and carrying off greatly facilitated. A rod square, cut two spittings deep, each spitting of the length of eighteen inches, will give three cords when dried. It may be cut from May to September. If the weather in autumn be very dry, the best time for cutting will be from the middle of August to the middle of September. If cut the latter part of summer, or early in autumn, it dries more gradually, and is not so liable to crack and crumble, as when cut early in summer. The pieces are taken out with an instrument made for the purpose, from two to three inches square; and if of good quality, will shrink about one-half in drying. It is considered a day's work for a man, a boy and a horse, to cut out and spread a rod square. The man cuts it out and lays it upon a light kind of drag, made for the purpose, and it is drawn off by the horse, and spread by the boy as thick as the pieces can lay singly. After becoming dry enough to handle without breaking, it is made into piles, cob-house fashion, of from twelve to twenty pieces in a pile. It will then require about four weeks of dry weather to render it fit to be housed for use. The top, or turf, is thrown back into the pits, from which the peat is taken; and if well levelled, and the ground drained, it will, after the first year, give a large crop of foul meadow, or other lowland grass. Peat, taken from land which has been many years drained, when dried, is nearly as heavy as oak wood, and bears about the same price in the market.

"The value of peat and swamp lands for tillage, is now pretty well known, and acknowledged. Some years since, I occasionally sold to my neighbors a few rods of my peat land, yearly, to be cut out for fuel, at three dollars per rod, being at the rate of four hundred and eighty dollars per acre; but finding this sum to be less than its value for cultivation, especially when laid to grass, I have declined making further sales at that price. I have raised upon my reclaimed meadows, seventy-five bushels of corn, five hundred bushels of potatoes, or from four to five tons of the best hay, at a first and second cutting, to the acre, at a less expense of labor and manure, than would be required to produce half this crop upon uplands. To render these lands productive, they should be thoroughly drained, by digging a ditch around the margin of the meadow, so as to cut off the springs, and receive the water, that is continually flowing in from the surrounding uplands. If the meadow be wide, a ditch through the centre may be necessary, but this will be of no use, without the border ditches. This being thoroughly done, and the surplus water all drawn off, the next step is to exterminate the wild grasses, and herbage of every kind, that grow upon the surface. To effect this, the method heretofore generally, and now by some pursued, is to cover with gravel or sand, top dress with manure, sow the grass seed, and then rake or bush it over. This, for the first year or two, will give a good crop of hay; but after this, I have invariably found that the more coarse and hardy kinds of wild grass would work their way through the sand or gravel, and entirely supplant the cultivated grasses—when the whole must have another covering, or be abandoned as worthless. If to be planted with corn, or any of the root crops, my course has been to turn over the turf or sward with a plough having a wrought iron share or coulter, ground to a sharp edge, in the driest season, say in the month of September, roll down as hard as possible, carry on in the winter a sufficient top dressing of compost, twenty cart loads to the acre, and in the spring plant with corn, or roots, without disturbing the sod. When the corn or roots are taken off, the surface is made smooth with the cultivator, or hoe and harrow, and late in November, or just before the heavy frosts set in, sow with herd's grass and red top seed, half a bushel of the former and one bushel of the latter to the acre. The field is then rolled, which completes the process. If the plough does not turn the sods smooth, it will be necessary to follow it with a bog hoe, to level the uneven places. By keeping the sod undisturbed in the cultivation, a more firm and compact surface is formed, upon which oxen or horses may work generally, without danger of miring. If the land is intended for grass, without the intervention of a hoed crop, the turf is turned over with the plough, as before stated, in August or September, or as early as the surface becomes dry enough to admit the oxen or horses upon it; then follow with the bog-hoe and turn over such parts as the plough has left unturned, make the whole smooth with the hoe, and late in November, spread on a top dressing of compost, not less than twenty cart loads, made half of loam, and half of stable manure, to the acre; then sow the grass seed, and bush, and roll down. If the ground be miry, so as to render the use of the plough impracticable, the bog hoe must be resorted to, and the whole turned over by hand, and top dressed, and seeded to grass, as above stated. The cost of turning over with the hoe, will be twenty dollars per acre, at the usual price of labor. This mode of culture completely subdues the natural wild grasses, and gives a compact and rich surface of vegetable mould, which will give an abundant crop of the best English hay for four or five years, without the aid of more manure. If the sod is disturbed and attempted to be pulverized in the course of the cultivation, the surface, when laid to grass, will be loose and spongy—an extra top dressing of loam and manure will be required, and after all, the surface will not become so compact, nor the produce by any means so great. Should meadows be found too soft and miry to admit of their being ploughed in the summer, or autumn, and the expense of turning with the hoe should be thought to be too great, I would advise ploughing in the spring, when the frost is out to the depth of three or four inches, carting on the manure, and then sowing or planting at a convenient and proper season. The art of reclaiming these low meadows, consists in taking off all the surplus water by judicious draining, and in thoroughly exterminating the natural herbage and grasses. This being effected, we have our rich bottoms, equally as productive as the deep alluvials of the west, and obtained at a cost and sacrifice infinitely less.

"The third particular in which peat lands may be considered valuable to the farmer, consists in furnishing him with a very important ingredient for his compost. Peat is made up principally of decomposed vegetable substances, with a portion of the lighter particles of vegetable mould, washed in from the surrounding highlands. But when taken fresh from the pit, it contains certain antisceptic properties, injurious to vegetation, which must be absorbed, or neutralized, by a combination with other substances, in order to render it food for plants. This may in some measure be effected by exposure to the action of the air and frost. Where the surrounding uplands are composed of gravel or sand, the peat or swamp mud may be called silicious, and is less valuable for manure, especially if the adjacent uplands rise abruptly—when composed principally of clay, the peat is aluminous—this is frequently found resting on beds of marl, and is considered much richer, and more valuable for the compost heap.

"I have annually, for some years past, used on my farm some hundreds of loads of peat mud, which is either thrown into my hog-stye, or mixed with fresh stable dung, or with lime. When mixed with green stable manure, the proportions are two parts of peat mud to one of dung; and I am confident, from repeated experiments, that a load of this compost, well mixed and fermented, will give as great a produce, and a more permanent improvement to the soil, than the same quantity of stable manure. In this opinion, I am not alone. Other accurate and intelligent cultivators, have made similar experiments with similar results.

"The vegetable substances of which peat is composed, having been decomposed in stagnant waters, they have not passed through a putrefactive fermentation, and are therefore supposed to contain much of their natural oils, gums and acids. Peats, in this region, are also supposed to contain portions of sulphate of iron, or copperas, oxide of iron, &c. This opinion is formed from noticing the difference between the effect produced by using the peat mud on grounds, when first taken out of the meadow, and that which is produced after fermentation, with stable manure, or by mixing it with lime. The ashes of peat have little or no perceptible effects, when used alone, but by mixing them with lime, they become a valuable manure.

"That our peat may possess other and different properties, which are in a greater or less degree injurious to plants, is highly probable. These can be detected and remedied only by the aid of science. It is to the agricultural chemist, that the practical farmer must look for a development of his resources, to remove the obstacles which impede his progress, and to impart that information which will give confidence to action, and a successful issue to labor.

"With an earnest desire that you may persevere in your useful labors, I am, dear sir, with the highest respect, your obedient servant, E. PHINNEY."

(To be continued.)

Annual Address.

Before the Kentucky State Agricultural Society—delivered at the Capitol in Frankfort, January 14, 1839, *on the dignity of the profession of agriculture, and the propriety of legislation for its improvement.*

BY COL. C. S. TODD, OF SHELBY.

Gentlemen of the State Agricultural Society—In compliance with the invitation of our worthy President, I appear before you this evening, in behalf of the great interest which sustains every other interest in the community; and relying upon your indulgent feelings towards a cultivator of the soil, entreat you to forget, in the magnitude of the subject, any deficiencies of the advocate.

In entering upon the duty assigned to me, I feel a consciousness of the difficulties which beset my path, arising as well from my own inadequacy to the task, as from the nature of the subject, which is generally considered not to be susceptible of those illustrations and attractions, rendered so interesting in this age of improvement, by the exertions of cultivated intellect applied to the departments of law, physic, moral and political economy. All that I can hope then to effect, will be to lead abler minds to reap laurels in a field in which, as a pioneer, I shall be content if the public mind be directed to the subject.

As the advancement of the cause of agriculture is the exclusive object contemplated in the formation of this society and of the annual meeting on this day, I propose upon this occasion, to examine this subject in two of its most interesting aspects—first, to present to my brother farmers some of the considerations which should lead them to form and act upon a more exalted estimate of the dignity of their profession; and then, to offer some suggestions, which, it is hoped, may have a tendency to stimulate the legislative councils to that encouragement of the cultivation of the soil, which an enlightened forecast deems to be so intimately connected with the public welfare.

In the first place, as to the dignity which belongs to the pursuits of agriculture. The illustrious Franklin, whose eulogy was conveyed in such felicitous language by the eloquent Mirabeau—"*Eripuit cœlo fulmen sceptrumque tyrannis;*" the sage, whose fame shed lustre on the age in which he lived, and who sustained towards his country the envied attitude of mechanic, patriot, stateman and philosopher, has pronounced "agriculture to be the most honorable of all employments, being the most independent. The farmer," says he, "has no need of popular favor, nor of the favor of the great; the success of his crops depending only on the blessing of God upon his honest industry." The occupation of the farmer is not only honorable, as being the first pursuit of man, and as having engaged the attention of the most virtuous and illustrious men in every age, but it is the most honorable for the precise reason stated by Franklin—it is the most independent. The other pursuits of men, in all their diversified forms, depend in a greater or less degree upon the success of those who exert their energies in other avocations—the merchant depends upon the farmer and manufacturer—the mechanic upon the farmer and merchant, and the professional man upon all of them; but Franklin, as well as the experience of ages proclaims, that the farmer is independent of all save "the blessings of God upon his honest industry."

Washington, the father of his country, has declared that "he knew of no pursuit in which more real and important services can be rendered to any country than by improving its agriculture." Socrates, one of the most eminent of the ancient philosophers, says, "agriculture seems to possess an incontestible right to the title of parent and nurse of all other professions;" and the celebrated Vattel, of modern times, whose treatise on the Law of Nations is regarded as the standard of international duty amongst the most enlightened states of the present day, says, "of all the arts, tillage or agriculture is doubtless the most useful and necessary; it is the nursing father of a state; the cultivation of the earth causes it to produce an infinite increase; it forms the surest resource and the most solid fund of rich commerce for the people who enjoy a happy climate."

Agriculture was the first avocation of man, Adam being directed to "dress and keep" the garden of Eden. This was his duty in the days of primeval innocence; and after the fall, he was required to earn his bread by the "sweat of his brow." The first valuable improvements in husbandry were made by Noah, who, though a preacher of righteousness, was called a man of the ground, because of his advancement in agriculture and his invention for subduing and fertilizing the soil. The divine command to the Jews, "break up your fallow ground and sow not among thorns," is applicable to all the nations who live by the cultivation of the soil; and I indulge the hope that there is not a christian farmer in our land, who, while he recognizes the spiritual beauty of the passage which has immediate reference to the cultivation of the heart, does not feel its literal force in calling upon him to adopt all practicable means of improving the soil committed to his care. And here it may not be impertinent to remark, that if the mass of my brother farmers would "indeed break up their fallow ground and sow not among thorns," as well in relation to their husbandry as to the cultivation of their minds, we should not be placed, as a profession, in the rear of other less worthy pursuits.

The descendants of Abraham in Palestine, the Chaldeans, the Egyptians, the ancient Persians, the Phœnicians, the Athenians, and the Romans, including those in the highest offices in each of those nations, manifested the highest regard to the pursuits of agriculture. Hesiod and Xenophon of the Greeks, and Cato, Varro, Virgil, Pliny and Columella, of the Romans, published treatises on the subject—and the greatest improvement was made in agriculture during those periods of the ancient nations, when their institutions approached more nearly to the republican character. Xenophon, one of their historians, remarked that "agriculture is the nursing mother of the arts, for, where it succeeds prosperously, there the arts thrive; but where the earth necessarily lies uncultivated, there the arts are extinct." In the best days of the Roman republic, he was entitled to the highest praise who "best cultivated his spot of ground," and such should be now the tone of public sentiment. Montesquieu has observed that "countries are not cultivated in proportion to their fertility, but to their liberty;" and the conductor of the New-York "Cultivator," who unites in himself, more eminently than any other citizen of the republic, the rare qualities of scientific knowledge and practical experience with a polished pen, lays it down as almost a maxim, that "the mental and moral condition of an agricultural district is in the ratio of its improvement in husbandry."

There is a moral beauty in the sentiment of Franklin, which maintains that the farmer is independent of all, save "the blessing of God upon his honest industry." Those who plough the land, as well as those who plough the sea, are under peculiar obligations to recognize a special and superintending Providence. The farmer has the promise of seed time and harvest; the seasons, the rain, the warmth of the sun, the growth of the soil, and all the operations of nature, admonish him, of the exertions of an Omnipotent energy. In the country he seems to stand in the midst of the grand theatre of God's power, and seeing that the succession of heat and moisture constitutes the sources of production, he is led to feel in the action of the sun and the descent of dew and rain, his obligations to reverence that unsearchable sovereign without whose permission not a "sparrow falls to the ground," nor a blade of grass springs up. The sailor, too, looks through the elements to the great first cause, and the man at sea must be insensible to all the high and holy motives of gratitude, who does not feel his own impotency, not less than a reverential awe of that Supreme Power whom the winds and waves obey.

Ancient and modern poets have dignified the cultivation of the soil by the majesty and melody of their immortal songs. Virgil, the great Roman, has left an imperishable monument of his devotion to the cause of agriculture; and strange as it may seem to some of our modern farmers, some of whom affect not to need any instruction in the science upon whose successful application they depend for support, Virgil gives in his Georgics much of what constitutes the present mode of ameliorating the soil. An interesting extract which may be found in book I, line 79-80, speaks of the Roman practice of saturating the parched soil with rich animal manure, of scattering sordid ashes upon the exhausted lands, and of giving rest to their fields by a rotation of crops; to which if we add the later process of renovating through the introduction of the grasses and the application of marl, we shall have the present improved mode of farming as practised in our own country. Milton, the Homer of modern times, (both of them blind to natural, though touchingly alive to moral beauty) occupied his master mind in delineating the paradise which Adam was directed to "dress and keep;" and Thompson has presented aftertimes with a surpassingly beautiful scene in his autumn, where he introduces among the gleaners of the harvest,

> "The lovely young Lavinia, who once had friends,
> And fortune smiled deceitful on her birth."

A sentiment as descriptive of the benevolence which belonged to the period of harvest as it is illustrative of the career of thousands upon whom the sunshine of prosperity in early life has only dawned to render the gloom of adversity more conspicuous in their declining days.

Ancient and modern patriots have been devoted to the cultivation of the soil. Cincinnatus, Dentatus, and Regulus, La Fayette, Washington, and our own Shelby, are illustrious examples of this interesting fact. They repaired from the plough to the defence of their country, and from the defence of their country returned to the plough; and although they were renowned warriors, we must suppose there was a redeeming spirit in the nature of their avocations as cultivators of the soil, which caused their love of country to be superior to all selfish considerations. Considered in this aspect, their fame will live undimmed in the records of time, whilst the memory of the Cæsars and Alexanders, the Bonapartes and Iturbides will rot, like the "memory of the wicked." Of Cæsar, nothing is left but his accomplished commentaries and his unhallowed ambition. Of Alexander, who shed tears because he had no more worlds to conquer, no monument remains but the city of Alexandria in Egypt, once the pride of the world in its unrivalled library, and when it commanded the commerce of the Mediterranean sea and the Arabian gulf, but now only a scene of magnificent ruin, since the discovery in the 13th century, of a new route to the East Indies by the Cape of Good Hope. In a few years posterity will only speak with approbation of Bonaparte as having left a valuable code of laws for France, and as having established agricultural societies and professorships, and the National garden; whilst the frequent and inexplicable revolutions in former Spanish America will only serve to proclaim the succession of military tyrants, countenanced alone in countries where the system of religion prescribes the rights of conscience as well as the lights of knowledge.

The most distinguished individuals in our country, including nearly all of our Presidents, have delighted in the pursuits of agriculture. Washington, whose career presents the brightest example of true glory recorded in ancient or modern history, was impatient to retreat from the toils of war and the cares of state, to betake himself to the pure and unalloyed joys of rural life. Jefferson, whose fame is identified with the independence of his country, rejoiced in the opportunity of mingling the avocations of the farm with the sweets of polite literature. Madison, whose monument is found in the matchless constitution he contributed to form and which he administered in peace and in war, was always anxious to retire to the mellow pursuits of agriculture, as the most congenial in their influence upon the profound and classic efforts of his unrivalled pen. Monroe, who fought in both wars for the maintenance of his country's independence, and whose career is signalized by association with the purchase of Louisiana and Florida; the heroic Jackson, whose fame will live as long as the waters of the father of rivers roll on to the ocean; our own eloquent Clay, the great unsurpassed of modern statesmen, and our own veteran Harrison, whose patriotic policy founded and whose skilful valor defended the vast North-West—these all have manifested a deep solicitude for the interest of the great cause which we have this day convened to promote.

To descend to our own history as the first republic in the wilderness of the great west, we have many noble examples of our most distinguished citizens devoting themselves to the pursuits of agriculture. At an early period, Shelby, Nicholas and Breckenridge were conspicuous in their efforts to advance this great object. The first, renowned in the war of the revolution, and in the early as well as the after history of the state; the two latter, his equals in vigorous intellect and patriotic devotion, whilst they were scarcely excelled in the whole Union in their enlightened advocacy of the principles of constitutional law. In our own day we find the whole community in its civil, political and religious character, coming up to mingle its tears with ours over the graves of the lamented Garrard and Green, who, after signalizing their valor in the North-West, considered it their proudest claim to distinction in devoting their strong minds and patriotic hearts to the great cause of agriculture. And passing from our own country and our own age, we may refer to the fact which is exhibited in bold relief in the history of every nation claiming to be civilized, that men of every profession, in all ages, have contemplated at some period of their career, to retire to the repose to be found only in the pleasures of rural life. The statesman, the civilian, the philosopher, the physician, the merchant, the handicraft tradesman, the county court pettifogger, the village constable and the heartless usurer, all fix in their minds some future day in which they hope to realize what their imaginations have depicted of the joys of retirement in the country.

As a further illustration of the value which highly gifted men have attached to the pursuits of agriculture, I venture to introduce an extract from the essays of Dr. Johnson, who stands at the head of British literature. It is allowed that "vocations and employments of vast dignity are of the most apparent use; that the meanest artisan or manufacturer contributes more to the accommodation of life, than the profound scholar and argumentative theorist; and that the public would suffer less present inconvenience from the banishment of philosophers than from the extinction of any common trade."

"Some have been so forcibly struck with this observation that they have, in the first warmth of their discovery, thought it reasonable to alter the common distribution of dignity, and venture to condemn mankind of universal ingratitude; and what labor can be more useful than that which procures to families and communities those necessaries which supply the wants of nature, or those conveniences by which ease, security and elegance are conferred."

"This is one of the innumerable theories which the first attempt to reduce them into practice certainly destroys. If we estimate dignity by immediate usefulness, agriculture is undoubtedly the first and noblest science; yet we see the plough driven, the clod broken, the manure spread, the seeds scattered and the harvest reaped, by men, whom those that feed upon their industry, will never be persuaded to admit into the same rank with heroes or sages; and who, after all their confessions which truth may extort in favor of their occupation, must be content to fill up the lowest class in the commonwealth, to form the base of the pyramid of subordination and lie buried in obscurity themselves, while they support all that is splendid, conspicuous or exalted."

Peerless woman, in all her high and holy influences, has contributed to give dignity to the pursuits of agriculture.—Throughout the succession of time in all civilized nations, she has been man's solace in every condition of life, and to no class of men more eminently than to the cultivators of the soil. It is in the domestic circle of the farmer, that woman shines in all her glory, guiding the distaff, or leading lisping infancy in prayer. But it is not to the farmer alone, that she is the richest of all temporal blessings—her hand is ever open as day to melting charity—her approbation gives rapture to the statesman and the philosopher—her love animates the warrior on the field of battle—her heart is often an altar dedicated to the service of the living God, and her bosom is as the balm of Gilead to the wounded spirit in the hour of trouble.

But if the testimony of men of science and of patriots in all ages fails to recommends the pursuits of agriculture to our favorable consideration, there is intrinsic merit in the profession itself to command our unqualified regard. It is the nursery of patriotism, of wealth and of strength to the state. All writers on political economy speak of the farmer as the "productive class," and all others as the "unproductive classes," and whilst he is creating materials, nearly all other occupations are employed on pre-existing materials. If these views of the general value of the agricultural interest be acknowledged, how much more impressive will they be regarded in reference to our own state, where the products of the soil enter so pre-eminently into the sources of her prosperity. We are in a latitude so peculiarly blessed as to unite the growths which belong to a northern and a southern climate. The tobacco of the south is found by the side of the hemp of the north, and the grass of the north grows luxuriantly by the side of the corn which flourished best in the south. This happy concurrence of climate meets upon a soil of unparalleled fertility and of irrepressible energy; presenting just the undulations in surface which protects it alike from baking or of washing in the cultivation. The corn and grass of this rich region contribute, in the character of provisions and live stock, mainly to the supply of the cotton planter of the south, who, in his turn, supplies the raw material to the manufacturer of the north, who, in his turn, with the merchant and the seaman taking it to market, is fed chiefly by the products of our soil; so that in the circuitous operations of labor and of commerce, Kentucky with the other states of the west, feeds all the operatives of the north and of the south. How dignified, then, should be the pursuit, and how controlling the interest which effects these high objects. But with a soil and climate so inviting, we do not realize from our lands half the product which is found in the northern states, where the cold soil and rock surface is made to yield to the influence of scientific labor; and without a prospect of improvement in the character of our husbandry, we are in danger of being exposed to the remarks of Solomon, in regard to the slovenly farmer. "I went by the field of the slothful, and lo it was all grown over with thorns, and nettles covered the face thereof, and the stone wall was broken down." May we not, however, hope that a better day is dawning upon us in all that relates to the means by which the physical as well as intellectual resources of our country may be developed, and that in view of all the considerations which have been addressed to the pride of the farmer, he may be led to aim at a standard better calculated to elevate him in public regard?

In contemplating the causes which in our own country have led to the low estimate heretofore placed upon the pursuits of agriculture, we cannot fail to ascribe the principal agency to the disrepute in which manual labor is held by those who have been educated for the so called learned professions. Even the merchant considers himself as occupying a higher grade in society, although he is but the *teamster* who is employed in transporting and exchanging the surplus products of the farmer, who creates the raw material, and in bartering the articles of the mechanic and manufacturer who exerts his labor in preparing the raw material for the market. The standard of the farming character suffers injury from the common opinion which attaches to his profession, the want of any intellectual culture or any refinement in manners; and although we may deplore and condemn this unworthy prejudice towards the employment which is intrinsically the most respectable, we have reason to confess that too large a portion of those engaged in the cultivation of the soil seem by their conduct to attach little importance to these requisites of character. If as a profession we do not occupy in the community, the attitude of intelligent farmers and accomplished citizens, we have to ascribe the result, in a great degree, to our neglect of the means which would elevate us in society. We have, heretofore, discarded all connexion between science and art as applied to agriculture, and by the neglect of general education, have allowed other professions to assume and to occupy the position to which we are entitled. We have disregarded even the proper measures for training our sons to the exercise of their most exalted privileges as citizens; and to the apathy and ignorance of farmers, in reference to the fundamental principles of public policy, we may trace most of the political disorders in the state. It is often said when a young man is supposed to be too dull for what are called the learned professions, that he is *then fit for the plough*. Be it our high aim to establish the converse of this proposition; and were the standard of intelligence among farmers as elevated as their employment is honorable, the day may not be distant when the youth who should be found to want the intelligence and energy necessary to make him a successful farmer, will then be pronounced fit only for seeking his fortunes in some one of the "unproductive"—less dignified—learned professions. With this high object constantly in view, and by the adoption of the means which will be adverted to in the further discussion of the subject, the cultivator of the soil may hope to resume the proud attitude which the nature of his profession as well as the approbation of ages has assigned to him.

In attempting to examine the subject with a view to legislative encouragement, I find myself surrounded by a multitude of imposing facts in our own history and in that of other nations in relation to this great interest, all calculated to deepen conviction as to the necessity of arousing the apathy of farmers, of vindicating the dignity of their profession, and of guiding public sentiment to an appreciation of the fundamental cause of national prosperity.—*(To be continued.)*

Circular on Common School Education.

To his Excellency the Governor of   and the members of the Legislature of that State.

Fellow Citizens—"At the ninth annual meeting of the American Lyceum, held in the city of New-York, on the 3d, 4th and 6th of May 1839, the following resolutions, proposed by Professor Brooks of Massachusetts, were maturely considered and unanimously adopted: viz.

"*Resolved*, That it is expedient to hold a National Convention for one week in the "Hall of Independence" at Philadelphia, beginning on the 22d of November next at 10 o'clock A. M. for the purpose of discussing the various topics connected with elementary education in the United States.

"*Resolved*, That a committee of five be appointed to request the Governor (and, if in session, the Legislature) of each state in the Union to invite the friends of education in their state to attend the convention." (*Copy of records.*

The undersigned, having been appointed to form the committee, do now in obedience to their instructions respectfully address you on this paramount subject.

The American Lyceum, in taking measures to carry into effect the above resolutions, expresses its deep anxiety for the proper physical, intellectual and moral culture of every child in the United States. It is ascertained that as many as nineteen out of twenty children, who receive instruction, receive it in the common schools. These schools therefore must be with us the hope of civilization, liberty and virtue. To elevate them so as to meet the wants of our republic is the high and single aim of the convention. Parties in politics and sects in religion will not for a moment be recognized in any form. No power will be vested in the Assembly. It will be, we trust, a company of philanthropists, patriots and christians, coming together in the spirit of an expansive benevolence, to consult for the highest good of the rising generation; and whose deliberations and results, when published to the country, will bring the great cause of education simultaneously before the several states in a form for enlightened, definite and successful action. As subservient to this humane and patriotic object, we would suggest a few among the many topics which will demand the consideration of the meeting: viz:

How many children are there in each state, who, according to the laws of that state, should be under instruction?—How many of this number are found in the schools? What is the condition of the common schools in each state? What is the organization of the school system? What branches of knowledge should be taught in our common schools? What should be the character of our common school books? How may school apparatus and school libraries be made most useful? In what branches should instruction be given orally, and in what degree? What should be the qualifications of teachers? Are normal schools (or seminaries for the preparation of teachers) desirable? On what plan should they be established? Is a central normal school for the Union desirable? Should it be under the direction of Congress or a society of citizens? What connection should the common schools have with academies, colleges and universities? What models for school-houses are best? Will a "Board of Education," established by each state, afford the best supervision and secure the highest improvement of the schools? How can itinerant teachers and lecturers best supply destitute places? Is a national system of instruction desirable? How should a school-fund be applied? In what part of each state has the greatest progress been made in elementary education? How may school statistics, which must be the basis of legislation, be most easily collected? What features of the systems now in operation in Holland, Germany, Prussia, France and Great Britain, may be most usefully adopted in this country?

Fellow Citizens—The discussion of these and kindred topics will probably elicit a mass of information the importance of which cannot be easily overstated. We would therefore urge those, who shall attend the convention, to come prepared for making known the valuable facts they can gather.—Believing that all the talent of a country should be so tempted forth, by judicious culture, as to bring it into profitable and harmonious action; that it is important to the public good as well as to private happiness that we should receive the requisite supply of useful information; and that each faculty which the Creator has implanted in childhood should be developed in its natural order, proper time and due proportion, we invite you to secure the attendance of delegates from your state prepared to promote this first duty of our republic—*the education of our youth*. Believing that our country must look to intelligence as its defence, and to virtue as its life-blood; and that the plan now proposed, originating in the most enlightened views of freedom and humanity, will be the first in a series of means for securing the greatest good to future generations, not only among us, but to our sister republics, the Lyceum desires to bring into a focus all the light which can be collected in our land. Some of the most distinguished gentlemen in several states have promised to be present; and we would suggest the expediency of inviting the members of Congress (who will be on their way to Washington about the time of the meeting) to join the convention.

With the most heartfelt good wishes for the success of every effort for the benefit of the young, both in your state and throughout the Union, we are your friends and fellow citizens,

THEODORE FRELINGHUYSEN, of New-Jersey.
CHARLES BROOKS, of Massachusetts.
JOHN GRISCOM, of Pennsylvania.
HENRY R. SCHOOLCRAFT, of Michigan.
THEODORE DWIGHT JUN. of New-York.

New-York, June 1839.

P. S. We respectfully invite each editor of a newspaper in the United States to give his patrons the opportunity of reading the above circular; and to add this postcript as recording our sincerest thanks for his friendly co-operation.

On the use of Lime.

Bloomsbury Plains, Somerset Co. July 16th, 1839.

Dear Sir—According to your request I will give you my experience on the use of lime. I will first describe the soil of my farm, which is a mixture of clay and a fine calcareous looking sand, with a yellow clay bottom. In 1837 I purchased 200 bushels of slaked stone lime, at 12 cts. per bushel; as it was the first I ever used I was determined to give it a fair trial, and to ascertain its true value. I walked out to my field and laid off one acre of poor worn out land, which did not produce more than 1½ barrels[*] of corn to the acre, and a large part of that hardly saleable. In October I put on 50 bushels of stone lime to the acre, with a tolerable covering of coarse grass, and ploughed it under and let it lie until the next April; then cross-ploughed and planted it in corn: the ground appeared very mellow, and I could see a considerable difference in the color. At the period of harvesting my corn I was anxious to know the result—I gathered the corn and measured it up; the result was 4 barrels of corn to the acre, or 20 bushels of sound corn, weighing 59½ pounds per bushel. I then set down to make a calculation to see what profit I derived from my lime. It is as follows:

20 bushels corn at 75 cts....................		$15 00
Fodder worth..........		3 00
		$18 00
Cost of 50 bushels lime, at 12 cts......	$6 00	
Hauling...............................	1 00	
		7 00
		$11 00
What it produced before liming:—7½ bushels corn at 75 cts.—fodder $1.50, ...		7 12½
Clear profit,...........		$3 87½

And *leaving my land worth three times as much as it was before the application of lime*. Well, I had 150 bushels left—I put it into a compost with barn-yard manure, such as pine tops and straw litter from cattle—In the spring manured with my compost in the hill, which acted admirably, equal to stable manure. I have tried the lime on almost a bald surface, and I could perceive scarcely any benefit. I think it will not act well without some vegetable matter. My opinion is, that it acts as a stimulus, and rectifies the unproductive properties of the soil. I tried oyster shell lime—I took a piece of ground I thought would produce about 2½ barrels, and applied 100 bushels oyster shell lime with some coarse manure. I did not measure the corn, as I was hurried, but thought it would gather 70 bushels per acre. I will leave you to describe the present crop, as you were an eye-witness to it. Yours respectfully, MATTHIAS B. TOADVINE.

Facts for Farmers.

[*From the Boston Cultivator.*]

It is a fact that some cows will make three times as much butter as others of the same size and with the same keeping. It is a fact that some breeds of swine will make a ton of pork out of half the keeping which is required for other breeds.

It is a fact that some ploughs require twice as much team as others and yet do not perform the work so well. It is a fact that some farms of fifty acres produce more than some other farms of one hundred acres.

Is it not worth our while to make inquiry into the causes of these differences and to devise a mode of equalization; And first, as to our breeds of cattle. We will make no over statements. We know there is abundance of testimony that we have native cows which will make more than fourteen pounds of butter per week each, and we all know we have a great number of cows that will not make five pounds each. With these facts staring us in the face shall we not cast out those that will not pay the expense of keeping and introduce better breeds?

We would not be understood as making comparison with any foreign breeds of cattle. Those who prefer them may make the trial, and may improve by crossings; but we would improve our native breeds and select the very best. There can be no doubt of the practicability of producing a herd from our native stock that shall in a very few generations be sure to prove of the true blood of the ancestors. We have yet made no trial in this country, but knowing what has been done elsewhere, we can now proceed with confidence, having our path lighted by lamps that have gone before.

The course of commerce between Massachusetts and the interior has for many years been unfavorable to the improvement of our neat stock and of our swine. In the vicinity of our cities we have found it more profitable to slay all and eat all our young neats, at an early age, than to rear them; while in the interior, where keeping was cheap and there was no market for veal, the whole progeny of the neat cattle has been reared without the least regard to symmetry of form or promise of excllence. All must perceive that by proceeding in this manner we can make no improvement in our stock.

But a better era begins to dawn upon us; for since it is found that the most excellent of our own cows will command a price bearing some proportion to the good qualities of the animal, the best will be snatched from the butcher and reared; and inferior animals from the interior will bring only such prices as may justify their purchase for beef. The whole tendency of the operation will be in favor of selections, both here and in the interior, of the best animals for rearing.

But we hope and trust we shall not be content with this slow mode of approximating to a perfect breed of neat stock. Since farmers are becoming convinced of the superiority of the best of our native stock over the poorest, they will lend their aid to those who shall begin in earnest to rear only from the best animals.

We are fully satisfied that no branch of farming could be pursued to greater profit, even within a few miles of Boston, than that of rearing the best of neat stock that can be selected from our native breeds, and we are pleased that one gentleman at least in the neighborhood of Boston is determined to prove what may be done by crosses of our very best native cows with an English bull of the Ayreshire breed which is of fine form and was not selected for his great size but for his good qualities.

We sincerely hope others will be induced to imitate his example, so far at least as a selection of our best native stock is concerned—and that not only the females but the best males will be selected and kept from other herds until we can be supplied with an improved breed that shall rival the best that has ever been reared.

By breeding from the very best males and females only, we may be quite certain in a short time to raise up a perfect stock. We well know "a good cow may have a bad calf," but ten good cows with a male of the right breed will have eight or nine good calves, and the descendents of these will be more likely to be of the true breed, and so on; the farther we progress the more sure we may be of a correct result.

And what an acquisition to the farmer and to the community to possess herds that will give us thrice the milk which our present stock supplies.

The average expense of keeping a cow on hay and grass in the vicinity of Boston for a number of years past may be stated at not less than thirty dollars each. The average value of her milk made into butter may be 140 weight, or seven pounds per week for twenty weeks,—or at nine quarts per day, 9 times 140 equals 1260 quarts, and this at four cents per quart equals $50.40. Thus the butter to equal the milk should bring thirty-six cents per pound.

We have yet counted but twenty weeks milking, but with good keeping cows should be milked not less than forty weeks, and if turnips and grain are fed out the last twenty weeks will give half as much as the first twenty. The produce in milk might then be worth $75.00—in butter, at the common market price, it would be one third-less, though the nicest premium butter has often brought more than this milk would amount to.

We think it quite feasible to rear cows that will give double this quantity of milk or butter, and how valuable must be such stock?

Beet Sugar.

[*From the New-England Farmer.*]

We perceive by a recent number, that our neighbor the publisher of the Yankee Farmer, proposes forming an association for the purpose of ascertaining the practicability and advantages, if any, of the manufacture of sugar from beets in this country, by the latest and most improved methods.—Especially, he is desirous of determining whether it can be so managed, as has been represented, that every farmer's family in the country may by a simple household practice, supply their own wants. We most heartily wish him all possible success. How far the calculations which he has given to the public in relation to this matter, are to be relied on, we are not able to say. But the funds asked for are a small affair compared with the importance of the object in view; and, divided as they will be, cannot fall heavily, even if the project should fail. But success is highly probable.

The sugar beet is beginning to be much cultivated in various parts of the state. We have seen considerable fields of it in many places: and trials of it as feed for cattle and swine have served to bring it into favor. A company is prosecuting the cultivation of it, as we have been informed, to a large extent in Michigan, with a view to the manufacture of sugar.

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[*] Seven and a half bushels.

One spirited individual has informed us that he has one hundred acres in that state devoted to sugar beet. The present year, therefore, will probably decide what can be done.

There are facts in regard to it, now existing in France, which we find it difficult to reconcile to statements which are constantly made in respect to the manufacture in that country. The first is, why if the cultivation and manufacture are as profitable in that country as is represented, they require so heavy a duty upon colonial sugar in order to protect the manufacture of beet sugar. The second is, why if the new methods recently discovered are successful, and by them the sugar can be produced at a low rate, they are not at once adopted, and the government protection rendered unnecessary. An intelligent gentleman, sent out by the Northampton Beet Sugar Company, for the express purpose of obtaining all necessary information in relation to the matter, informed us that Shutzenbach's method upon trial in France was not approved. Fleischman in his interesting report to Congress on this subject, states the discovery of a method of extracting the sugar from the beet, by which a considerably larger amount of sugar was obtained than by Shutzenbach's method, at a less expense, and in a way which would place the manufacture within the reach of every farmer's family in the country. It is now full time that we should have received the results of experiments made by this method. Probably they have been made and others are in possession of the results. We have not been so fortunate. Shutzenbach's method, as we have been informed by persons who were not proprietors in the concern, has been tried at Northampton with success. We have seen a sample of the sugar made there, which promises well; but can give no particulars.—More than a year since, we mentioned the discovery of a method of extracting and manufacturing the sugar, by a gentleman at Stoneham, in the vicinity of Boston, which promised the advantages of general practicableness, small expense and a large per centage of sugar from the amount of product. We saw the sliced and dried beets; the mode of obtaining the syrup; the chrystallization of the syrup, and the sugar perfected, but not refined—certainly a beautiful article. For the amount which could be obtained from the beet by this process, and which was represented to be from eight to ten per cent, and for the expense required in the extraction and manufacture, we relied upon the testimony of the operator, whose integrity is beyond a question. We deemed it a most important discovery, and after a patent for the manufacture had been obtained, we had great pleasure in announcing it. We thought the vessel had not only entered the harbor but actually reached the wharf; and were quite disposed to throw up our hat with the farmers and give three cheers. But it seems to have been a phantom ship or a sort of "flying Dutchman," for we have not been able to obtain a word further on the subject.

The matter deserves all the attention which any among us seem disposed to give to it; and we wish our neighbor all the beet sugar he can need in his tea and coffee the rest of his life, sweet creature as he must become, if his useful project should prove successful. H. C.

Red Giant Goliah Rhubarb.*

In the market gardens around London, a large species of rhubarb is extensively cultivated, with which the various excellent markets of the metropolis are well supplied; but beyond the range of a few miles, the particular kind to which we would direct the attention of our farming friends, is comparatively little known—the generality of country gardens being disgraced with a root or two of dock-like plants, with stalks no thicker than a finger, fibres like a whip-cord, and a flavor!—Uh! No wonder so few persons, *thus possessed*, should like rhubarb tarts! No wonder they disguise the taste with shrivelled apples just going out of season, or gooseberries just coming in! The noble plant which we would recommend to every living being who owns a patch of garden ground, is as superior to the old fashioned nauseous plant just mentioned, as our cultivated celery is superior to the rank wild weed of the same name growing by muddy ditches. One would be led to suppose, that, from the rarity of the giant rhubarb, it was difficult of cultivation, tender and troublesome to manage; whereas it is as easily propagated as any other perennial vegetable; is so hardy that no degree of frost which we have ever experienced, will injure it; and of all esculents for pies and puddings, it is the most readily prepared. It is so prolific that half a dozen roots would keep a small family constantly supplied, during four months of the year; that is, from the beginning or middle of April, (according to the forwardness or backwardness of the season,) until the beginning or middle of August. We have known instances of this, *fruit* must we style it? being preferred to all others for the purpose of pastry, throughout the summer, even where fruits of every kind abound. We have known stalks of the Red Goliah Rhubarb to measure six inches in circumference and nearly two feet in length, so that only one of them has been required for a pudding: so delicate and soft, too, is its texture, that as soon as it arrives at the boiling point, it becomes a fine pulp, and is already sufficiently cooked. As a garden production for culinary purposes, it is certainly invaluable—being in perfection precisely at that season when apples become tough and scarce, and before gooseberries have made their appearance. Its flavor is so delicate, that it ought not to be mixed with any other ingredient than sugar; and on no account should it ever be peeled.

The Red Goliah Rhubarb may be propagated either by sowing the seeds or purchasing young roots of one year's growth, and planting them during the spring months in a good rich soil. In the former case, that is, if the seeds be sown, they are to be transplanted in a few weeks, and in the following year their stalks will be large enough to pull. If roots be obtained and planted in March, the plot will be available in a month or six weeks. No further care is requisite than to manure the bed in the autumn after the leaves have decayed. To those who are unaccustomed to the plant which is the subject of our eulogium, it may be as well to mention, that the stalks should never be cut from the bed, but wrenched sideways with a sudden twist, when the whole stalk comes away at its junction with the root—round, flat, clear, and white as milk.

As soon as the growth becomes vigorous, each root sends up a flower stalk, which will readily be distinguished from the leaf stalks; these must be pulled away, and only one left (if it be intended to procure seed,) and this plant should be less used than the others, if at all, during the season. The leaves are enormous; we have measured many that have been four feet long and three and a half wide. The roots, too, are gigantic—so large that, in the course of three or four years, a single root, when digged up, would fill a wheelbarrow: hence the plants require a wide space—say five feet apart every way.—*Edinburgh Quarterly Journal of Agriculture.*

London Lactaries.

To those unacquainted with this vast metropolis, and the almost incalculable amount of supplies the number of its inhabitants must necessarily require, the article of milk must appear not the least striking.

The writer of this little notice—an invalid, spending an interval in the vicinity—is enabled to give the following description of Laycock's Dairy at Islington.

The lactary covers a space of sixteen acres, including the layers, grain-pits, rick-yards, &c. &c. It contains nine cow-houses, each about one hundred and forty feet in length, by twenty-four feet broad, either of these contains sixty-four cows, thirty two on a side. There are also fatting-pens, and an infirmary for such of them as may happen to require temporary separation; these instances, however, considering the great number kept, and the artificial mode of treatment, are but rare, the writer being assured by the resident veterinary surgeon, Mr. Stavley, to whose politeness the former is indebted for his information, that nearly the *only* inconvenience felt is, that arising from lameness. The animals, all of the finest description, are constantly kept in their houses both day and night, in the summer season only being turned out for a few hours daily into the layers. Cows are rarely kept here longer than twelve months, during which period they are regularly milked, and what may appear extraordinary to those ignorant of the management, the process of fatting goes on with the milking; so that by the time they become what is termed "dry," most of them are fit for Smithfield, and but few of the number (six hundred constantly kept) require "stalling" after the period of milking is at an end.

The writer has viewed several in an extraordinarily high state of condition, (almost fit for a Christmas show) at the time the Cambrian and Hibernian women were sitting upon their stools, each exercising with inconceivable volubility her vernacular tongue, and "filling her milking pail."

This number affords twelve hundred gallons of milk per diem, upon the average; it is taken away at an early hour of the morning and afternoon by the venders, who purchase here to retail in the metropolis.

The average worth of each cow is about 18*l.* which, assuming the number kept always to average six hundred (the minimum rather than otherwise) gives a capital of 10,900*l.* always afloat to stock this stupendous dairy with cows only.

Their feed consists of grains, mangold wurzel, the Swedish turnip (the latter for fatting), and hay; at the rate of

1 bushel of grains,
56 lbs. of mangold wurzel, or turnip,
12 lbs. of hay,

to each; or

600 bushels of grains,
15 tons of wurzel and turnip,
3 6-28 tons of hay,

per day, to the total number.

The quantity of butter made here is, for an obvious reason small; and rarely exceeds 100 lbs. per week.

The number of pigs kept here is about 400; some bred, others bought in, but all fatted here.

Forty horses are always required, and constantly employed upon the dairy.

The layers are capable of receiving 1,600 head of fat cattle, exclusive of sheep; and the average number for Smithfield market, resting here weekly, is 800; the charge of layerage being 3d. per head, and fodder at the rate of 3s. per 56 lbs. or truss.

Such is *one* of the London Lactaries—there are many of them, some of larger, several of equal, and a few of inferior extent.

From this brief description of one, however, some idea may be formed of the consumption of this nutritious article of our food, but which, nevertheless, forms so inconsiderable a portion of it, called milk. J. R.

The Danger of Fashion.

I think that a slight examination will convince any one that the present fashions and modes of dress are far more injurious to health than any other cause whatever. The human system, when fully developed, and healthy in all its parts, is a highly complicated and most beautiful fabric; composed of a number of distinct organs, each acting in the most perfect harmony with every other; and each performing its own separate and independent function with a nicety and precision which no art can imitate. The lungs, for instance, are formed by nature with a capacity just sufficient to admit the requisite quantity of air for purifying the blood and no more. Hence, if the chest is contracted, and the lungs in any degree compressed, the blood is not sufficiently purified, and unless the compression is speedily removed, ill health, nervousness, &c. is invariably the necessary consequence. And the same may be said of every other important organ. How, then, can a mother expect her daughter to grow up in health and vigor, when before she has passed the tender age of seven, she is *corsetted* and placed in a snug dress for the avowed purpose of making her "grow trim and of a beautiful form." Is it not apparent to every observer that by these means the chest is trammelled in all its movements—the lungs thereby prevented from their natural degree of expansion, and consequently the blood is imperfectly purified; the heart, too, is unduly compressed, the stomach crowded downward, and the muscles of the chest and back prevented from becoming fully developed? Now the consequence of all this is, that in a few years the skin becomes sallow; the heart palpitates, there are frequent congestions of the lungs; dizziness, and perhaps pain in the head; frequent pains in the back and side; general debility and nervousness; and perhaps more or less distortion of the spine, the very thing above all others which the kind mother wishes to avoid. But the mandates of fashion are irrevocable, and consequently the same mode of dress is persisted in. Now the doctor is called, and a course of medicine endured; then a few weeks or months at Saratoga, or peradventure a trip to the south. She returns perhaps partially restored; marries, lingers a few years as a mother, and then sinks into an early grave—leaving a few feeble and delicate children to the cold charities of the world. Dear reader, have you never beheld a case of this kind? Alas, it is but the brief history of too many. Indeed, how can a young lady expect to receive any benefit from exercise while her arms are bound down, and her waist contracted by means of corsets, belts, &c. in such a manner as totally to prevent all natural action of the muscles of the chest and back? She may indeed walk, but it will only serve to throw the blood with more force into the already compressed and engorged lungs, and thus increase the nervousness, palpitations, exhaustions, &c. Let me not, however, be understood as undervaluing proper exercise, for I am only endeavoring to show that attempts at exercise, while the body is restrained in all natural movements is a mockery, and worse than useless. Neither would I confine my remarks to the females alone; for I have found that many young gentlemen, especially in our cities and villages, make their vests, &c. answer precisely the same purpose as the ladies' corsets and belts.—*Christian Advocate.*

Beet Sugar.

The editor of the Yankee Farmer is drawing the attention of the public to the importance of introducing into this country the manufacture of sugar from the beet, and contemplates visiting France, if he receives sufficient aid from those who feel an interest in the matter (of which, from a recent statement, there seems to be a probability will be accorded him,) in order that he may more fully be enabled to make an experiment that will demonstrate its practicability, by the introduction of a new process recently adopted in France, by which 180 lbs. of white refined sugar is obtained from a ton of beets—2000 bushels is 60 tons, and the product of 60 tons will be 10,000 lbs. of sugar. The editor makes the following calculations as to the expected result of the experiment on the data here given.

10,000 lbs. white sugar worth at least 12 cts.	$1,200
6 tons pomace, ...	30
Machinery and fixtures, ...	300
Premium from Massachusetts State Agricultural and other societies, ...	200
Massachusetts state bounty, ...	300
	$2,030

The editor has no doubt of the entire success of the experiment, and gives a statement from the report of the "*Societie d' Encouragement,*" from which it appears that farmers in France make sugar for 4 cents per lb. and that two young men, who invested 500 francs in the business, manufactured 100 lbs. white refined sugar daily, worth in that market 16 cts. a pound, and estimate the cost of their sugar to them as follows:

One ton of beets, ...	$3 20
Cost of cutting, drying, and extracting the sugar, ..	4 00
Total cost for 180 lbs. of sugar, ...	$7 20

—*American Farmer.*

Hoeing Corn late will frequently protect it from frost.

Mr. Editor—If an individual has, by a simple experiment, or long experience, discovered any thing of practical utility, calculated to benefit his fellow men, and the community, I hold that it is his bounden duty, as well as his privilege to communicate such facts, that others may participate with him in the blessing; and more especially when such knowledge can be imparted and not operate in the least prejudicial to himself.

I have been a cultivator of the soil from my youth, and for thirty years never failed in a crop of ripe corn.

My method has been, when, in the fall there are indications of frost and my corn in danger of not being ripe, I muster my hands and commence stirring the earth about one inch deep, with our hoes, having learned that stirring the ground, and loosening its surface, would more readily cause it to absorb the rays of the sun, and produce more heat than it would if it had not been disturbed.

I once had a piece of corn, about three acres nearly surrounded with woods, and much exposed to the frost. Before it was ripe there was every appearance of frost, and I commenced hoeing it. The sun shone clearly upon that and the following day, and the night succeeding there was a very severe frost. Early the next morning, I started out to examine its effects upon my corn, the fields and fences were white, and as I went through my neighbor's corn I found it stiff and consequently dead. I entered my field and although frost carried every thing immediately around it, my corn was not in the least injured, but was covered with a heavy dew. I obtained a good crop, while my neighbor's was entirely cut off.

If you consider the above worth a place in your paper you may publish it. I. L.

West Hallowell, June 24, 1839—*Maine Cul.*

This *is* "worth a place," and there is practical philosophy for the reason of it. Stirring the earth opens the pores; the consequence is, a greater collection of moisture upon the plants, which withstands frost.—*Ed. Cul.*

Infant Schools of Agriculture and Horticulture in France.

An establishment has lately been formed in the department of Gard, for giving practical lessons in horticulture and agriculture to children. Full success has attended the attempt, and the example is about to be followed in other quarters.—Two acres of empty land were divided into nursery, corn land, flower gardens and kitchen gardens. All the inhabitants of the neighborhood assist in conveying instruction to the children, or in smoothing their progress. A regular instructor is appointed, who gives lessons on gardening, in which he is aided by the cultivators who live near. The

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* This valuable plant was introduced into the Albany Nursery four years ago. Twelve stalks, shown at the late Horticultural Exhibition, weighed 12¼ lbs. It *is* the best fruit for pies. It is perennial, hardy, and, on rich ground, is as certain a crop as horse radish.—*Cond.*

Mayor and the Curé employ their influence in putting aside such obstacles as prejudice or long established custom might throw in their way. The forest ranger is useful in pointing out the exact state of the laws respecting trees, and the proprietors of land supply seed, corn and flowers. Half of the produce is given up to the instructor, a portion of the other half is distributed as a recompense amongst the pupils, and the remainder is sold to the inhabitants of the village. After some time a considerable sum is raised from these sales, the money is laid out in defraying the general expenses, in purchasing tools, in providing seed without being indebted for it to the kindness of the proprietors, and in increasing the emoluments of the instructor. The little farm is thus found to advance rapidly to perfection, and in a short time is the most productive spot of ground in the country; of course it is understood that all the work is done by the pupils; were it otherwise, the object of the institution would be entirely lost, as practical instruction would no longer be given. These infant schools for horticulture and agriculture are on the increase in France.—*Laborer's Friends' Magazine for April*, 1839.

On the Cultivation of Roots, &c.

[*From the Essex Agricultural Society's Transactions.*]

Methuen, February 16, 1839.

Dear Sir—Taking a deep interest as I do in agricultural pursuits; and believing that by interchange of views, and making public our experiments, the agricultural interest may be promoted; I have concluded to comply with your request, and state my success the past season in the cultivation of roots. The land which was last year planted with potatoes, was ploughed and dressed with six cords of green manure to the acre. On the 14th of June, I planted three-fourths of a pound of ruta baga seed mixed with one bushel of plaster of paris, on three-fourths of an acre of land—planted in drills two and a half feet apart. After they came up, I applied six bushels of wood ashes; thinned them out when they were of suitable size for transplanting; hoed them three times; gathered them the first of November, and estimated them at 700 bushels on the piece. I planted half an acre in another piece, on light pasture land, which was last year sowed with oats without manure; it was manured and managed the same as the other piece, excepting the manure was of different kinds. In consequence, as I supposed, of being planted too deep, they came up thinly, and the weather being extremely dry, it prevented my transplanting them. I gathered 250 bushels on the piece; I think that had they come up well, they would have yielded from 700 to 800 bushels to the acre. I think there was one-half difference in the size of the turnips on different parts of the piece, owing to different kinds of manure, but I could not recollect what kind of manure was applied where the turnips were the largest. It would be well to try the experiment, to ascertain what kind of manure is most suitable for them. I commenced plucking the under leaves from the turnips on the first mentioned piece, about the first of September, for my cows, but thinking it might injure the roots, I discontinued about the 15th. When I gathered them I could perceive no difference where the under leaves were plucked off, and where they were not. I think the leaves on that piece, as there was a luxuriant growth, would have kept my eight cows, in addition to running in the pasture, until the last of October. I think the leaves of considerable value, as we have them at that season of the year when stock requires extra feed.

I also raised about 50 bushels of mangel wurzel; had they been planted thick enough, I think their yield would have been nearly the same as the ruta baga; I think they should be planted thicker than ruta bagas, as their tops are not so large; as to their comparative value, perhaps I am not a suitable judge; as I have had but little experience, but I am certain of this, that the hogs like mangel wurzel much better than turnips. I am of the opinion, however, that both kinds are much more profitable to raise for stock feeding than potatoes.

I will also state one or two experiments in regard to apples. I have for the last four years fattened a beef for my own use each year, mostly on apples. The first of October. 1836, I dried a cow which was in ordinary flesh, and commenced feeding her with apples the first of November. I killed her about the middle of January, 1837; the beef was fat and of a good quality; she was fattened exclusively on apples.—The first of November, 1838, I commenced feeding a cow with apples; I think she ate about three and a half pecks per day; about the 25th of December, she refused eating apples, in consequence of their being some rotten. I fed her with ruta bagas until the 9th of January, when I butchered her. The beef was fat, and of good quality, (what I mean by being of good quality, aside from being fat, is, it cooked well, and did not taste like apples, nor turnips, as some suppose,) but tasted like beef. The cow had a calf in the spring, gave a good mess of milk during the season, and I dried her about the 25th of November.

For the last three years, I have kept my hogs mostly on apples during autumn and first of winter, and they have thriven well, but as I gave them some other food, I can make no definite statement. Experiments have been tried by other individuals in my neighborhood with nearly the same success.

I am aware that some of my brother farmers may doubt my statement in regard to the value of apples, (especially those who are fond of cider.) But I would ask them to try the experiment.

You are at liberty make such use of the above statement as you may think proper. Respectfully yours,

JOSEPH HOW.

To J. W. Proctor, Esq. *Sec'y of the Essex Ag. Soc.*

The Farrier.

[*From the Maine Farmer.*]

Try before you buy.—If you meet with a horse you like, and are desirous of buying him, do not fall in love with him before you ride him, for though he may be handsome, he may start or stumble.

To discover a stumbler.—If you go to buy of one that knows you, it is not unreasonable to desire to ride him for an hour. If refused, you may suspect he has some faults; if not, mount him at the door of the stable where he stands; let him neither feel your spurs, nor see your whip; mount him easily, and when seated, go gently off with a loose rein, which will make him careless; and if he is a stumbler, he will discover himself presently, especially if the road in which you ride him be any thing rough.

The best horse indeed may stumble (a young one of spirit, if not properly broken in, will frequently; and yet if he moves nimbly upon the bit, dividing his legs true, he may become a very good saddle-horse,) I say, may stumble; but if he springs out, when he stumbles, as if he feared your whip or spur, depend upon it he is an old offender. A horse should never be struck for stumbling, or starting: the provocation, I confess, is great, but the fear of correction makes him worse.

In the purchase of a horse, examine four things—his teeth, his eyes, his legs, and his wind.

To know his age.—Every treatise on farriery has instructed us to know a horse's age by the mark in his mouth; but not one in five hundred (a dealer excepted) can retain it in his mind. I have endeavored, therefore, to represent it by a plate.

Every horse has six teeth before in each jaw; till he is two years and a half old, they are all smooth and uniform in their upper surfaces.

At two years and a half old he sheds the two middle teeth, (by the young teeth's rising and forcing the old ones out,) which at three years old are replaced by two hollow ones.

When he is about three years and a half old, he sheds two others, one on each side the two middle ones, which at four years old are replaced by two others, which are also hollow.

The sharp, single teeth in horses, begin to appear in the lower jaw when the horse is about three and a half, or four years old. When he is nearly six years old, they are full grown, pointed, and concave in the inside.

When he is four years and a half old, he sheds the two corner teeth, which at five are replaced also with two hollow ones, grooved on the inside, which groove marks the age precisely.

At six years of age this groove begins to fill up, and disappear; so do the hollows of the rest of the teeth, which continue till near seven and a half, or eight years old, when all the teeth become uniformly full and smooth.

Crafty jockies will sometimes burn holes in the teeth, to make them appear young, which they call bishoping; but a discerning eye will soon discover the cheat.

Eyes.—If a horse's eyes are lively and clear, and you can see to the bottom, and the image of your face be reflected from thence, and not from the surface of the eye, they are good; but if muddy, cloudy, or coal-black, they are bad.

Legs.—If his knees are not broken, nor stand bending and trembling forward (which is called knuckling,) his legs may be good; but if he steps short, and digs his toes in the ground, it is a sign he will knuckle. In short, if the hoof be pretty flat and not curled, you need not fear a founder.

Wind.—If his flanks beat even and slow, his wind may be good, but if they heave double and irregular, or if (while he stands in the stable) he blows at the nostrils, as if he had just been galloping, they are signs of a broken wind. Deceitful dealers have a draught which they sometimes give, to make a horse breathe regularly in the stable, the surest way therefore to judge of his wind, is to give him a good brushing gallop, and it is ten to one, if his wind be broken, or even touched, that he will cough and wheeze very much, and no medicine can prevent him doing so.

Cure for a broken wind.—A broken wind may be cured, if the following be applied on the discovery of it:—A quarter of a pound of common tar, and the like quantity of honey; beat them well together, then dissolve them in a quart of new milk; let the horse fast two hours before you give the drench: walk him an hour after, and let him fast two hours; give this drench every second day with warm meat and drink.

A draught-horse.—A horse with thick shoulders and a broad chest laden with flesh, hanging too forward and heavily projecting over his knees and feet, is fitter for a collar than a saddle.

A saddle-horse.—A horse with thin shoulders, and a flat chest, whose fore feet stand boldly forward and even, his neck rising semicircularly from the points of those thin shoulders to his head, may justly be said to have a light forehand, and be fitter for a saddle than a collar. As most horses in the hands of farmers are drawn while they are young, which notwithstanding their make, occasions them to move heavily: if you desire a nimble-footed horse, choose one that has never been drawn.

In buying a horse, inquire into four other things, viz: biting, kicking, stopping and starting.

A horse may be sound, though guilty of all four, which a man can hardly discover by barely looking on him; so I refer you to his keeper.

When you are buying, it is common for the owner to say in praise of his horse, that he has neither splint, spavin, nor windgall.

The Splint.—The splint is a fixed callous excrescence or hard knob, growing upon the flat of the in or out side (and sometimes both) of the shank-bone; a little under, and not far from the knee, and may be seen and felt.

To take it off, shave the part, and beat it with a stick, prick it with a nail in a flat stick, clap on a blistering plaster as strong as you can make it; let it lie on three days; then take it off, and rub the place with half a drachm of the oil of origanum, and as much oil of vitriol, mixed; if the first does not do, rub it a second time with the oils; if you find any remains of the splint, apply a second blistering plaster for twenty-four hours, walk him moderately to prevent any swelling or excrescence from settling.

Most young horses have splints, more or less, and they will occasion lameness while they are coming upon the bone; but after they are grown to the firmness of bones, they do not lame a horse, nor is such a horse worse for use, though he may not look so well to the eye.

The Spavin.—The spavin is of the same nature, and appears, in like manner, on the instep bone behind, not far below the hough. To take it off, beat the bone with a bleeding stick, and rub it; then anoint it with the oil of origanum, tie a wet cloth about it, and with a hot brick applied to it, soak in the oil, till it be dry.

Windgall.—Windgalls are several little swellings just above the fet-lock joints of all the four legs; they seem when felt, to be full of wind or jelly, but they never lame a horse; the splint and spavin always do. They all three proceed from one and the same cause, which is hard riding, travelling too far in one day, or carrying too great a weight when young.

Setting out on a journey.—Whenever you intend to travel, hunt, or only ride out for the air, let your horse's feet be examined sometime before, to see that his shoes are all fast and sit easy on his feet, for on that depends the pleasure and safety of your journey.

Directions for mounting.—Before you mount, look round your horse, to see if his bridle, curb, saddle, and girths, are all fitted in their proper places. Always accustom your horse to stand firm and without a motion, till you are fixed in your seat, and your clothes be adjusted.

Directions for going.—When you would have him go, teach him to move by pressing close your knees, or speaking to him, without using whip or spur; for a horse will learn any thing; and a good quality may as easily be taught him as a bad one.

Corrections ill-timed. Corrections well-timed. An easy rein.—Most men whip and spur a horse, to make him go faster, before they bid him; but it is cruel treatment to beat a generous creature before you have signified your mind to him (by some token which he may be taught to understand,) who would obey you if he knew your pleasure; it is time enough to correct him when he refuses, or resists you. Do not haul his head about with too tight a rein, it deadens his mouth; besides, he will carry you safer, and take better care of his steps with an easy hand, than a heavy one: much depends on the quietness of the bridle hand. Keep your elbows steady, and you cannot hurt his mouth. Again, nothing discovers a bad horseman (even at a distance) so much as throwing his arms and legs about; for it is easiest to the horse and rider, and he can carry you farther by ten miles a day when you sit as steady upon him as if you were a part of himself.

Employment of Mineral Tar or Pyroligneous Liquor, for the protection of Walls of Masonry or of Mud.

When the walls are thoroughly dry, towards the end of summer (having previously been either newly built or put into a state of thorough repair), they are to be coated over, once, twice, or thrice, with the tar. The last coat, immediately when put on, may be powdered with sand; and this, when solidified, may be whitewashed. In France, earthern walls, and the walls of court yards and terraces, are treated in this manner, and so rendered of great durability.—(*Annales des Ponts et Chaussees,* as quoted in the *Frank. Jour.* vol. xxii. p. 284.)

To prevent Horses being teased by Flies.

Take two or three small handfuls of walnut leaves, upon which pour two or three quarts of cold water: let it infuse one night, and pour the whole next morning into a kettle, and let it boil for a quarter of an hour;—when cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor, viz. between and upon the ears, the neck, the flank, &c. Not only the lady or gentleman who rides out for pleasure, will derive benefit from the walnut leaves thus prepared, but the coachman, the wagoner, and all others who use horses during the hot months.—*Farmers' Receipt Book.*

Efficacy of Stinkweed.

[*From the American Farmer.*]

Sir—A lady has caused to be published in the Chronicle, that hogs-lard rubbed on a bedstead with a piece of woollen cloth, will prevent the bed-bug from infesting the bedstead.

An extract obtained by stewing Gympson or Jamestown weed,* in fish oil, and rubbed on bedsteads and posts, and the wash-boards in a lodging room, is found from practice, to destroy bed-bugs and other insects that infest a room during the warm summer months. During the excessive heat and drought of last summer, a lodging room in the third story of an old inhabited brick house on St. Paul's street, was infested with bed-bugs. The extract of Jamestown weed stewed in common fish oil was applied; it destroyed the bugs, and no musquitoes annoyed the person who slept in it. The moth fly and common flies did not appear in the room. Spermaceti whale oil had better be made use of instead of the common fish oil. The South Sea Islanders anoint their bodies with fish oil in order to protect them from the annoyance of insects.

An extract of Gympson or Jamestown weed, made by stewing the leaves and tender stalks in common fish oil, might be applied to seed wheat and corn, with a brush, stirring the heaps, to be kept in a close room ten or fifteen days before sowing or planting. It would be offensive to birds and insects—The germ of the Hessian fly and other insects might be destroyed by it. The quantity of oil required would be inconsiderable; it now sells at 46 cents per gallon.

The extract might be applied to advantage on the roots of peach trees when replanted, and an application of it might be applied to seeds generally.

The extract destroys lice and other insects on animals.—A little rubbed on the head and back of sheep when sheared, would prove advantageous.

Metallic and vegetable poisons are much used in spirits, which are greatly objectionable, on account of the danger of keeping the solution in families. Any poison in fish oil would not be dangerous.

Gympson leaves and tender stalks, stewed in any oil or grease of any kind, until the leaves and stalks become soft, then strained and squeezed through coarse linen fabrics, gives an extract which will keep good for use a number of years. A.

[The above is from a highly respectable source, and should any of our readers make any experiments on the hints given therein, they might render a service to the public by making known the results.]

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* The *Datura stramonium* of Lin.—The stinkweed of the north.—*Cond. Cult.*

Preserving Wood by Lime Water.

We find the following article in (English) Mechanics' Magazine.

"Sir—I some years ago called the attention of the readers of your instructive periodical, to Sir Charles Steward Menteith's (of Closeburn, Dumfrieshire,) simple *unpatented* method of preserving timber; I think it so valuable a process that it cannot be too often published. It is as follows:—After cutting the timber to the size it will be wanted, it is steeped in a pond of lime and water for a fortnight, or more or less time, according to the size of the wood. Sir Charles has now some farm-buildings on his estate, the timber of the roofs of which is the common young Scotch fir, but having undergone the *lime water* process, it is as sound, after a lapse of forty years, as the day it was put up: the same timber, under ordinary circumstances, and in similar situations, would rot in from three to seven years. The carpenters find, in working the wood thus treated, that the edges of their plane-irons soon become dull; on examination, it is found that the acid contained in the wood is chrystallized by combining with the alkali of the lime. Yours faithfully,

"ARTHUR TREVELYAN.

"*Wallington, Newcastle, Tyne, 7th May*, 1839."

Use of Lime.

Lockhart, in his Life of Sir Walter Scott, relates the following anecdote:

"There see," he continued, "that farm there at the foot of the hill, is occupied by a respectable enough tenant of mine; I told him I had a great desire for him to try the effect of lime on his land. He said he doubted its success, and could not venture to risque so much money as it would cost. Well, said I, fair enough; but as I wish to have the experiment tried, you shall have the lime for the mere carting; you may send to the place where it is to be bought, and at the term day you shall strike off the whole value of the lime from the rent due to me. When the pay day came, my friend the farmer came with his whole rent, which he laid down on the table before me, without deduction. "How's this my man; you are to deduct for the lime, you know." "Why, Sir Walter," he replied, "my conscience will not let me impose upon you so far—the lime you recommended me to try, and which but for your suggestion I would never have tried, has produced more than would have purchased the lime half a dozen times over, and I cannot think of making a deduction."

Young Men's Department.

Chemical Catechism—Chapter VIII.

[*From Parkes' Chemical Catechism.*]

OF SALTS.—[CONTINUED.]

What is meant by the DELIQUESCENCE *of a salt?*

Some salts have so great an affinity for water, that they absorb it with avidity from the atmosphere. Such salts thereby become moist or liquid, and are said to deliquesce, by exposure to atmospheric air.[*]

What is meant by the EFFLORESCENCE *of a salt?*

Some salts, having less affinity for water than atmospheric air has, lose their water of crystallization by exposure, and readily fall into powder: such salts are said to effloresce. The crystals of sub-carbonate of soda and of sulphate of soda are good examples of this property.

Are salts capable of any other changes besides efflorescence and deliquescence?

Yes: salts have the properties of solubility[†] and fusibility.

What is meant by the SOLUBILITY *of a salt?*

It is its capacity to unite with and remain dissolved in water; but the different salts possess different degress of solubility,[*] requiring more or less of this fluid for their solution.

What is meant by the FUSIBILITY *of a salt?*

Salts have not only the property of dissolving in water, but will melt by exposure to great heat. The different salts require different degrees of heat to put them in a state of fusion.

Have the different salts any action upon each other?

Yes: we have many instances of salts mutually decomposing each other.

What takes place in these decompositions?

When such salts are mixed in solution, the acid of the *first* and the base of the *second* having more affinity for each other than for the base and acid with which they are respectively combined, double decomposition, as it is termed, ensues. The acid of the first unites with the base of the second, and consequently the base of the first combines with the acid of the second; so that two new salts are produced, differing in appearance, and possessing properties different from those of the original salts.

What is the cause of this effect?

It is occasioned by mutual chemical attraction, and the operation itself is called double decomposition, or the effect of compound affinities.

Can you give an example of this double decomposition?

Yes: If you add a transparent solution of sulphate of soda, or Glauber's salt, to one of muriate of lime, the solution is immediately rendered turbid, and two new salts are formed. The sulphuric acid of the sulphate of soda combines with the lime of the muriate of lime and forms sulphate of lime or gypsum, and the soda which was combined with the sulphuric acid seizes the muriatic acid previously united to the lime and forms muriate of soda, or common salt, which continues in the solution, but may be obtained in a dry form by evaporation and crystallization. The white powder which precipitates, is the newly formed sulphate of lime.

What other use is made of these decompositions?

By these means many valuable salts are procured for the use of the chemist and the manufacturer, which can be formed in no other way.

What knowledge have we attained respecting the native *salts?*

Many of the salts are found native; and since the science of mineralogy has been so much cultivated, great attention has been paid to these natural productions.

What salts are furnished by nature in the greatest abundance?

The carbonates, the sulphates, and the muriates are most abundant; but some of the nitrates, borates, &c. are also found native.

Which of the carbonates have been found native?

Of carbonate of lime[†] there are immense mountains in most parts of the world: carbonate of barytes has been found in Lancashire and elsewhere; carbonate of strontites, at Strontian in Scotland; carbonate of soda in the natron beds of Egypt, in the East Indies; and carbonate of potash, as well as the carbonate of soda, has been discovered in some spring waters.

What sulphuric salts are found native?

Sulphate of soda is found in some salt springs; sulphate of magnesia, in spring water;[‡] the sulphate of alumina is abundant at Whitby and Glasgow; sulphate of barytes, in Derbyshire and other parts of the world; the sulphate of strontites abounds in some parts of Gloucestershire; and few salts are more copiously disseminated than the sulphate of lime, particularly in the vicinity of Paris, and hence its name *Plaster of Paris*.

What native muriatic salts are there?

Muriate of lime occurs with rock-salt, and muriate of magnesia is found in abundance in sea-water; muriate of ammonia appears in the neighborhood of volcanos; and muriate of soda not only exists in immense quantities in the ocean, but vast mountains in different parts of the world are entirely formed of this salt.[§]

Which of the NITRIC *salts are found native?*

Nitrate of potash is collected in various parts of the globe; nitrate of magnesia sometimes occurs in combination with that salt; and nitrate of lime is found also in the same combination, and likewise in mineral springs: these are the only nitric salts that have been seen native in any large quantities.

Are any other of the salts found native?

Yes: vast rocks in Derbyshire and elsewhere are formed of fluate of lime; borate of soda is found in a crystallized state in the kingdom of Thibet; borate of magnesia at Luneburg in the kingdom of Hanover; and phosphate of lime, which is the basis of all animal bones, exist native in Hungary, and composes several entire mountains in Spain.

How do you imagine that these immense masses of salts have been formed by nature?

The huge mountains of salts we have been speaking of, and which occur in various parts of the earth, were probably formed in very remote ages, and by processes of which we can form no idea. It may indeed be supposed that these changes have been slow and gradual, for several of the native salts exhibit marks of regularity and beauty in their crystallization, which cannot be imitated by art.[*]

Have geologists attempted to account for the production of the immense quantities and varieties of salts found in different states in various parts of the earth?

The cause of this order of things can only be referred to the will of the Creator,[†] who has seen fit, in the composition of many of the mountainous parts of the globe, to prefer these compound substances to the more simple and inert earths.

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[*] Tablo of the action of atmospheric air on some of the most common salts.

Pure potash, - - -	Deliquesces.
—— soda, - - -	Deliquesces.
Carbonate of potash, - -	Deliquesces.
Bi-cardonate of potash, -	Remains unchanged.
Carbonate of soda, - -	Effloresces.
——— ammonia, - -	Do.
——— lime, - - -	Unchanged.
——— magnesia, - -	Do.
Sulphate of potash, - -	Do.
——— soda, - - -	Effloresces.
——— lime, - - -	Unchanged.
——— ammonia, - -	Sub-deliquesces.
——— magnesia, - -	Unchanged.
Nitrate of potash, - -	Do.
——— soda, - - -	Sub-deliquesces.
——— ammonia, - -	Deliquesces.
——— barytes, - - -	Slightly efflorescent.
——— lime, - - -	Deliquesces.
——— magnesia, - -	Deliquesces.
Muriate of potash, - -	Unchanged.
——— soda, - - -	Do.
——— lime, - - -	Deliquesces.
——— ammonia, - -	Sub-deliquesces.
——— barytes, - -	Unchanged.
——— magnesia, - -	Deliqueces.

[†] Table of the comparative solubility of some of the common salts.

SALTS.	*Solubility in* 100 *parts of water.*	
	at 60°.	at 212°.
Sulphate of potash, - -	6.25	20.
—— soda, - - -	37.	125.
—— lime, - - - -	0.22	0.2
—— ammonia, - -	50.	100.
—— magnesia, - - -	100.	133.
Nitrate of potash, - -	14.25	100.
—— soda, - - - -	33.	100.
Muriate of potash, - -	33.42	
—— soda, - - - -	35.	36.16
—— lime, - - -	200.	
—— ammonia, - - -	33.	
Carbonate of potash, -	25.	83.33
—— soda, - - - -	50.	100.
—— ammonia, - -	50.	100.

[*] We generally denominate all salts as insoluble, which require for solution more than 1000 times their weight of water. An opinion may in some measure be formed of the *solubility* of a salt by its force. Those salts which have the most taste are generally the most soluble in water. Thus Epsom salt dissolves in its own weight of water at the common temperature of the atmosphere, and the solution continues perfectly fluid and transparent; while sulphate of lime requires 500 times its own weight of water to hold it in solution.

[†] Chalk, limestone, and marble, are all included in the term, carbonate of lime. The late experiments of Sir James Hall have thrown great light on the formation of these natural productions. See *Edinburgh Philosophical Transactions*, vol. iv.

Carbonate of lime is found also in a crystallized state, in a mineral called *calcareous spar*. It has never yet been crystallized by art. This process of Nature may require many ages to effect, for aught we know.

[‡] Sulphate of magnesia and sulphate of lime are both very common in our spring waters; the last salt and supercarbonate of lime are the chief causes of what we call *hard* waters, which are very unwholsome, and unfit for washing. When soap is used with these waters a double decomposition takes place; the sulphuric acid of the selenite unites with the alkali of the soap and forms sulphate of potash or sulphate of soda, which remains in solution; while the magnesia or lime unites with the tallow, and forms an insoluble compound which swims upon the surface of the water like curds. In this way hard waters require much more soap for any given purpose than rain water, or waters which do not contain these earthy salts. Such waters are also unfit for boiling any esculent vegetable; but they may be rendered soft by adding to them a very little carbonate of soda, or carbonate of potash, 24 hours previous to their use. By this addition a decomposition will be effected, and the carbonate of lime, a very insoluble salt, precipitated.

[§] The salt mines near Cracow in Poland, which have been worked ever since the middle of the thirteenth century, contain an immense store of muriate of soda. The excavations have been made with so much regularity and beauty, that these mines are visited by travellers as one of the greatest curiosities in the world. Eight hundred workmen are employed in them, who raise 168,000 quintals of salt annually. Through the enormous mass of salt, which presents to the eye no interruption in its saline texture, and at the depth of 450 feet, flows a stream of pure, fresh and transparent water, which is received in large wooden vessels, where the workmen and horses of these subterranean regions quench their thirst. As it was impossible that this spring could filter through the salt, Nature, who buries her master-pieces in the bowels of the deepest mountains, has placed in this monstrous mass a stratum of clay sufficiently thick to allow the stream of water, destined to refresh the workmen, to pass through it in such a manner as to be protected from the action of the salt, of which a very small quantity would injure its salubrity.

[*] In order to account for these productions of Nature, various *theories* of the world have been formed by philosophers in different periods. Some of these have had many supporters. Thus we have had the theories of Burnet, Woodward, Whiston, Buffon, Whitehurst, Laplace, and other noted geologist who have written on the subject since their time.

The theories which divide the opinions of the philosophers of the present day, are those of Hutton and Werner. The former supposes the agency of heat, and is called the Plutonian system; the latter, which attributes all the present appearances of the globe to the effect of water, is called the Nepturian system.

[†] We have abundant reason to believe that nothing is fortuitous, but that every thing upon this fair world of ours is the effect of design; for every thing around us bears evident marks of the skill and beneficence of its Omnipotent Author. Is it not then reasonable to infer, that the formation of the whole of the globe entered into the divine plan; and that the constitution of the interior of its mountains resulted from the determination of infinite wisdom, and must have important uses in some future period of the world?—

> "For, lives the man whose universal eye
> Hath swept at once the unbounded scheme of things;
> Mark'd their dependence so; and firm accord,
> As with unfaltering accent to conclude
> That this availeth naught?"

It is probable indeed, that the profusion of earthy and alkaline salts which occur in the more elevated parts of the earth may, among other purposes, have been intended as magazines for the future renovation of the soils in their vicinities. They are in general of a nature to be washed down by the rains; and, by means of rivers, &c. are sometimes transported to considerable distances from their native beds. It is remarkable that these salts are generally found only in the *secondary* mountains, the materials of the *primitive* rocks being entirely different. These latter contain no remains of organic bodies whatever, and are composed, for the most part, only of five ingredients, viz: silica, alumina, lime, magnesia, and iron; of which *silica* is by far the most abundant, and universal. Though a comparative softness has been given to the secondary mountains, which thus appear to have been designed for the successive production of alluvial depositions, for the renovation of soils, &c.—the rocks of granite, the foundations of the globe, are so extremely hard, that it is imagined they would resist the constant wash of the ocean for ages without any apparent diminution. Where they were originally fixed by the hand of Nature—

> "They still remain,
> Amid the flux of many thousand years,
> That oft has swept the toiling race of men
> And all their labor'd monuments away." THOMSON.

In this arrangement we perceive nothing like a fortuitous concourse of atoms, but, on the contrary, the same satisfactory marks of contrivance, which force themselves upon our notice whenever we contemplate the various phænomena of the world, or study any of the great operations of nature.

Wealth.—Wealth in this country may be traced back to industry and frugality: the paths which lead to it are open to all; and such is the joint operation of the law and the customs of society, that the wheel of fortune is in constant revolution, and the poor of one generation furnishes the rich of the next.

In business, the keeping close to the matter procureth dispatch; and true dispatch is a rich thing.

Without frugality, none can be rich—and with it few would be poor.

Daily value of Sunshine.—The editor of the Genesee Farmer rates the agricultural products of the United States at *five hundred millions of dollars annually*, the perfection of which depends on the weather of four months, June, July, August and September. Without *sunshine* the crops would be a failure, either totally or partially, and hence we may estimate its average value at *four millions of dollars daily*.

PRICE CURRENT.

ARTICLES.	New-York, August 42.	Boston. August 21.	Philadelphia. August 20.	Baltimore. August 19.
Beans, white, per bushel,	2 25— 2 50	2 00— 3 00	1 75— 1 87	
Beef, per cwt.		7 50— 8 75		7 00— 8 00
Bacon, western, per lb.	0 11— 0 12	0 12— 0 13	0 10— 0 11	0 11— 0 12
Butter, fresh, per lb.	0 16— 0 25	0 17— 0 25	0 14— 0 16	
Cheese, per lb.	0 08— 0 10	0 12— 0 16	0 10— 0 11	
Cotton, best per lb.	0 10— 0 14	0 09— 0 11	0 13— 0 16	
Flour, best, per barrel,	6 25— 7 00	6 00— 6 50	5 25— 6 00	5 87— 6 00
GRAIN—Wheat, per bushel,	1 25— 1 37	1 28— 1 33	1 23— 1 28	1 10— 1 15
Rye, per bushel,	0 80— 0 85	0 78— 0 85	0 70— 0 75	0 78— 0 82
Oats, per bushel,	0 41— 0 52	0 37— 0 50	0 33— 0 40	0 27— 0 30
Corn, per bushel,	0 85— 0 90	0 80— 1 00	0 76— 0 80	0 78— 0 79
Hams, pork, per lb.	0 10— 0 13	0 13— 0 14	0 11— 0 13	0 10— 0 11
Pork, in hog, per cwt.		7 00— 9 00	7 75— 8 25	9 00— 9 25
SEEDS—Red Clover, per bushel,		10 00—12 00		
Timothy, per bushel,		2 50— 3 00		
WOOL—Saxony, fleece, per lb.	0 55— 0 60	0 60— 0 65	0 55— 0 60	
Merino, per lb.	0 50— 0 55	0 55— 0 60	0 50— 0 55	
¾ and common, per lb.	0 37— 0 42	0 45— 0 50	0 38— 0 42	
Sheep, per head,	2 00— 5 50	1 25— 3 50	2 00— 3 50	1 50— 3 25
Cows and Calves, each,	28 00—30 00	25 00—60 00		

ALBANY NURSERY.—This establishment now offers perhaps the best collection of Pears now in the country; [sec the June number of the Cultivator.] Also, Apples, Peaches, Plums, Ornamental Trees, Green-House Plants, &c. &c. A catalogue will soon be printed, and forwarded to order. Address J. BUEL & Co. post-paid. tf

FOR SALE—The subscriber wishing to close up his business, offers for sale the valuable Iron and Lumber Establishment, formerly owned and occupied by Penfield & Taft, situated on Putts creek, six miles from Lake Champlain, in Crown Point, Essex co. N. Y. The premises in question consist of a valuable water power, with a fall of more than 100 feet within sixty rods; on which there is now in operation a Grist-Mill with three run of stones, propelled by an overshot wheel; two Saw-Mills, one with overshot wheel and double gear, all nearly new and in good order; a Forge with two fires; and a machine shop for pounding and separating ore. The water for propelling these works is held in reserve by four ponds or reservoirs on the premises; the upper one being about 2½ miles in length, forming an ample reservoir for the whole works below, and affording sufficient water in itself for driving a forge with four fires and a rolling mill.

Adjoining the works are **600** acres of land, one-fourth of which is under good cultivation; on which are five dwelling-houses, convenient barns and out-houses, a store, blacksmith shop, and buildings convenient for other purposes.

There is also **1,000** acres of fine timbered land lying two or three miles from the above described works. Also, about five miles distant are **800** acres fine timbered land, on which are two Saw-Mills, and one of the richest, most extensive and valuable beds of iron ore yet found in the U. States.

Also, **1,900** acres of land in the towns of Schroon and West Moriah, Essex co. the greater part of which is covered with pine timber; 100 acres of which is under good culture, and on which is a good saw-mill, blacksmith shop, several dwelling-houses, barns and out-houses.

Also, one-half of a farm of 130 acres, situate on Lake Champlain, near the mouth of Putts creek, 2-3ds of it under good improvement; on which there is a large and convenient wharf.

On examining the above described premises, they will be found to combine unparalleled advantages for prosecuting an extensive business in the manufacture of lumber and iron, and for the sale of ore.

Such parts or parcels of the premises as are necessary for prosecuting the manufacture of iron and the sale of ore, will be disposed of separately from, or in connexion with, the lumbering establishment, as may suit the purchaser.

For the terms of sale, and all further particulars, inquire of the subscriber on the premises. ALLEN PENFIELD.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 189 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

NOTICE.—The second Fair of the Onondaga and Cortland Association, will be held at Tully, on the first Wednesday of October next, for the exhibition of all kinds of Stock and Mechanics' products. All who feel interested are invited to attend. Tully, August 15, 1839.

Sept–1t. H. A. CHASE, *Sec'y.*

SOUTH-DOWN SHEEP.—The subscriber will sell the following Sheep, delivered at Albany, if applied for soon, viz:

					Price
1	full bred South-Down Buck,	(imported,)		3 years old,	$80
1	do	do	do	1 year old,	40
6	do	do	do	Lambs,	30

10 do South and Hampshire Down Ewes, (some of which were imported by Mr. Hawes, in 1833,) very old, price from $20 to $25. Eight Ewes from 1 to 2 years old, half South Down and half Bakewell, price $10.

All letters, postage paid, will be punctually attended to.
CALEB N. BEMENT, Three Hills Farm, Albany.

TO THE SILK GROWERS OF THE UNITED STATES.—In consequence of the difficulty of purchasing cocoons in the present state of the silk culture in this country, (competent agents for the purchase, at a distance, are not at present to be had,) and as the reeling of the cocoons is the foundation of the whole business in a national point of view, the subscriber is induced to receive cocoons from all parts of the country, to be reeled on shares, in the Italian style, for exportation; the silk to be returned to the owner, or the market price in cash, as may be desired. Persons sending cocoons for reeling, will please name for what purpose it is intended, whether for *Sewing Silk*, which requires 20 to 25 cocoons (or fibres to the thread,) or the finer qualities for weaving, say from 6 to 10, inclusive, and the product will necessarily vary with the *quality* of the cocoons. Worms poorly fed will produce light thin cocoons, and many of them so light that they will fill with water and sink, and consequently be lost. Cultivators will therefore see the importance of producing good cocoons—the largest are not always the best. The cocoons should be firm and hard to the touch. A large spongy cocoon will not yield much silk.

The terms for reeling for the present season, will be 20 per cent of the silk produced from each parcel of cocoons, which as they will be necessarily received in small parcels, will be attended with more trouble and expense than in after years, when the feeding of silk worms will be as extensively followed as is now the growing of cotton.

SAMUEL WHITMARSH.

Northampton, Mass. July 8, 1839.

N. B. The cocoons should be thoroughly *seasoned* before packing; they should not be *damp*, as they will *heat* in transportation. All bad cocoons in which the worms have died, should be rejected. They may be packed in flour barrels or boxes, with *holes* bored in the top and bottom, to give air, or in bags within crates, or in any way to prevent crushing them. They should not be crowded, but shaken into the barrels with the floss on. They may be shipped from any part of the U. States, direct to Hartford or New-Haven, Conn. whence they will be received by the canal or river boats, directed to "*Samuel Whitmarsh*, Northampton, Mass." sept–2t.

IMPORTED CATTLE—BERKSHIRE PIGS.—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.: great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,
sept–3t. Bergen co. N. J. 5 miles from N. Y.

BERKSHIRE PIGS.—The subscribers are ready to receive orders for their fall litters of Berkshire Pigs.—Several of their sows will come in from the 25th of August to the 5th of September. Orders for the south can be sent to New-York every day in the week, (Sundays excepted,) and reshipped by a faithful person, without charge, except for freight to, or cartage in, New-York. Orders or letters of inquiry, *post-paid*, will receive immediate attention.

sept–2t. H. & J. CARPENTER, Norwich, Con.

IMPROVED DURHAM SHORT-HORNS.—Mr. WHITAKER'S third sale of high bred improved Short-Horns, by the ship Napier, will be held at Powelton, near Philadelphia, on Friday Sept. 20, 1839, at 10 o'clock A. M.

The subscriber is authorised by Col. Powell to say, that all the best cattle which he has at any time imported, and the improved short-horns which he considered the best in England, were either in Mr. Whitaker's possession, or were derived from his fold. Col. Powell has not the slightest interest in Mr. Whitaker's sales. Philadelphia, July 15, 1839.

ts C. J. WOOLBERT, *Auctioneer.*

ALBANY SEED STORE, GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholesale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.

Sept–tf WILLIAM THORBURN.

GREAT SALE of IMPROVED SHORT-HORN CATTLE AND BLOOD HORSES.—The subscribers will sell at auction, on *Tuesday the* 10*th day of September next*, at the farm of Samuel Allen, on the Niagara river, two miles below Black-Rock, the entire stock of Imported Short-Horn Cattle, for several years past bred on the farm of L. F. Allen, on Grand-Island.

The herd consists of about thirty, including Cows, Bulls, Heifers and Calves. Several of them have been imported by one of the subscribers, direct from England, and with their produce, are surpassed by few animals in the country. In addition to these, every animal offered is the direct descendant of thorough bred imported stock, and of unquestionable purity of blood.

With the above will be sold twenty select and beautiful animals, consisting of pure Devon; crosses of different degrees between the Devon and Improved Short-Horns; crosses of the Alderney and Ayreshire with the Short-Horns. These are Cows, Heifers and Calves, all superior animals.

ALSO—The superb horse "BELLFOUNDER," got by imported Bellfounder, the best thorough-bred trotting horse ever in America, and out of the imported mare Lady Allport, bred by T. T. Kissam, Esq. of Long-Island. The stock of this horse is unsurpassed in the country for size, speed and action—together with several elegant, thorough-bred breeding mares and fillies, and two or three young horse colts, the produce of the above. These animals are of the highest character as roadsters, and as trotters, no blood in the country has excelled them. They are all from the best stables of Long-Island. Also, a beautiful pair of full-bred matched fillies, five years old. All these horses are blood bay.

This entire stock will be sold without reserve, to the highest bidder, commencing at 10 o'clock A. M. They can be shipped within an hour from the farm, on board the steamboats to go up the Lakes, or on board canal boats at the farm.

Catalogues of the animals, with descriptions and pedigrees, will be prepared, and the stock may be viewed at the farm previous to the sale. A credit of sixty days will be given on approved notes or acceptances, payable at a bank either in Buffalo, Albany, or New-York, for all sums over $300.

SAMUEL ALLEN. LEWIS F. ALLEN.
Black-Rock, N. Y. June 25, 1839.

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicesters flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 28, 1839.

Sept–tf JAMES A. HAMILTON.

NEW-YORK URATE AND POUDRETTE COMPANY, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundance, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1,211, post-office, New-York, or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. *New-York, July* 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them. aug–4t.

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. VI. NO. 5, WASHINGTON-ST. ALBANY, N. Y. OCTOBER 1839. No. 9.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance. Subscriptions to commence with a volume.

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The Cultivator is subject to common newspaper postage.

☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ The engagements of the Conductor rendering it necessary that he should be absent during the first part of October, the next number of the Cultivator will be published on the first of November, and not on the 15th October, as heretofore proposed.

The Crops

Are represented to be unusually abundant throughout our whole land, with some partial exceptions; and the probability is, that we shall have a large surplus of all the productions of agriculture. Prices will therefore ultimately depend upon the extent of a foreign demand. Wheat is already selling in the western states at 62½ to 75 cents per bushel, and the expectation is entertained that prices will fall. This, as we have remarked, will depend on the foreign demand. While, therefore, we would recommend to the farmer, to sell at a fair remunerating price, we would not advise him to be frightened into a low price, by the representations of interested speculators. And as it requires more fortitude, or philosophy, to combat prosperity, than it does adversity, we advise the farmer to remember the fable of the milk-maid, who counted her chickens before they were hatched—not to run in debt on the strength of his abundant crops, till he realizes the amount of his actual sales.

There are, as we have observed, some drawbacks. Wheat has been seriously injured by rust, in many districts, particularly late sown spring wheat, many fields have not paid for harvesting, and other fields have not been harvested. We sowed some handsome varieties of foreign seed wheat, about the 15th May, and sowed our Italian at the same time, and in the same field.—The latter was somewhat injured by rust, while the new foreign varieties were virtually destroyed by it.

Indian corn, in some places, suffered by frost in August, and in many other places, and more severely, by the frosts of the middle of September. As the season has been much later than usual, it is feared this crop will prove very deficient, and defective in quality.

Hints for the Season.

"Like produces like," is an accredited maxim among farmers. Hence he who wishes to rear fine animals, should take care to secure good breeders, and he that would raise fine grain and roots, should take care to save, or procure, good seed, in time. This is the season to attend to these matters, particularly in regard to seed corn. If it has not already been done, no time should be lost in selecting the earliest and finest ears of corn, twin ears if you please, of stripping off most of the husks, of braiding, or wristing them, and hanging them in an airy loft to dry. Seed corn should never be suffered to go into a pile with the main crop, as it may heat, or mould, and lose its germinating principle. If the corn has been cut up and stooked, the early ripened ears may be readily distinguished, when the crop is gathered, by the colour of the husks and brightness of the grain.

The admonition which we give extends alike to other farm, and to garden seeds; and in regard to the latter, it may be remarked, that they keep better in their capsules, or seed vessels, than otherwise, provided they are kept dry.

Steeping seed wheat, and other small grains, in pickle, serves two, if not three good purposes. 1. The light and imperfect grains will float, and may be skimmed off. 2. It will prevent the crop being smutty; and 3. It will insure a more prompt and even germination. And if the seed is afterwards limed, before it is sown, as it should be, it will tend to preserve it from the attacks of insects. As a covering of one inch is thought sufficient for seeds that have been acclimated, covering with the harrow is deemed better than covering with the plough. "The wheat produced after the land has been limed, is believed to be thinner skinned, and to yield more good meal, than other wheat, and to make better bread."

To secure the best kinds of seed, of garden products, the most healthy plants must be chosen, and those which are most early in respect to the season; these should be so insulated, as to have no weak plants of the same species, or even genus, in their vicinity, lest the fecundating dust of weaker plants should be blown by the winds upon the stigma of the stronger, and thus produce a less vigorous progeny.

To collect good seeds, consists not in procuring new seeds from distant places, as is generally supposed, but in selecting the best seeds and roots of your own. This rule was practised successfully by the late Joseph Cooper, of N. J. who thus continued to propagate from his own seed for many years, with manifest advantage. We, however, think there are exceptions to the rule, in the potato and other crops where it is difficult, if not impossible, to make the required selection. In saving his radish seed, Mr. Cooper took ten or twelve that he most approved of, and planted them at least one hundred yards from others that blossomed at the same time. In the same manner he treated all his other plants, varying the circumstances according to their nature.

Seeds retain their vegetating principle for a greater or less length of time, according to the manner of their being kept, and according to their structure and properties. Thin seeds, as the carrot, parsnip, lettuce, &c. cannot be depended on after they are a year old. Peas and English beans will germinate well, it is said, at seven years old, while our common garden bean will seldom do well after the first year. Cucumbers, melons, squashes and pumpkins, are said to improve to the fifth, sixth and seventh year—the older the seeds are, the less the plants run to vine, and the more to fruit. Seeds have been made to vegetate and grow which have been one hundred years old, by the use of oxygenated muriatic acid and water.

To preserve seeds they should be kept dry, and kept alike from great heat and great cold. To transport them with safety a great distance, and especially to or from a tropical climate, the practice has been successful of mixing them with brown sugar, or with charcoal dust, or with raisins, in a close vessel.

All seeds should be sown when the soil is just ploughed or dug, as by these operations much atmospheric air is buried, which is essential to the germinating process; and the ground is withal moist, another requisite to quick growth.

The Pageantry of Republics.

To maintain republican principles and a republican government, it is necessary that we preserve republican habits and customs. We affect to hate kings, yet we worship men. We affect to be free, yet we glory in being the slaves of party. We profess toleration, yet we proscribe, as unworthy of public confidence, the brother who dissents from our political creed, or who refuses to support our candidate, be he ever so bad.—We are republicans by profession, but aristocrats or sycophants in practice.

Our news journals, for the last two months, have been filled with accounts of pageant processions, laudatory addresses, and sumptuous entertainments, got up, ostensibly, in honor of distinguished citizens, whose duties or pleasures have induced them to travel abroad. Thousands, many thousands, have been expended, a vast deal of time has been wasted, and some of the more dangerous of the human passions invoked, in getting up these shows,—not so much, we suspect, with the view of doing real honor to the individuals, as of strengthening the interests of party, and subserving the sinister purposes of individuals. As republicans, we ridicule the adulatory homage paid to the crowned heads and privileged classes of Europe, by what we term an ignorant and enslaved population; and yet we outstrip them in indiscriminate and fulsome panegyric, and partizan worship. Our constitution and laws regard public officers as public servants, not elevated for their own, but for the public good; yet, in our practice, we treat them as our masters, and it would be no wonder, such is human propensity to abuse power, if they soon assumed to be such. Rome granted triumphs to her distinguished men; and these distinguished men became her masters. Elections by the legitimate authorities soon ceased to be voluntary; and Cæsars were raised up, by the tumultuous acclamations of the mob, or the army, to curse and enslave the republic.

We would by no means withhold, from public officers, the respect due to their stations, nor from distinguished individuals, the honor due to their merits. We would as cordially tender our hand, and our respects, to merit, as any man, yet we verily think, that this respect and this honor would be more compatible with our republican professions, less derogatory to our dignity as freemen, and equally complimentary to those whom we would honor, if processions, cavalcades and military parade were dispensed with. It is but too apparent, that these pageants are got up for party, and not for public benefit; and that if tolerated, they will increase in frequency and in mischief. It is not the evils that have happened that we so much deprecate, but the evils that are likely to grow out of these anti-republican precedents. It should be a man's virtues, his public services, and his fidelity to our republican institutions, that should recommend him to public confidence and support—and these are likely to be known whenever they are developed—and not the number of partisans which can be drummed up to swell his cavalcade. A good man needs not these extraneous anti-republican contrivances, and a bad man is certainly not entitled to them.

We intend no political or personal allusions in these remarks. We consider the practice a bad one, inconsistent with our republican professions, one that is growing upon us, and one that should be discountenanced by the sober, reflecting part of the community.

Schools of Agriculture.

When we consider that agriculture is the great business of the nation—of mankind;—that its successful prosecution depends upon a knowledge, in the cultivators of the soil, of the principles of natural science—and that *our* agriculture stands in special need of this auxiliary aid—we cannot withhold our surprise and regret, that we have not long since established professional schools, in which our youth, or such of them as are designed to manage this branch of national labor, might be taught, simultaneously, the principles and practice of their future business of life, and on which, more than on any other branch of business, the fortunes of our country, moral, political and national, essentially depend. We require an initiatory study of years, in the principles of law and medicine, before we permit the pupil to practise in these professions. We require a like preliminary study in our military and naval schools, in the science of war and of navigation, ere the student is deemed qualified to command. And yet, in agriculture, by which, by the permission of Providence, we virtually "live, and move, and have our being," and which truly embraces a wider range of useful science, than either law, medicine, war or navigation, we have no schools, we give no instruction, we bestow no governmental patronage. Scientific knowledge is deemed indispensable in many minor employments of life; but in this great business, in which its influence would be most potent and useful, we consider it, judging from our practice, of less consequence than the fictions of the novelist. We regard mind as the efficient power in most other pursuits; while we forget, that in agriculture, it is the Archimedean lever, which, though it does not *move* a world, tends to *fill* one with plenty, with moral health and human happiness. Can it excite surprise, that under these circumstances of gross neglect, agriculture should have become among us, in popular estimation, a clownish and ignoble employment?

In the absence of professional agricultural schools, could we not do much to enlighten and to raise the character of American husbandry, by making its principles a branch of study in our district schools? This knowledge would seldom come amiss, and it would often prove a ready help, under misfortune, to those who should fail in other business. What man is there, who may not expect, at some time of life, to profit directly, by a knowledge of these principles? Who does not hope to become the owner, or cultivator, of a garden or a farm? And what man, enjoying the blessing of health, would be at a loss for the means of an honest livelihood, whose mind had been early imbued with the philosophy of rural culture—and who would rather work than beg.

An early acquaintance with natural science, is calculated to beget a taste for rural life, and rural labors, as sources of pleasure, profit and honor; to stimulate to the improvement of the mind—to elevate and to purify it—to self-respect, to moral deportment. And it will tend to deter from the formation of bad habits, which steal upon the ignorant and the idle unawares, and which consign thousands of promising young men to poverty and disgrace, if not to premature graves. A knowledge of these principles, to a very useful extent, can be acquired with as much facility, in the school or upon the farm, as other branches of learning. Why, then, shall they not be taught? Why shall we withhold from our agricultural population, that knowledge which is so indispensable to their profit, to their independence, and to their correct bearing as freemen?—Why, while we boast of our superior privileges, keep in comparative ignorance of the principles of their business, that class of our citizens who are truly the conservators of our freedom? We know of but one objection—the want of teachers. A few years ago, civil engineers were not to be found among us. The demand for them created a supply. We have demonstrated, that we have the materials for civil engineers, and that we can work them up. We have materials for teachers of agricultural science, which we can also work up. Demand will always insure a supply.

The Conversion of Manure into Crops.

The great business of the farmer, who aims at profit, should be, to convert *useless* into *useful* matter—*dead, putrid* organic matter, into grain, grass and roots—into meat, milk and wool—into farm profits—into the means of wealth and rational happiness. To facilitate this desirable process, we bespeak the careful attention of the reader to the two articles, inserted in this and our last numbers, entitled "Agricultural Chemistry," written by Henry Madden, and copied from the Edinburgh Quarterly Journal of Agriculture. The part published in September, relates to *organic matters*, the true food of plants, and the true sources of agricultural profit and wealth. The part published to-day, relates to the mechanical and chemical improvement of soils, by means of mineral productions, or other than organic matters. Taken together, they form an excellent treatise and guide for the profitable management of the farm. And we beg of the unlearned reader, who may be disposed to throw them aside, unread, on the plea that they smack too much of science, carefully to preserve them, until himself, or his sons, shall wish, as they assuredly will, to consult them. Depend upon it, they contain much of deep interest, to him who would profit by the improvements of the age, as regards the profits and pleasures of agricultural pursuits.

And yet we cannot endorse all of Mr. Madden's principles, without some explanatory remarks. He urges a partial fermentation of vegeto-animal manures, or in other words, of stable and yard dung, before it is buried in the soil, on the ground, that crops stand in immediate need of its fertilizing powers, which can only be developed after fermentation has commenced; and we infer, that his remarks apply to small grain crops.—Scotland, for the benefit of whose husbandry Mr. Madden writes, is in a high latitude, the average heat of summer there being probably from five to ten degrees less than with us, and where the Indian corn crop, one of our great staples, is never attempted to be raised.—The decomposition, or fermentation of manure, is therefore more tardy there, when buried in the soil, than it is with us, and may not, consequently, take place in time to meet the wants of the early sown small grains. But with us the case is different. We have a hotter summer, to bring on earlier and more thorough fermentation in the soil. Besides, our unfermented manure is, or ought to be, principally applied to a crop which Scotland cannot grow—to our Indian corn, which needs its greatest stimulus after the small grain has been harvested. Unfermented manure applied to the corn and potato crops, to which it ought mainly to be applied with us, if spread broadcast and buried superficially in the soil, will decompose in time for the wants of these crops, if the soil is, as it should be, in a healthful condition, and will continue to afford them food, at a time most needed, when they are maturing their grain and their tubers in autumn, better than manure which has previously undergone the process of fermentation. When unfermented manure is deposited in the hill, a practice which we deprecate, these advantages may not result to the corn and potato crops. The manure, from lack of moisture, may not ferment, and of course will remain inert, if it is not prejudicial. We consider the corn and potato crops admirably calculated, in this way, to secure to us all the virtues of manure, without any preliminary process of fermenting it in the yard.

Seedling Plums.

There is no part of the Union, we believe, where so many fine seedling plums have been produced, as in Albany and its neighborhood. Plums have ever been a favorite fruit here, and the climate and soil seem well adapted to bring them to a fine state of perfection, and there has for many years been amateurs who have cultivated the best kinds with care. Where none but good kinds are cultivated, seedlings coming from them can scarcely be otherwise than good, proceeding as they must, from none but good parents. Among those who have thus produced esteemed varieties, to begin with olden time, we may name Mrs. Bleecker, Peter Yates, Chancellor Lansing, Isaac Dennison, Col. Young of Saratoga, Mr. Judson of Rensselaer, and some gentlemen in Schenectady. Many of these fruits bear the names of those who first introduced them into notice. There are probably fifty fine varieties which have been thus originated, superior to many named in the nursery catalogues, many of them remaining without any distinctive name. We tasted of nearly twenty new kinds last year, in Mr. Dennison's garden, all of high flavor; and we have just received a box of samples of seedling fruits from Col. Young, also of superior quality. We have also a seedling in our grounds which we esteem as highly as any we grow. As the season is now too late to do it, we throw out the suggestion, that the growers of new kinds, in this city and neighboring towns, meet together at a suitable time next year, with samples, to give them names, and to decide on their relative merits.

Frost.—In some of the northern districts, a severe frost was experienced early in September. Where corn is yet standing, we advise that it be immediately cut up and put in stook. We *know* this mode of harvesting will save the grain, and increase the fodder.

An Official Opinion.

"A post-master may enclose money in a letter to a publisher of a newspaper, to pay the subscription of a third person, and frank the letter, if written by himself."—AMOS KENDALL.—*American Farmer.*

Many post-masters have been scrupulous of enclosing moneys to printers of newspapers, from third persons, under an honest impression, that they would contravene the spirit of the post-office law. These doubts will now be dissipated by the above decision of the Post-master General.

The legitimate object of the post-office department, is not to accumulate revenue, but to accommodate the public, by as cheap and expeditious transmission of letters, newspapers and pamphlets, as the receipts of the department will allow. The construction here given by the Post-master General, will rather increase than diminish the revenue, because it will multiply the newspapers transmitted by mail. A post-master who desires, or is willing, to promote the diffusion of useful knowledge, may receive from a dozen or more of his agricultural neighbors, their subscription moneys for an agricultural journal, and transmit it free of charge to the publisher. The individuals will be benefitted, and the community will be benefitted, by the spread of useful knowledge, and the post-master will have the satisfaction of reflecting, that he has been instrumental in bringing about this good. Whereas, were each of his neighbors obliged to pay double postage on his letter and enclosure to the printer, often 50 cents, he might be deterred from becoming a subscriber, and himself and the public would lose the benefit of the improvements which the paper might induce.

Agriculture among the Romans.

Agriculture, among the Romans, was the *great* business. The first men studied its principles, directed its operations, and wrote treatises for the instruction of the unlearned. Some of the writings of Cato, Varro, Virgil, Columella, Pliny and Palladius have reached the present age. They show a familiar acquaintance with all the details of farming. The wealthy citizens, who spent their winters in the city, and their summers at their villas in the country, personally superintended every department of their business "Though the operations of agriculture," says the author of ancient husbandry, "were generally performed by servants, yet the great men among the Romans continued to give particular attention to it, studied its improvement, and were very careful and exact, in the management of all their country affairs." "After the landlord," says Cato, "has come to the villa, and performed his devotions, he ought that very day, if possible, to go through his farm; if not that day, at least the next. When he has considered in what manner his fields should be cultivated, what work should be done, and what not; next day he ought to call the bailiff, and inquire what of the work is done, and what remains; whether the laboring is far enough advanced for the season, and whether the things that remain might have been finished, and what is done about the wine, corn and all other things. When he has made himself acquainted with all of these, he ought to take an account of the workmen and working days. On holidays, old ditches may have been scoured, a highway repaired, briers cut, the garden digged, the meadows cleaned from weeds, twigs bound up, thorns pulled, far (bread-corn, maize,) pounded, all things made clean. When he is fully satisfied in all these things, and has given orders for the work that is to be finished, he should inspect the bailiff's accounts; his accounts of money, corn, fodder, wine and oil; what has been sold, what exacted, what remains, what of this has been sold, whether there is good security for what is owing. He should inspect the things that remain, buy what is wanting for the year, and let out what is necessary to be employed in this manner. He should give orders concerning the works he would have executed, and leave his orders in writing. He should inspect his flocks, make a sale, sell the superfluous wine, oil and corn; if they are giving a proper price, sell the old oxen, the refuse of the cattle and sheep, wool, hides, the old carts, old iron tools, &c. Whatever is superfluous he ought to sell. A farmer should be a seller, not a buyer."

And Columella directs the proprietor, on returning to his farm in the spring, "to view his marches, inspect every part of his farm, and observe whether in his absence any part of discipline or watchfulness has been dispensed with; and whether any vine, any tree, or any fruits are missing. Then, likewise, he ought to review the cattle and servants, all the instruments of husbandry and household furniture. If he continues to do all these things for some years, he will find a habit of discipline established when he is old; and at no age will he be so much impaired with years, as to be despised by his servants."

These directions are valuable, even in our day, to landed proprietors, particularly in the south, whose farms or plantations are managed by overseers or agents. There is great truth in the saying of Poor Richard, that a man who would thrive by the plough, must himself either hold or drive.

Northeast Storms.

Franklin, we believe, was the first to notice publicly, that northeast storms began at the southwest. During the last four days of August, the clouds portended rain with us, and the winds and temperature indicated a northeast storm upon the Atlantic coast. Yet we had not a drop of rain, and September brought us a clear sky and milder weather. It appears from the Norfolk papers, that a northeast storm commenced there on Wednesday the 28th, that the gale was severe, and much rain fell; and that the storm continued to rage with much violence during Thursday and Thursday night. On Friday the gale reached Boston. The wind blew with great violence, and the rain fell in great abundance. On Saturday it passed the barrier of the Green Mountains, in the form of a moderate rain, and continued in Dutchess, Orange, &c. from midday to midnight. The storm was probably felt earlier at the southwest, and later at the northeast.

Morus Multicaulis.

To keep our readers advised of the price current of this staple commodity, we state, on newspaper authority, that extensive sales have been made in Virginia, at 1½ and 2 cents the bud; that in the vicinity of Hartford, most of the plants have been bought up at 30 and 35 cents the plant; and that on Long-Island, prices have gone up to fifty cents a tree. A *tree* is supposed to be the growth of a bud planted last spring. Those who have to sell, we advise to take the above prices, if they can find buyers; but those who wish to buy will suffer no loss, we apprehend, in delaying to purchase at the above prices. Ten cents is a profitable return for each bud planted.

Effect of Slaking Lime.

"The *weight* of lime is increased from *thirty* to *fifty per cent* by slaking; and its *bulk* is *tripled* or *quadrupled.*"—*See Prof. Jackson's remarks on limestone.*

These are important facts to the lime burner and lime buyer. To the burner, as it shows that the expense of transporting his lime to market, is a quarter less, in its fresh burnt state, than it is when the lime is slaked.—Nor should it be forgotten, that a ton of fresh burnt lime will acquire in five or six days, by exposure to the atmosphere alone, an additional weight of four or five hundred pounds. To the buyer, these facts teach the importance of buying fresh burnt lime. If he buys by weight, according to the Albany standard, lime long exposed to atmospheric influence, or imperfectly burnt, he pays for a quarter more than he gets. If he buys slaked lime by measure, he gets in the bushel only one-half, or one-third, what the bushel would give him in the fresh burnt-stone.

THE BUDGET.

Locust Hedges.—"I would like to know how honey locust hedges answer, when they become old, or if there is any thing better for hedges?—*Horace Wells.*" We have never seen an *old* honey locust hedge; yet judging from the appearance of our own, eight years old, we should think they will answer well, provided they are properly grown, and are kept properly clipped. Mr. Wells will find our opinion as to the best material for hedges, and of the mode of growing them, at pages 126, 176 and 192, of volume iv. of the Cultivator.

Peat Earth.—C. B. Clark has addressed to us several queries in regard to the value of peat as a manure, which it is wholly out of our power to answer satisfactorily, without knowing the quality of the material, the distance to which it is to be transported, and nature of the soil which it is to benefit. Peat is generally vegetable matter, which, on being brought into a state of decomposition by contact with fermenting materials, affords the proper food for farm crops—enriches lands. It may be worth much to those who have it at hand, and it may not pay expense to those who have to transport it a distance. These are matters of calculation which every farmer must make for himself, and for which no general rules can be prescribed. If we wish to fatten animals for the butcher, it is prudent to know beforehand, what the fattening materials will cost us, and what they will be worth to us—whether we are likely to lose or gain by the process. If there is no prospect of gain, we will sell the lean animal to him who has greater facilities for fattening. As with our animals, so it is with our crops. Manures constitute their food. Like animals, they should have good attendance; and if by an outlay of $5 in manure, we can add $10 to the value of their product, we realize a nett profit of $5. If we can apply this to a farm of 100 acres, it results, that an expenditure of $500 for manure will give a nett profit of $500—a result not at all uncommon, and very often below the actual gain. We can merely say to Mr. Clark, that every animal and vegetable substance is convertible into the food of plants; that it costs no more to cultivate a rich acre, than it does a poor one, and that hence, as a general rule, it is best to be liberal in our expenditures to make our land rich, that they may be productive and profitable.

Hog-Pen.—We have received from Long-Island a diagram of a hog-pen, which we doubt not is useful; but with all ingenuousness we are obliged to acknowledge, that we do not understand it; and believing that our readers will not, we must forego the expense of a cut till it is put into a more intelligible form.

Plans of Houses.—We received from Mr. Jewett and from Mr. Smealle, each two plans of houses. They were all placed in the hands of the gentlemen selected to award the premium. But in arranging them for publication, some mistakes have been made, and we don't know but we have given the diagrams of what each considered the least perfect. But verily we are unable, at present, to put the matter right.

Planting Trees.—"Being about to set out trees for ornament around my dwelling, I would be obliged to you to say, through the Cultivator, whether it will answer, in our region, to set them out in the fall of the year, and at what time in the fall would be best?—*A Franklin County Subscriber.*

Answer.—Deciduous trees, that is, trees which shed their leaves in autumn, may be transplanted with safety, when they are not in a growing state, that is, at any time after the functions of the leaves have been arrested by frost in autumn, and before they come into leaf in the spring. If planted in autumn, in a high northern latitude, it is well to throw around the tree a shovel full of dung, or stable litter, to protect the roots from the cold of winter, and this may be withdrawn in May. *Evergreens* are best transplanted when they are growing, say from the 20th May to the 20th September—and we think the earlier in this time the better. Litter may also be thrown about these with advantage, not as a guard against frost, but to prevent evaporation.

Shovel Plough.—Solomon Rathbun, of Verona, Oneida, asks where he can obtain them, adapted to a two-horse team? As we cannot inform him, will some reader, who has them for sale, answer Mr. R's question, by writing him?

Disease in Calves.—Richard Shaw, of Berlin, Rensselaer, writes us, that his calves, 24 in number, about a fortnight since, were seized with a cough, of which several have died, and the rest, as well as a large stock of cattle, he is apprehensive of losing.

Grape Culture.—A Litchfield subscriber asks sundry questions in regard to the culture of the Isabella grape. He will find most of the information he desires in Mr. Tomlinson's communication in to-day's paper, and in Mr. Spooner's, vol. v. p. 61. The Isabella likes a rich and a moist soil. The cuttings are best made in autumn, and may be kept in the cellar, or buried in the soil.

Tomatoes.—In answer to the same correspondent, who asks how the tomato should be managed, and whether it will bear engrafting on the potato, we state, in the first place, that nothing, not even water or other liquid, is required to *cook* this vegetable. It is merely peeled, whan ripe, of its outer coat, and placed in a sauce pan over the fire, where it will cook. As to *seasoning*, tastes vary. Some put in merely salt, some salt and pepper, some add to these a little raw onion, and this is the way we like them—some add sugar, crum of bread, &c. In the second place, the tomato probably might be grafted on the potato, they belonging to the genus *solanum*. Our correspondent can easily make the experiment; but we confess we do not perceive that any benefit will accrue if he succeeds. We suspect the grafting of annuals will be found rather *curious* than *useful*.

Acknowledgements.

Four baskets superior New-Jersey peaches, from Dr. McChesney and J. Pullen, Hightstown, N. J. and from Robert White, jr. of Shrewsbury. A superior made patent pail, from M. Pond, proprietor of the extensive pail manufactury at Schuylerville.

CORRESPONDENCE.

A National Agricultural Society—A National Agricultural Convention proposed.

ESPECIALLY ADDRESSED TO THE EDITORS OF AGRICULTURAL JOURNALS, AND TO AGRICULTURAL SOCIETIES.

Essex County, Va. August 29, 1839.

DEAR SIR—Only a few days before I received your paper of the 15th of this month, I had read an account, in one of our political journals, of the last meeting of the "English Agricultural Society," at which our distingushed countrymen Mr. Webster gave them a speech. This account elicited in me so ardent a desire for the establishment of a similar society in the United States, that I was on the point of addressing *you*, and through your paper, the editors of all our other agricultural journals, a most earnest request to unite heart and hand in an effort to bring it about. But, to my great gratification, I find, by the last Cultivator, that you have anticipated me, by suggesting the project in your brief remarks upon the meeting of the English society. Do, my good sir, urge it again and again, upon all your subscribers, as well as upon your brother editors. It can hardly be possible, I think, that so agricultural a people as we are, should have so little of the spirit which should actuate us all, as not to be effectually roused into action when properly addressed; and who so fit to apply the necessary stimuli, as the editors of papers devoted to this great national cause?

Can we, the people of the United States, who boast of being more enlightened than any other civilized nation, in regard to all those principles and arts of government which are best calculated to promote and preserve human happiness—can *we* be so immeasurably behind them all, in applying these principles, and cultivating these arts, as not yet to perceive, that legislative aid to agriculture, in a country like ours, is a vital element in our national prosperity? It is, in fact, to the Body Politic, what the heart's blood is to the Body Natural: neither can exist in health and vigor, without its appropriate aliment.

What are the obstacles—the rational objections to aiding this vital art by legislation? Shall we be told by some of our martinet politicians, that our Federal Constitution forbids? Would to heaven they had been as lynx-eyed in guarding it against *other* attempts to infringe it—if indeed, the establishment of a National Society of Agriculture would thus operate! That the nation would have been richer by millions than it now is, could we have had such an institution, can not, I think, be doubted for a moment by any who are at all aware of the vast benefits which have resulted both to England and France, from the encouragement given by each to husbandry in all its branches; and I have yet to learn any good reason why we should not follow their example.

But thanks be to our good constitution, it has a provision in it which is perfectly intelligible, even to the most stupid; and none can dispute about the powers which it confers. I mean that which relates to the mode of choosing our immediate representatives. *This is the king-cure-all* for every political evil, provided it be executed as it *may* and *should be.* For example, let the agricultural districts—of which there is a vast majority in the United States—choose none but honest, intelligent and zealous agricultural men, or staunch friends to the cause, to represent them, and they might rely, with absolute certainty, that this cause would no longer suffer from the want of any aid that could be legitimately bestowed on it. Such members of congress would very soon find out a way to form a National Agricultural Society, that would speedily become one of the most popular associations in our whole country; and would prove in a few, a very few years, the means of extending to the utmost extremities of our Union, such a mass of information in regard to all the various branches of husbandry, as could not fail to render our nation the richest, as it is still, I believe, the happiest on the face of the earth. Our commerce and manufactures, which, next to agriculture, are the great sources of national wealth and power, would soon be abundantly supplied with all the materials essential to their prosperity; and nothing would be wanting to consummate our happiness, but the moral and religious education of our whole people.

Can there possibly be a single individual within the limits of our vast confederacy, who doubts this, even for a moment? *If there is*, I can only pray heartily, that he may speedily see the error of his ways, and most cordially co-operate in the attempt to establish a National Agricultural Society, with all of our fraternity who have full faith in that admirable proverb, (applicable, by the way, to all imaginable associations,) which tells us—"*United we stand—divided we fall.*"

One word more on this subject, and I will rely upon other and abler advocates to support it. Since it has become the fashion of late years to hold conventions for almost every purpose in which many persons are interested, I would respectfully propose, that one be held *in the City of Washington, on the second Monday of December next*, with a view of forming a National Agricultural Society; and that the different societies for the promotion of agriculture, throughout the United States, be invited to send deputies to it. Where no such associations exist, county meetings might be held of the friends of the cause, who might depute one of their own body, or the member of congress from their respective districts, to represent them in the convention. Should you approve this scheme, your paper might commence the invitations, and solicit your brother editors to repeat them. In this way, the proposal would speedily reach every state in the Union, and would first fall into the hands of the best friends to agriculture in each, for *they* alone deserve the title who support our agricultural papers.

Anxiously hoping that you will see this matter in the same light that I do, I remain, dear sir, your friend and constant reader. J. M. G.

Rust on the Potato.

Post-Office, Westmoreland, Oneida co.
N. Y. Sept. 16, 1839.

DEAR SIR—As I am a farmer on a small scale, permit me to inquire of you, if the potato crop is often, or ever, in any section of country, cut short by its being struck with rust in a similar manner and about the same time that wheat is?

I have about two acres, and on digging a part of them, I find it takes thirty hills to get a bushel. This induced me to inquire of larger farmers in this town, the prospect of their potato crop. The universal expression is "very light crop." Among the many I have conversed with, one or two by observation, think it is owing to its being struck with rust; a new idea to me, perhaps it is familiar to you. How is it?

Yours obediently,
ABRAHAM HALLECK.

REMARKS.—We have heard of the *curl* destroying the potato crop, in Great-Britain, but have not before heard of its being injured by rust. The remark has, however, been made to us, that *this* year, the tops die prematurely, from what cause is not stated, and that the crop, where it has been taken up, proves unexpectedly to be a short one.—*Conductor.*

Propagation of the Grape.

Hon. J. BUEL—Dear Sir—I sent you a dissertation on trees, and omitted to say something on grape vines, as I intended.

In transplanting grape vines with roots, I have found it difficult to save them. They have many very fine roots, and if they are not put up in wet moss, or some other wet preservative, they soon perish.

There is no difficulty in raising grape vines from good slips, much less than with roots. Cut the slips in autumn, after the leaves have fallen, and the vine has hibernated for the winter. Choose round and sound wood, well ripened and firm, (no flat wood,) the buds full and plump, the joints short between the buds.—(Suckers from the root of the vine, with long joints, are worthless.) Cut the upper end off within half an inch of the bud—put them in the ground sloping, the lower end deep, to have moisture. The upper bud should be covered half an inch under the ground, to break off the sun, and they are as easy raised as currant slips. I have set many slips with the upper bud above ground, as advised. They grew at first well, but the sun invariably killed them before the fall.

I planted some slips this season, and they have already grown from two to four feet. I have had bunches of grapes the third year on slips thus planted. If they are planted in sunny places, they should be watered the first year. Water is always acceptable to grape vines of any age. If not put out in the autumn, then cover the slips with wet ground or mulch, and set them in the spring. If put up in damp moss, or other matter, to prevent the slips from drying, they may be taken to Europe or elsewhere, till from November to May. Respectfully, D. TOMLINSON.

Remarks on Breeding.

Stockport, 9 mo. 10th, 1839.

ESTEEMED FRIEND, J. BUEL—"Walker on intermarriage," is the title of a work just republished in this country. Its object is to point out the rules to be observed in the selection of wives, with a view to the production of a beautiful, healthy and intellectual offspring. Although the primary object of the author is to ameliorate the form and intellect of the human species, by means of judicious intermarriages, yet he treats largely on the means of improving inferior animals, by means of breeding, and asserts that all his newly discovered laws, relative to the human species, are equally applicable to domestic animals. It is to the views which he takes of this latter subject, that I wish to call the attention of my agricultural brethren. Although I do not think he has *demonstrated* the laws, yet he has certainly brought forward a very respectable body of proof, for their support, sufficient at least to induce those who are interested in obtaining good animals, to give their serious and careful attention to his views.

It is necessary to observe, in order to render the sequel intelligible, that by the "locomotive system," we mean the organs of support, of motion, and of connexion, or bones, ligaments and muscles; and by the "vital system," we mean the organs of absorption, circulation, and secretion. The organs of absorption are sometimes denominated lacteals or lymphatics; their use is to absorb the nutritious portions of the food from the intestines, and to convey it to the heart, where it is mingled with the blood. The organs of circulation are the blood vessels, which circulate the blood from the heart to the extremities, and from the extremities back to the heart. The organs of secretion are the glands, where the various fluids of the body are secreted. The foundation of Walker's system of breeding is, that "like produces like." This has been stated before, but never satisfactorily shown to be the case, or in other words, while other authors have stated this to be the rule, they have at the same time stated such a numerous list of exceptions, that we are left in doubt whether it is any rule after all. These exceptions are shewn by Walker to be only apparent and not real.

The second law is extremely important if true, (and in order to ascertain whether it is so or not, nothing more is necessary than for one farmer in every county in the state, should observe it for two or three years, and send the result to the Cultivator office.) "Organization is propagated by halves," that is, one parent communicates to the offspring the fore part of the head, the long part of the face, the forms of the organs of sense, and the whole of the internal nutritive system. The resemblance to the parent who thus communicates "the vital system," will therefore be found in the forehead and long parts of the face, as the orbits, cheek bones, jaws, chin and teeth, as well as the shape of the organs of sense, and the tone of the voice. The other parent communicates the posterior part of the head, the bones, ligaments and muscles, or the whole of the fleshy parts. The resemblance to the parent who thus communicates the "locomotive system," must be found in the back head, the few more moveable parts of the face, as the external ear, under lip, lower part of the nose, eye-brows, and the external forms of the body, in so far as they depend on the muscles, as well as the form of the limbs, even to the fingers and toes, &c. If this law be correct, viz. that "organization is propagated in halves," or that one parent gives the *whole* of the "vital or nutritive system," and the other the whole of the "locomotive system," it will be perceived that many of our commonly received opinions and practices are erroneous. In crossing, we are commonly directed in the selection of a male to choose one most perfect in the points where the female is most deficient. But from this law, we learn that we shall not in all cases, accomplish our object. If a part of the "vital system" in the female is deficient, and we seek to improve the progeny by crossing with a male, perfect in these particulars, yet defective in some other portion of vital system, we shall fail, because one parent must necessarily communicate the *whole* of the vital system, as the other must necessarily communicate the *whole* locomotive system.

But I shall tresspass too much on the columns of the Cultivator, by tracing out the practical inferences. I shall therefore confine myself to a bare statement of the laws themselves. If we inquire how we are to ascertain in what cases the male will give the locomotive system, and in what cases he will give the vital system, we are told by Walker, that where both parents are of the *same variety*, it is impossible to predict which series of organs will be communicated by the male, as between a bull and cow, both of the Short-Horns, or both of the Herefords. But in cases where the parents are of different breeds, as a Berkshire sow and China boar, both parents being of equal age and vigor, the male gives the back head with the locomotive organs, and the female the face and nutritive or vital organs. In individuals of the same *family*, that is, in breeding in and in, as between mother and son, or brother and sister, precisely the reverse takes place, the male then gives the face and vital organs, and the female the back head with the locomotive organs.

I have thus briefly stated some of the more important laws of breeding, discovered by Walker. Of course, in the narrow limits of a communication, it is impossible either to give the facts from which the laws were deduced, or the important practical consequences resulting from them. These latter, however, will readily suggest themselves to intelligent breeders. What I have written is offered with a view to guide them in observing the laws of procreation and, in the hope that if these laws are found to correspond with their experience, they may be induced to communicate their observations for the columns of the Cultivator.

N. N. D.

5,512 Product from one Seed.

Wheatland, Aug. 29, 1839.

Mr. J. Buel—Sir—I wish to inform you and the public, through your paper, the Cultivator, the great amount of wheat grown from one kernel of the common bearded wheat, grown in this town, which is 106 stalks, averaging 52 kernels to a stalk, amounting to 5,512 kernels.—

ALLEN SAGE.

Plans of Farm Buildings.

Jesse Buel—Respected Friend—On looking over the Cultivator of August 15th, I saw a number of well arranged and convenient plans of Dwelling Houses, which reminded me of one I drew and had published in the Farmer and Gardener, in the year 1835, accompanied by a plan of a barn also; I herewith send the wood cuts of both: if found worthy of a place in thy paper, thee may publish them. Having lately built nearly such a dwelling on my nursery farm, except one wing, which is omitted for the present, which on a year's trial, I find to make a very comfortable summer and winter house, by opening or shutting the folding doors between the two parlors. My spring being near the east end of the wing, and the ground falling in that direction, admitted of a wash-house under the kitchen, with its out door on a level with the ground. In this I have a large bake oven and boiler. This house is built in a neat, permanent manner, of stone, hewed granite to the water table in front and imitation granite above, with granite sills and portico floor, marble chimney pieces, pilaster casings, 8-4 doors and slate roof; cost here, where most stone are high, $4,101, exclusive of gates, gravel walks and ornamental planting, &c. I also built a barn some years ago, on this plan, except corn cribs, which were omitted, of stone. Cost $1,200, exclusive of gathering stone on the farm and hauling them, sand and lumber, with the farm hands. Respectfully,

ROBERT SINCLAIR, Sen.
Clairmont Nursery, near Baltimore, Md.

To the Patrons of the Cultivator.

Having in early life learned drawing and architecture, and being for several years engaged in the construction of buildings, I have derived great advantages, subsequently, from the information thus acquired, in the erection of even the roughest building on my farm, enabling me as it did in its plan and arrangement, to consult economy and convenience, and to adapt it to the peculiar purposes for which it was required, with the least possible expense, matters which, with a judicious agriculturist, should never be lost sight of. Indeed, according to my views, these are the chief objects to be consulted in the whole internal economy and management of a landed estate, whether regard be had to its cultivation, or to the improvements thereon. In saying this in favor of what may be considered the *useful*, I wish it not to be thought that I would reject, or that I am not a lover of, appropriate architectural decorations and ornaments; for of these I am a warm and decided admirer, and especially so where the means are ample, and can be spared from such things as are essential to comfort.

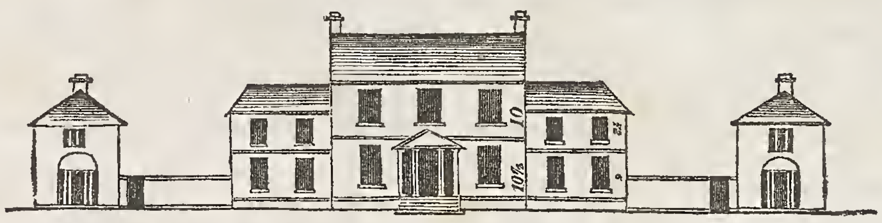
The approach to this building is intended to be either from the east, west, or north, and to terminate at the north door; to be protected from the northern blast by tall oak, hickory, or such other trees as may be native there, thinly scattered over the ground, which may be set in grass; and these to be interspersed with groups of *balsam fir*, or other evergreens, tastefully arranged for effect. Should such protection not be practicable, a well cultivated orchard of fruit trees will answer in their stead; but the latter, as well as a good vegetable garden, would, probably, except in the case described, answer best, if placed eastwardly of the mansion, and the farm buildings, such as barn, stabling, &c. to the westward, or reversed as might be required by the site, leaving the south front an *open lawn*, unincumbered with trees, except here and there, at a distance, single ornamental trees, with a few clumps of evergreens, and on the right and left small groves of ornamental trees and shrubs, so arranged as to make the lawn in front widen as these groves extend from the mansion.

Explanations of the Drawings.—*Of the Mansion.*

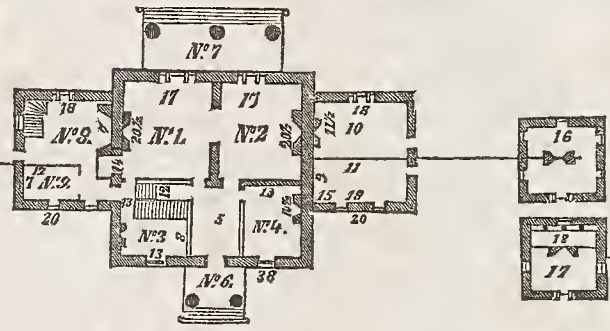
A. Plan of the first story.

B. Elevation of the north front, with study and manager's house to the right and left.

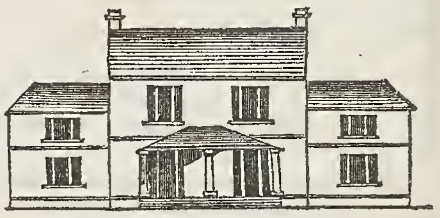
[Fig. No. 37.]—Plan B.



[Fig. No. 36.]—Plan A.



[Nig. No. 38.]—Plan C.



C. The south front.

No. 1, common parlor: No. 2, drawing room: No. 3, housekeeper's or dressing room: No. 4, breakfast room: No. 5, entrance hall: No. 6, north portico: No. 7, south portico: No. 8, kitchen: No. 9, pantry: No. 10 & 11, office and store room or working shop, &c.: No. 12, passage from hall to kitchen, under the upper flight of stair steps, (this might if necessary be converted into a pantry or closet for china:) No. 13, passage from common parlor to dressing room.

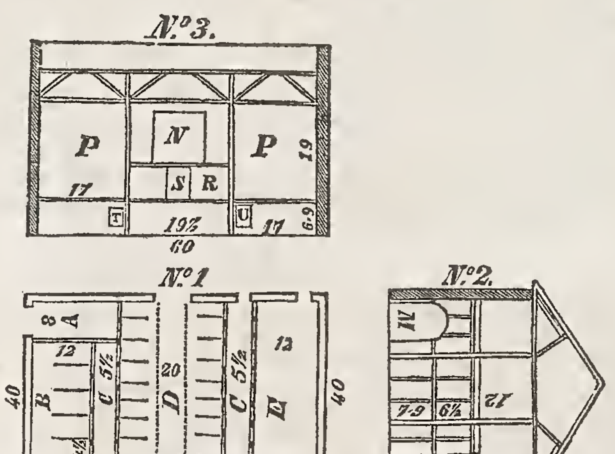
The second story to be divided as below with the addition of one room over the hall. The *garret* will make four good rooms, by having two windows in each gable end, and two dormant windows on each front.

By the arrangement of the rooms on the first floor it will be perceived, that, from the common parlor, with three steps the mistress of the family can be at the cellar door, which is situated under the first flight of stairs, or at the dressing room door, as occasion may require, and that with five steps she can reach the kitchen fire, a most important place, by the bye, for her to keep a vigilant eye over, if she be desirous of having her culinary affairs judiciously managed or her cooking well and economically done.

It will be observed that the kitchen fire place is in the rear of, and immediately adjoining, the back of the common parlor fire place. With some, this location of the kitchen fire place may be viewed as an objection, and as rendering the appearance of the building not as attractive as it would be if the chimney were at the extreme outer end of the kitchen, and with such I am ready to join in opinion. But if they only desire to relieve the general aspect of the building from what might be viewed in the light of an architectural deformity, their object can be attained by a very simple process, and one too, of but inconsiderable expense—by merely carrying up chimneys from the study and servant's rooms. Should this latter suggestion not be adopted, it will readily be conceded that the apparent defect in the beauty of the house is more than balanced by the superior utility, and increased comfort arising from the location of the kitchen fire place, as before premised. If the flue or funnel of the kitchen fire place be carried up in the same stack of chimneys, as those of the mansion house, being of the same height, it will be less liable to smoke than if under the influence of the eddy which would be formed were it carried up independently of, and of less elevation than, those of the main building, as they necessarily must be, if projected from the outer end of the kitchen. There are two other advantages to be gained by building the fire place adjoining the parlor: first, it will contribute largely towards warming it, and secondly, it will be more convenient for the superintendence of the mistress of the family, and yet the sitting parlor may be rendered entirely private, when necessary, by closing the door.

Having thus explained the drawings of the mansion house and its appendages, I shall now proceed to describe the *necessary* farm buildings for such an estate, and particularly if a large quantity of hay be raised and much stock be kept.

[Fig. No. 39.]



No. 1. Ground plan.
A. Carriage house.
B. Family horse stable.
C.C.C. Feeding passages.

D. Cow stables with door to back the cart in for the purpose of hauling out manure.

E. Stable for work horses.

F.F. Two lathed corn cribs.

G. A vacant space under the bridge leading into the barn, and between the barn and bridge abutment, which admits of a door into the granary between the stables and barn floor.

H. A walled embankment or bridge-way into the barn.

F.F. A covered enclosed way into the barn under which are two corn cribs, between which the cart passes into the barn.

M. A carriage-house door.

N. Barn door.

P.P. Hay mows.

R. A granary story divided into garners.

S. A door leading into the granary story.

T. A door to the feed passages.

U. A window with wide moveable slats to shut out cold, or let in air—several of these are necessary in the different stables.

V. Step ladder.

No. 1. A ground plan of a barn sixty feet by forty, showing the stalls and seats of the upright posts dividing and supporting the barn.

No. 2. A section of the gable end of the barn, showing all the timbers and scantling.

No. 3. The north section of the barn shewing the timbers and doors.

Inasmuch as the stone abutment of the bridgeway into the barn has to be built eight or nine feet from the back of the barn, to give entrance and air to the granary story, that part of the bridge has to be made of wood; hence the necessity of projecting the eve of the roof of the barn so as to protect the wood work from wet and consequent decay; and by boarding the outside and inside with a light frame of oaken lathe, one by three inches. two commodious corn cribs five by eleven or twelve feet will be formed, to throw corn into, in wet weather, as it may be husked in the barn. Under this bridgeway and these corn-cribs, there will be a convenient cart-shed, provided the barn be not built on too much of a declivity. From three to five feet is sufficient fall from the north end of the bridge-way to the south front of the barn, as the stabling is far more healthy when not much under ground. The earth may be removed from the foundation to the outer part of the bridge-way, so that the cost of it will be trifling, except for the wall around it to keep up the earth. By means of this bridge and covered-way, we not only gain a cart shod and two corn-cribs, but are enabled by it to get the carts, when loaded with either grain or hay, up into the barn floor, sixteen feet above the floor above the stables, thus affording the facility of conveying the hay and straw, by means of a funnel, to be prepared for the purpose, into the feed passages and granary below. The hay mows being seventeen by thirty-seven feet, and nineteen feet high, will hold a very large quantity, and besides a great deal may be stowed away above the square in the roof, there being no collar beams to take up the room. About one-half of these immense stowing rooms being below the caving rail, which is three and a half feet above the barn floor, the hay may be rolled off the cart into the mows, thus saving all the trouble and labor of pitching it up into the loft, as is the case in such stables and barns as have their floors on a level with the ground.

On the south front a cow-yard ought to be enclosed about one hundred and ten feet long, and from sixty to one hundred feet wide, according to the number of young cattle to be wintered in it. The milch and working cattle being fed in the stalls renders it unnecessary for it to be large. In this yard there ought to be either a fountain or pump to supply the stock with water. And it will be necessary for the horses to have a separate trough and apartment in the yard, and there should also be a shed along the east end for the cattle to go under in stormy weather.

It will be seen, that in this barn, all the provender necessary for the winter's supply, whether of hay, straw, or grain, can be stowed away; and that, from its great conveniences, all the stock may be fed during that period of the year, without those having charge of them being necessitated to go out of doors; and should the precaution be observed, of hanging up the gears of each horse, on hooks to be provided for that purpose, behind them, which should never be omitted; such as may be wanted may be harnessed without a moments's delay.

An implement-shed should, in addition to the buildings I have described, be erected near the stable, which beside its real utility in the preservation of tools and implements, always reflects credit upon the proprietor of an estate.

I think it will strike the intelligent farmer and planter, that by thus concentrating the out-buildings on an extensive plantation, convenience, economy and comfort, to man and beast, are all eminently consulted, and that in point of beauty in appearance, it very far surpasses the old *plan* if it may be so termed, of having a barn here, a stable there, corn-house in one place, and a cow-house in another—this latter arrangement always had in my view a most unslightly and un-system-like aspect.

If a thrashing machine should be intended to be used in the getting out of the grain, preparation for the horse-path may be made under barn floor, in the cow stables, or in a part of one of the passages, from which a strap may pass upwards to a wheel on the machine.

ROBERT SINCLAIR.

Importance of selecting Seed.

Liberty, Bedford Co. Va. August 22, 1839.

To Judge Buel, Editor of "The Cultivator."

Sir—It has been said that he who enables us to rear two blades of grass where formerly we raised but one, is a benefactor to mankind. He then who teaches his fellow men to rear two ears of corn where formerly they raised but one, is no less a benefactor of his species. Several gentlemen in our country apparently claim paternity of the idea of selecting seed corn from the most prolific stalks. And many purchase at high prices small parcels of seed corn thus selected, called after a Mr. Baden, whose name it has assumed from his distributing it, and from its singular yield, &c. It matters not to the cultivator who rears it, what name it bears, or who first conceived the idea, so he is benefited by it. Nor should its true parent care, so he can enjoy the high gratification of having promoted the interest of his fellow men. The idea was first suggested to me in the year of 1800, when a small boy, occasionally attending to my father's stock of animals, from the peculiar fruitfulness of a single one of them and all her progeny of both sexes, which I particularly noticed for several years; and in 1815, when I became a cultivator of the soil, my first object was good seed of every crop I wished to raise. And recollecting the success of my experiments in raising stock from the offspring of the above animal, I commenced the experiment on the vegetable creation, by selecting my seed corn (the most important crop in our country,) in the fall of 1815, exclusively from stalks having two good ears on them, cutting the stalks off at the ground, and hanging them in a high dry place secure from rats, &c. until planting season; then shelling off a little from the small end of each ear and planting the balance of the ear; and being fully satisfied of the increased product, disclosed it to my neighbors, all of whom, who saw my corn in the field, or who tried my seed with their own, were fully convinced of its beneficial results, and by degrees it has spread over the country generally. In the fall of 1821, as a means of diffusing the information as above acquired as extensively as I could, I wrote to Mr. Skinner, editor of that most invaluable periodical, "The American Farmer," of Baltimore, (and which paper I am pleased to hear Mr. Skinner has recommenced publishing in that city. Those having that paper of above date can refer to my letter.) Soon after which, I sent to several gentlemen, at their request, supplies of seed corn near Baltimore, Richmond, Charleston, &c. all of whom were fully satisfied on the first trial of its peculiar and uncommon product. Some years afterwards it was said by some that the crops from the seed collected as above was later, and of course more subject to injury from early frosts, &c. To obviate which, I selected my seed from the double, treble and quadruple ears that were most forward, and soonest matured and ripe. This was done without any sort of trouble, as follows: When my hands were cutting the tops off the corn in September, for winter forage. &c. I directed the tops to be left of those stalks *only* which had the most forward and fine of the double, treble and quaddruple ears, which was perceptible to every eye by the dead silks, or by the shuck whitening and drying first, &c. By this mode at gathering time one may know at a distance all the selected seed corn; and by this process, in a few years, my corn was decidedly earlier and more forward than any of the same kind, the seed of which had not been selected from the most forward, as was acknowledged by all who planted of my seed thus selected. I would, therefore, respectfully suggest, through the medium of your very valuable and widely circulating paper, "The Cultivator," to all corn planters (as well as of vegetables generally) of any kind of corn they choose to cultivate, not to reject the idea because their ancestors have not pursued it from time immemorial; and after a few years' trial of it, (which can give them very little trouble) if they should find no benefit from it, to drop it. I have not for many years, owing to professional duties, increased afflictions, and other causes, attended to this subject as much as its importance deserved, although it has not been wholly neglected; and I can now show in my fields of Indian corn, of the same identical kind I commenced with in 1815, many stalks having three, four and five ears each; and some (including short corn) six, seven and eight ears each. A brother chip of mine, in an adjoining county, some years ago, purchased a small tract of land and planted my seed corn on it the first year, and assured me the following fall, that the astonishing product from that seed had enabled him the same summer to sell the land at an advance of over one hundred per cent profit. I might relate many other facts of some interest on this subject, but my purpose will be fully answered, if from what I have said, I may induce those who cultivate the soil to try this experiment themselves, as well with other vegetables as with Indian corn; for I doubt not a fair experiment would prove equally propitious and satisfactory with many of the vegetable creation if fully and fairly tried. Indeed, the selection of good *ripe*, well chosen seed of any and every kind, is well worthy the attention of every cultivator of the soil. I may, Mr. Editor, towards planting season, give you some account of my experience as to the manner of preparing seed corn when planting, &c. and its results, (as this letter is already long enough,) and I hope editors of agricultural papers and newspapers will give the above suggestions an insertion for the benefit of their patrons, &c. Your subscriber, and ob't serv't,

WM. COOK.

To prevent the Murrain in Cattle.

East Raisinville, Monroe Co. Mich. July 26, 1839.

J. Buel, Esq.—Dear Sir—In the July number of the Cultivator for this year, which came to hand two or three days since, I have read the communication from Mr. Payn of Black Locust Grove. I have never read any thing which more fully accorded to my views and experience on the subject of murrain in cattle. For the last thirty years I have resided in the north part of the state of Ohio and in the east of Michigan. I have suffered severely in the loss of stock by this grievous plague, until about eight years since, losing every year more or less, from one to sixteen head in a season. As for a specific cure, I do not believe there is any; but I will give you the result of my experience as to a preventive. If you think best to give it to the public through the columns of the Cultivator, you are at liberty to do so. About eight years since I had lost two fine oxen, and was then doctoring the third, which was in the last stage of the disease. An elderly gentleman was passing, and rendered me some assistance. He told me that there was no use in doctoring; the better way was to prevent. He gave me the following as a preventive, and added that it was so simple he doubted much whether I would follow it. He said, fix you a trough in the yard where your cattle could go to it every day, and mix equal portions of slaked lime and salt, and keep it always there. "And," he added, "if after three months, you lose a creature, draw an order on me and I will pay for for it." Since that time I have literally lived up to the specification, and I have never lost but one cow since, and I have kept from fifteen to fifty head on my farm ever since. Now, sir, whether it is the addition of lime, or whether it is the regularity of always having salt where they can take what they please, and not one day take a larger supply than is heathful, and then be without, I do not know, but there are some facts I do know, that the stock will not consume as much salt mixed with lime as they will without; and such is my confidence in the remedy, that when I change my cattle to fresh pasture, that my portable salt trough goes with them, and is always kept well supplied with the mixture. I said I had lost one cow: the circumstance was this: on examining into the matter, I found the man that had the care of my stock (for I was much away myself) had put the lime barrel down cellar, and the moisture of the cellar had entirely destroyed the properties of the lime. My method is to procure my lime and set it in a dry place, and let it air slack, and I am always supplied with the article as fast as I need it. With this instance excepted, I have never seen a healthier stock than mine, and I attribute it entirely to the lime and salt, as there is in this country, and my neighbors all around me are losing more or less every season. I am not able to give you the whys and the wherefores about the matter, nor am I competent to write for the Cultivator; and I have to say, that should it be published it will require some time and patience to make it as it should be; but the correctness of the facts I vouch for. Yours with great respect,

LEANDER SACKETT.

Rev. Mr. Lodor's Select School.

Montvue, Warren Co. Va. (P. O. Middletown,
Fred. Co.) August 20th, 1839.

Honored Sir—In the Cultivator of the present month, (vol. VI. No. 6,) I observe an editorial notice of my private and select school. I certainly feel under obligations to you and your kind correspondent. The notice referred to, terms it *a manual labor school*. The labor, however, is altogether *agricultural* and *horticultural*. Formerly, a *mere manual labor* system was pursued, but the idea of an *agricultural* school was first obtained from the perusal of your truly valuable periodical, of which I have the pleasure to be a subscriber and constant reader. The plan of my school is, to enable youth to obtain literary and scientific, in connexion with agricultural knowledge, and at the same time to diminish the expenses of their education by their personal labor in the garden and on the farm. It is altogether a private establishment upon a small scale, no more being admitted to the agricultural department than may be deemed necessary to carry on a limited system of rural occupations. The course of education pursued in the literary department is a liberal one, yet the number of students likewise limited. In this department, I have the happiness to say, a number of young men have been educated, who stand high in the several professions of law, medicine and divinity. The agricultural department is as yet in its infancy, but as far as my experiments have extended, I see no ground for discouragement, although an entire novelty in this part of the country. I hope you will excuse the liberty I thus take of calling your attention to the error in terming it merely a *manual labor school;* an error of little importance in itself, were it not that it makes your periodical apparently depart from its legitimate objects in noticing that which has no immediate connexion with agriculture. The connecting of an agricultural department with my school, I do not consider of any pecuniary advantage to myself, the labor of inexperienced youth by no means compensating for the deduction required to be made in their session bills. Yet I cannot doubt the ultimate success and utility of these schools in a country like ours. And I hope you will persevere in your laudable efforts to press this subject upon the attention of the community. I have been much interested in reading your articles on this subject, both editoral and from correspondents. And may you reap the pleasure of beholding success following your every effort. The high encomiums passed upon your periodical by gentlemen of scientific and agricultural standing in every part of our nation, render any expressions on my part altogether superfluous. Suffice it to say, that it is considered by myself and friends here as decidedly the most useful and the most ably conducted agricultural publication within our knowledge. Very respectfully,

JOHN LODOR.

Common School Education.

Schenectady, 11th September, 1839.

Dear Sir,—In your last number of the Cultivator, for September, I saw a "Circular on Common School Education," over the signatures of the distinguished names of Theodore Frelinghuysen of New-Jersey, Charles Brooks of Massachusetts, Henry R. Schoolcraft of Michigan, Theodore Dwight, jr. of New-York.

It is a pleasing circumstance that such men have engaged in this important cause. I hope a new system of education will be established,—I mean a new set of books, written purposely, so that when children are learning to read, they may learn the principles of a moral life.

The best patrimony that children inherit, is a correct moral education. Hitherto children have been taught to read, with the single object of learning to read only, when they might have had the foundation of a moral life, if the books employed in teaching were so written as to inculcate those firm principles of moral ethics which are calculated to make us happy in this life, and the only mode of living so hereafter, by learning to love God with all the heart, and our neighbor as ourselves. If this divine principle was in full practice here, we should enjoy heaven on earth. And is it not chargeable to faulty education that it is not so?

Some persons assert, that the natural temper and faculties of man are the sole cause of their evil conduct in this life, and that it cannot be prevented by education. Such opinions must arise from want of observation. Why are the inhabitants of South Africa and Southern South America living in a degraded state, almost on a par with the brutes? And yet those men are made with rational faculties of improvement like all other men, where the greatest improvements have been made, by cultivating their natural faculties.

A friend of mine informed me, many years ago, that he knew a man of a family, living on the border of Oneida lake, in the state of New-York, at the time when that county was a wilderness. The son told my friend that they could not raise a pig without great care, as bears and other wild animals would take them for food. That they had a cow, which fed in the forest; that his mother went to look in the woods for her to milk her, and that if night overtook his mother before she found the cow, she made her bed, when the darkness stopped her search. This was a white woman, and it must be evident that her degraded state was chargeable to want of education. What a wide difference between that woman and a delicate and well educated woman, in civil society! And is not education the sole cause of difference?

Education does not always produce virtue, for education has not always been founded on virtuous principles. Even our accademic schools are faulty, in teaching the dead languages in books written by those who knew not christian principles, and exhibited the most glorious actions to be those which could accomplish the greatest destruction of their fellow men by skilful warfare. Even the teachers of morals are faulty. Paley has been the standard of moral ethics in our colleges, and Paley's maxims are almost void of christian moral ethics. They are mere worldly expedients. If such a course is pursued, when will our youth become moral and correct? Education makes the man and the christian. "Evil communications corrupt good manners." I pray that these distinguished men, when in convention in November, as proposed, will renovate the whole system. God bless their labors to that use.

While a convention of such men, and for such purpose, meet for the improvement of education, I would suggest the propriety of their giving attention to the correction of orthography. There is now a great waste of time and space in writing many words, according to the continuation of the old mode of spelling, such as spinning, beginning, running, &c. &c.

The verb of spin is changed to the participle of the present tense by adding *ing*, when ning is nonsense, as ning is a word of no meaning. So the verb to commit, is changed to the participle of the past tense, by adding *ed*, when the present mode is *ted*, which is nonsense. So the using two g's in the word drugist, bagage, wagon, &c. &c. I have, for a long time, made the correction, under the risk of being called a faulty speller.

It needs some authority to make the correction general. Lexicographers dare not, but such a convention would be justified, and receive public approbation and thanks.

Will you please to make this known to those gentlemen. It can't offend them. Respectfully,

DAVID TOMLINSON.

The Peach Tree Grub.

New-York, Sept. 17, 1839.

I desire to add my mite to the stock of information communicated by Mr. Lancaster in vol. 6, No. 8, of the Cultivator, at page 133, in relation to the grub worm.

There are two causes of decay in the peach tree:

First. Over bearing, by which the tree is exhausted, arising from the unwillingness we have generally to part with any of the fruit, and neglecting to furnish the proper food for the tree.

Second. The grub worm.

When I resided in New-Jersey, I took great care and spared no expense to have good peaches, and while I did that I had great abundance.

The course I pursued was, every spring and early in autumn to clear away the ground at the stem of the tree near the roots and near the surface of the ground, and put tobacco leaves round the body of the tree, then cover up the tobacco with the earth, the dampness of which round the tobacco caused an effluvia that no *worm* could penetrate the tobacco, or live in or near the root of the tree, if peradventure he had got in there. To prevent exhaustion I sent to the woods and procured the surface soil, which was decayed leaves, and is a valuable food for the tree.

This course I pursued several years, and while I did it I had every year a great abundance of the finest fruit, and as soon as I neglected it my trees failed and were destroyed by the grub. I have recently discovered what I think will be a complete protection against the grub, and a manure that will furnish food for the tree far better than any thing yet tried. I have not yet tried it to the peach tree, because now I have no peach trees. I have recommended others to try it, and hope to do it another year myself.

I would put around the roots of the peach tree, having first cleared away the earth from the roots, about 4 quarts of poudrette as manure, and draw the earth over the poudrette in the spring of the year. It has proved the most valuable manure for grape vines, morus multicaulis, and young apple trees, when they are first set out, of any other application whatsoever.—Next to, and around the body of the tree, and at the root, where the grub is sure to make his entry, I would *put two quarts of urate,* spring and autumn, and cover it over with the earth, and sprinkle it in a slight degree with water. *Urate* is similar to what hartshorn is sometimes made of, and when damp produces as strong an odor as the strongest hartshorn, and you may judge how long a human being could live inhaling at every breath the smell of hartshorn, and then you can easily imagine how long it is possible for a *worm* to live in it.

I have killed the grub by the application of boiling hot water, poured from a teakettle on the root and body of the tree where they were, and have seen the sickly leaves assume a healthy appearance for a time.

A. DEY.

Application of Salt to Trees—The Borer.

Whalen's Store, N. Y. Aug. 17, 1839.

J. Buel, Esq.—Dear Sir—A communication has been going the rounds in the papers, recommending the application of salt to the roots of fruit trees. I would say to those disposed to try it, do so cautiously; salt in large quantity will destroy all kinds of vegetation, even the Canada-thistle itself, and if the application be a liberal one, I will venture to say, it will kill every tree, root and branch, that it comes in contact with. Permit me here to state a single experiment I made three years since, to free the yellow-locust from the borer. I had some half a dozen trees in my door yard, about four inches in diameter, that were in a fair way of being soon destroyed by this pest. I cleaned out the holes from whence the dust issued, and pushed lightly into each with a stick, a small piece of camphor about the size of a large pea; from that day to this the borer has entirely ceased its operations on the trees thus served.

Respectfully yours, SETH WHALEN.

Physiology—Improved Husbandry—Agricultural College.

Hon. J. Buel—Dear Sir.—All vertebral animals circulate red blood, and all other animals below, and not vertebral, and all insects, have white blood. The blood of all animals is white at its formation, and from its passage from the absorbing vessels, which take up the nutriment and convey it through the lymphatic vessels to the blood in the large veins, from which it enters the right auricle of the heart, thence to the right ventricle, whence it is thrown by the heart into the lungs. There it is changed, with the dark colored venus blood, to the florid red color. It then is returned to the left auricle of the heart, thence to the left ventricle, whence it is thrown, with the power of a steam-engine, into the aorta which branch to the upper and lower region of the body, and the blood is circulated to every minute part of the body and skin, to nourish, invigorate and beautify the body. It then enters the capillary veins and is conveyed to the larger veins, till it reaches and passes the great vena porta through the liver, to the heart, to perform again the repeated circulation to nourish and sustain the body. Breathing air cannot be dispensed with for a few minutes only without the loss of life. The blood must be thus renovated and supplied with the principles of life, in the lungs, by the air, for new and constant nourishment of the body, or the heart will refuse to circulate it and sustain animal life, and the body must die.

Death is the absence of life. The moment the body ceases to live, the muscles become flaccid, and their full, round and beautiful appearance vanishes. The skin puts on her cadaverous habiliments, and decomposition of the body commences, and progresses rapidly if the weather be warm, and slower if cold. It is dissipated—earth to earth, dust to dust, water to water, air to air, &c. &c. So the various component parts of the body seek their native home in their homogenous elements. Many of them are taken up by the vegetable family, and become food for animals, forming new combinations, in vegetable and animal bodies, which die, and are again the sustenance of other vegetables and animals without limit.

It is astonishing that the pagan tradition of the resurrection of the *body of flesh,* it so strongly impressed on the mind in childhood, as to continue through life, when the common sense and truth of the fact is so plainly and forcibly illustrated by St. Paul to the Corinthians, (I Corinthians, 15 chap.) in combating the same error in that day, of the resurrection of the *body of flesh.* The body is dissolved and scattered to the four winds of heaven: and if it were to rise again and live, it must be subject to a second death—to be burnt alive at the great and final conflagration—for flesh and blood cannot inherit the kingdom of heaven, says Paul. The red blood of all animals is alike, and if viewed through a magnifying glass, there appears little if any difference in it; and that apparent difference, probably, is more speculative than real.

All animals that breathe air in a volume, have hot blood. The heat of the blood is derived from the air, which is suddenly decomposed on entering the cells of the lungs, and the latent caloric in the air is let loose, and enters the blood with the oxygen. This may be in some measure illustrated by slaking fresh burnt lime. If water is poured on stone lime, just enough to slake the lime suddenly and no more, the water is so suddenly absorbed by the lime as to become solid with the lime, leaving the caloric free, so that it may kindle and ignite wood and other combustibles.

All animals that do not breath the air, have cold blood. I would not be understood to say, that there are any animals that do not breathe air; for all animals, and all vegetables, every thing possessing life, breathes air in limited portions. Even the oyster breathes air. It finds sufficient air in the water, where it is bred, feeds and lives. The film or fringe around the edge of the shell, is the lungs which inhale air from the water. If the oyster is shut up close, to exclude water and air, it will soon perish, as all animals must.

So the foliage of vegetables are the lungs, and if air be excluded from them, they must perish. They must have light also; for without light a long time, the leaves die and fall off, and the plant stops its growth. House plants kept in a dark room or celler in winter, prove this. But some vegetables, like some animals, suffer sooner than others when deprived of air. The potatoe vine will drown almost as soon as many animals or insects will, when covered with water. If it is covered with water but a few hours, it lingers and perishes.

Some aquatic plant find sufficient air in the water, where they grow, to sustain them, as fish do, and perish if placed in the air, as they cannot inhale air in a volume. The fish are observed to be constantly swallowing water, which passes out at the gills, which are the lungs, and they inhale air from the water sufficient to sustain life.

The large whale must breathe a volume of air, and must throw himself out of the water to breathe. Although he rolls head and tail out of water to breathe, which he does apparently in an easy and leisurely manner, yet, when he is seen to rise again, the distance he has made, shows that he moves with the velocity of the steam-boat, as I have noticed them in pairs, in the Atlantic ocean. Their tail is flat, or horizontal, like the porpoise and herring hog, all which rise above the water to breathe air. The whale sails with the tail; and by bending it under water, and then extending the tail suddenly, can throw his huge body with great speed above the water to breathe.

The farmer may, if he will, by contemplating these natural properties and propensities of animals and vegetables, learn how to preserve both in health and growth. He may learn that good air is indispensable to all animals that live in the air. All animals of the farm stock are more healthy, and thrive better, if their places of feeding and sleeping are furnished with wholesome and fresh air. So the various plants cultivated on the farm require to be planted, some on the dry part of the farm, and others where the ground is more damp. Regular moisture suits potatoes. If their growth is suspended by drought for a while, and after the tubers are of some size and are again supplied by rain, they are apt to sprout again; certainly if the vines are dead; and when they do so, the potatoes are of inferior quality. Damp ground, where the water will not pond, is suitable.

The public are convinced that there has been a great defect in agricultural management; particularly in this state. Not many years past, the state of the harvest in Europe was anxiously inquired after, particularly England, whether there was a prospect of a market there for our surplus bread stuffs. It is now within the knowledge of all, and painfully by many, that, the population of the state of New-York has fed on European wheat, to the amount of many millions annually, for several years past; and that, too, when there was not a failure of the crops of wheat here. Pork and beef have also been scarce and prices high. These prove a faulty agricultural management.

Your Cultivator furnishes many statements of great crops—double and treble product on the acre, by scientific culture, above the ordinary and ignorant mode of farming.

It is notorious, that when the vegetable soil of the land in Dutchess county, in this state, had become exhausted by extensive culture, it was supposed that the land was of no value; and in some instances it was abandoned as not worth fencing for tillage. By scientific culture, in the use of plaster and manures, it has, for many years, been called the *garden* of the State; and is really the most productive and richest county in the State, and the same lands sell for one hundred dollars per acre by the farm. All this has been accomplished by scientific agriculture.

Will our legislature continue to confine all their aid of science, to academic seminaries alone? I approve their aid to literature, for the benefit of the liberal professions; but would ask them equally to foster the great agricultural interest, by establishing ONE AGRICULTURAL COLLEGE, that the sons of farmers, who desire to improve that profession, and raise it above the present state, called drudgery, may do so.

For several years past the farmers in this region have purchased their bread stuffs, and that too at double the former prices. If farming shall become a science, as it will, if properly encouraged by an agricultural college, the present impediments to the growing their own bread corn in all parts of this country will soon vanish, and we shall not again see an agricultural people importing their bread stuffs from a foreign country, when there is no calamitous loss of crops.

Every county and town in the state should address their petitions to the next legislature, asking them to establish an agricultural college, that the farmers may improve and feel the first of the profit and blessing of good husbandry, and all classes will participate, as successful agriculture is the foundation of all our prosperity. What a wide and interesting field do the animal and vegetable kingdoms offer to men of science in agriculture? It is inexhaustible in its pleasures and rewards, both to the mind and the purse. An agricultural college will render the profession of farming more scientific and more honorable, and induce a new class of men of wealth and genius to enter the agricultural field, and the riches and comfort of this country will soon approach nearer to happiness and content.

Let not the demon of party politics prevent the measure, for all parties must profit by improvement in farming. Most respectfully.

DAVID TOMLINSON.

Schenectady, September 5, 1839.

Hints on Building Farm Dwelling Houses—Oil Cake.

Mr. Cultivator—Sir—I am much pleased to notice the interest felt by yourself and some of your readers, on the subject of "Farm Dwelling Houses;" as evinced by the plans given in the last Cultivator. The subject is one of great importance in this country; and without attempting a criticism on the plans you have submitted, I will offer one or two suggestions, which you may receive for what they are worth.

1. Although cheapness and utility are the main requisites, in all plans for all country houses for the farmer in moderate circumstances, yet as the humblest tenement has a moral, as well as an utilitarian effect, both on the incumbent and the beholder, some degree of expression, or architectural effect, should also be aimed at by the builder. The architecture of the cottage and farmery should be peculiar to themselves; and of that picturesque character which will best harmonize with the scenery and occupations by which they are surrounded. For this purpose, small country houses, or cottages, should never be of more than one story, or one and a half in height. The roof might be made very steep so that at least two good square ceiled rooms might be had, together with three or four with inclined ceilings, on the second floor; leaving still an upper garret of dimensions sufficient for a drying room or lumber room. If a piazza and a lobby around the main door were added, (which no cottage should be without,) they would contribute equally to comfort and picturesque effect.

2. The house, instead of being placed on level ground, should always be upon a knoll; and where one does not present naturally, it may be formed by throwing the earth dug out of the cellar around the walls outside. This would not only save something in digging the cellar, which would not need to be so deep in the earth, but it would be drier, and better aired; at the same time that it would give dignity and effect to the general appearance of the building.

3. The chimneys should never, where it can be avoided, be placed in an outer wall. This is an important defect in most houses of this country. The consequence is, a very large quantity of heat generated by the fire, is lost. When they are all in the inner or partition walls, the heat of the back and sides of the fire-places, together with that of the whole chimney, produces a material difference in the temperature of the whole house. A still better plan would be to use Franklin stoves instead of fireplaces, in all rooms except the kitchen, and carry the pipe straight up through the ceiling into a drum in the room above and from thence into the chimney. This would save something in building; as the stoves would not cost quite as much as fire places, with mantels, &c. and greatly lessen the consumption of fuel. The fuel generally contained in a common fire place, is amply sufficient for heating two rooms in this way. This is,

in fact, the most economical mode of heating by fire *in* the room. The new mode of heating by a furnace *without* the room, or the hot water plan, is probably cheaper and better; but is not likely to be adopted very extensively in cottages or farm houses. Some I know would propose close stoves instead of Franklins; but they are detestable things, and cost you as as much in doctors' bills as they save in fuel.

3. When building, it would cost no more to dig the well in the kitchen or woodhouse adjoining, than at a distance, and would be far more convenient. The same may be said of the privy or water closet, which can be as well within as without the house, if properly constructed.

4. There is economy, as well as convenience, in combining all the offices of a farmery as much as possible under one roof. You will find much that would interest your readers on this point, in Loudon's Encyclopedia of cottage, farm and villa architecture, and in the works of several other English writers on cottage architecture that have lately appeared, and the work of a French architect, named Morel Vindé, if I recollect aright. I believe we are far behind the English in architecture in general; and the "snug English cottage and farmery," with alterations to adapt it to the taste and wants of our farmers, would be a great acquisition to our country.

I hope this subject will be pursued by you and your readers; and that we shall have a variety of plans from time to time in your "Cultivator," not only of farm dwellings, but of farmeries and farm out houses, in which picturesque and architectural effect will be combined with cheapness and utility. There is a gentleman in our state, who from the attention he has given to this subject, I presume to be well qualified to enlighten the rest of us. I know not whether he is one of your subscribers or not; if not, he ought to be; if he is—hoping this will meet his eye, I will venture to say to Mr. Lord, that the possession of talents which enables him to serve his countrymen in any way, implies the obligation to do so; and a *hint* to as sensible a man as he is, *ought* to be sufficient. Yours,

D***** F***.

P. S. I made some inquires of you nearly twelve months since, respecting the use of oil cake or flax seed meal, as feed for cattle. Since that time, I have had an opportunity of trying it for myself—having fed eight cows upon it—and I can safely recommend it to such of your readers who are as ignorant of it as I then was, as a most invaluable feed. My cows gave considerably more and better milk than before. Indeed I found it of sufficient advantage to them to pay for giving them a meal of it morning and evening all through the summer, although my pasture has been good and abundant. For fattening calves it is excellent. A little of it mixed with the cow's milk, will do better than to let them run with the cow altogether, at the same time that you save the greater part of the milk.

One of my neighbors has also used it for raising sheep, and another for fattening hogs; and both speak of it in equally favorable terms. Hogs fatten very rapidly on it; and if put upon corn wholly for a short time before killing them, their flesh is said to be as good as if always fed on corn.

Objection to Zinc Roofs—Soaking Seed Corn—Chinese Corn.

Rose-Hill, Flushing, Aug. 21, 1839.

J. Buel, Esq.—Dear Sir—In the "Cultivator" for this month, I notice a communication from Egbert Hawley, relative to the construction of farm houses. Of roofs he says—"shingles are becoming scarce, and inferior in quality, and we must look for a substitute. Slate are expensive, liable to break, and I *suppose* not quite tight, &c. and in casting about for a good covering, *sheets of zinc* have appeared to me to be a desirable article. It has one good quality, at least; it will not rust like tin. Cannot some of your correspondents tell us where it has been tried, and how well it answers? Such knowledge would be very desirable to future builders."

I can inform Mr. Hawley, that "sheets of zinc" were tried upon several of the large buildings in the U. S. Navy Yard at Pensacola, and found *not to answer at all as roofing*. They would leak, although put on with the greatest care, and not a nail would hold where originally driven. The difficulty is, that the metal will *expand* and *contract* on every change of temperature, and to such an extent as to defy all attempts to prevent it. It was found necessary to remove the zinc, and substitute *slate*, which, *when properly put on*, I conceive to be the best article for roof, *quality* and *size* being duly considered.

If metal is desirable in any case, I should select *tin*, of suitable size and thickness, have it well soldered, and then painted. According to my experience, the only objection to tin is, not that it rusts, but, that after a time, however smoothly it may have been put on, it will become wrinkled, and on a cool night succeeding a hot day, it will make noise enough to keep a *nervous* man awake. Respectfully yours,

WM. W. VALK, M. D.

P. S. I planted five acres in corn about the 25th last May, put it in drills 3½ by 1 foot. Soaked the seed in a strong solution of nitre, and to half of it, added as much lime as would adhere. The limed portion came up first, and was 6 inches high when the other was but 1. I counted the seed, and found that it took 120,000—half were pulled, leaving 60,000 to grow. It is now from 9 to 11 ft. high, and promises a *large yield*. Six rows of the "*Chinese tree corn*" are now growing opposite to the above, and merits no further notice than to say it is an abominable "humbug." W. W. V.

The Philosophy of Breeding.

Mr. Buel—Will you be so good as to answer the following question? Will a sow of one breed of hogs, and a boar of another, produce a mixed breed? or will they take after the boar or sow so as to show which they are? It is a question of much doubt, and one which should call forth investigation, as it will throw much light on the best manner of getting a good breed. My impression is, that they will not mix, and if that is the case it would be better to keep the original breeds to themselves, as their habits would be more congenial. If my opinion, in this case, should prove to be correct, the attempt to cross must inevitably be a serious injury; for example, if one half of your stock should be the wood or hunting hog, with long legs, narrow backs and slab sides, and never get flesh enough to prevent them from travelling at least forty miles per day, and the other half with short legs, broad and heavy, and could not travel one-fourth of that distance, the food for one not suitable for the other, and their tempers by no means alike, what might we expect from an unsuccessful attempt at amalgamation? Yours respectfully,

STEPHEN McCORMICK.

Auburn, Fauquier Co. Va. August 28, 1839.

ANSWER.

The progeny of a sow and boar of different breeds, will be a mixed bred, generally partaking more of the male than the female parent, at least in the exterior appearance. If the farmer has a good breed, therefore, he should cross it with a better, or with one at least as good If he has the wood or hunting hog, he should make no cross, but buy and breed from both male and female of improved breeds. A hunting hog will not give half so many pounds of pork for five bushels of corn fed to him, as will an improved Berkshire.—*Cond. Cult.*

A proposition to be considered.

Rahway, Sept. 12, 1839.

Mr. J. Buel—Dear Sir—You have informed the readers of the Cultivator of your intention of closing the present volume of that valuable journal in December, and I presume not one of them have objected to it.—You also shew us the cheapness of it, compared to other journals, and also compared to the other back volumes, which were published at lower prices. The favor that I am about asking of you, will put you in mind of the *old proverb*, "Where much is given, much will be required." I flatter myself, that it will meet the wishes of all your subscribers: at all events, it does of those with whom I have conversed upon the subject, if it will not incur too heavy an expense upon yourself It is this: that you will give us the next volume of the Cultivator folded in the form the Farmers' Cabinet of Philadelphia is folded. It will make it much handier, and altogether a much better proportioned book, and may occupy the front of the book-case, where it will be always at hand as a book of reference. But its present size prohibits its occupying the place it deserves; and the expense of getting it bound (in a manner the book-binders term half-binding) is one dollar, which equals its first cost.

I have taken the liberty of proposing to you this alteration, knowing that you are always seeking for, and willing to adopt, any plan that would be an improvement. If the present price of the Cultivator will not admit of this alteration, I am confident that your subscribers would all agree to advance the price to $1.25 or $1.50; for at either or these prices it would cost but $2 bound, which is the exact amount it now costs.

Yours very respectfully,
WILLIAM A. STONE.

☞ This matter shall be duly considered, and our determination, with the reasons which control it, given in our next number.—*Cond.*

Small Seed Potatoes.

Rahway, Sept. 12, 1839.

Sir—I have made an experiment this season, for the purpose of ascertaining in what manner small potatoes give the best yield, taking into consideration quality and quantity. For this purpose, I selected 30 potatoes about the size of a black walnut with the shell off, and planted them all in one row; 10 of which I planted whole, 10 with the blossom ends cut off, and 10 cut in two. The product was as follows:

The whole ones weighed,	7lb. 10oz.	good quality.
Those with blossom end cut off,	7lb. 13oz.	better.
Those cut in two,	12lb. 4oz.	best.

WM. A. STONE.

Poudrette and Urate.

[We have already published several communications, showing the value of these fertilizing materials, and we give the following communication in further confirmation of their utility—with the remark, however, that they come too much in the shape of quack medicine certificates; and were we not satisfied, from personal experience, of the great value of poudrette, we should be apt to suspect their impartial character.—*Cond.*]

I, Benjamin Lattin Wood, of the town of Poughkeepsie, carpenter, certify, that in May, 1839, I procured two bushels of poudrette. I made a solution of a part of it, and soaked my oats in it about six hours. I was about three weeks behind the usual time of sowing oats, but gathered them about one week later than my neighbors did their oats. They have only been threshed in part, but the yield from them has been first rate. I planted two rows of the common bush bean in hills about two feet apart, and put about a gill of poudrette to each hill, on or about the 20th May, 1839. Previous to the 23d of August I had gathered one crop of green beans, pod and all perfectly tender. On that day there was another crop ready to be picked, and another crop about one-third grown, and the bushes were in blossom also at the time. I have now had four crops from the bushes, of the first quality of beans, and have never ate better. I can recommend truly the use of poudrette for farming and gardening purposes.

BENJAMIN LATTIN WOOD.

Poughkeepsie, Sept. 1839.

On the 26th August, 1839, Mr. Wood exhibited to me a stalk of the bush bean referred to in the above certificate; he said his family had eaten one crop of beans from the bushes, of which I had no doubt from appearances. There was then on the bush shown me, beans fit to eat, another set about one-third grown, and a great many blossoms. On the 9th of September he stated to me, that since showing me the bush, he had had another crop of beans on the vines besides those shown to me, and that new blossoms were still coming out on the bushes, so that, if not killed by frost, he would, according to the then prospect, have six crops of beans in one season from bush beans to which he had applied about one gill of poudrette to each hill. Such a yield I have never heard of before. The ground on which Mr. Wood sowed his oats, was in good order for a crop, but the influence of steeping grain in the solution of poudrette on vegetable matter, shows the quick and powerful influence which poudrette has where the ground is in good condition. It must not, however, be inferred from what Mr. Wood states, that *mere steeping* would produce the same effect on poor ground; I know it would not, from experiments made. For oats, the application of from 15 to 20 bushels per acre, sown in broadcast before the second harrowing, will be all sufficient. A. DEY.

I, George Walton, of the city of New-York, of the age of 56 years and upwards, do certify, that I have been a gardener by profession from my youth. That in the spring of the year 1837 I planted in the yard of Mr. Anthony Dey, in La Fayette Place, in the city of New-York, four young grape vines, namely, 2 Isabella's, 1 Catawba, and 1 Sweetwater. They grew very little in 1837, and not much in 1838, until some time in the early part of the summer, and after there had been applied about two quarts of poudrette to each vine. The earth was removed from around the roots and the poudrette applied to the roots, and then covered over again with earth. Soon after this application, the vines began to grow very rapidly. This year, 1839, there has been applied at three several times about two quarts each time. The vines have grown very rapidly, and all, except the Sweetwater, have a very large number of bunches of grapes this season, such as I have never witnessed before. The Sweetwater was killed down to the ground, but this year has grown stronger and longer than I ever saw before. I attribute this unusual growth and great quantity of fruit to the application of poudrette. GEORGE WALTON.

New-York, Sept. 11, 1839.

I have conversed with gentlemen who have applied poudrette to the mulberry trees, in *different* ways, and comparing the results, I think the best method is, to put around young trees about a gill or handfull next to the roots, in the manner Mr. Walton did about the grape vines; and the quantity may be increased according to the age and growth of the trees. When so applied, the growth has been quick and powerful.

Sept. 1839. A. DEY.

I, William Henry Wright, of Poughkeepsie, farmer, certify, that in the spring of 1839, I made the following experiments in the use of urate and poudrette.

I soaked corn, part in a solution of urate and part in a solution of poudrette, about 12 hours, according to the printed directions, and some was planted without being soaked. There was a decided benefit in all that was soaked, over that which was not. The grain came up quicker, stronger, and of a dark green colour, and grew with great rapidity, and the yield from it was greater.

On other hills of corn and potatoes about a gill was applied to each hill, and the effect was quick and powerful, and have never applied any manure that was to be compared with it in its beneficial results. The potatoes were superior to any I ever saw, both in quality and quantity, and at least two weeks earlier than common.

I soaked also oats about 12 hours, and some not so long, but the result was the same, as applied to the corn, a decided superiority over that which was not soaked, on land in the same condition.

I soaked timothy and clover seed a few hours in Poudrette, and rolled it in lime; the seed has come up well, and there is a manifest difference between it and some that was not soaked. And on the whole, I can recommend it as the best manure I ever tried.

WILLIAM H. WRIGHT.

Poughkeepsie, Sept. 1839.

I have watched with great care and attention the several crops referred to in the certificate of Mr. Wright. The corn was planted from about the 20th of May, 1839, to the first week in June inclusive, some with poudrette in the hill, and some without any poudrette; *but where lime and barn yard manure had been put on the land.* After the corn had been planted about three weeks, I measured some of it, and found that where poudrette in the hill had been applied, it was at least as large again as where no poudrette had been put. The corn with poudrette on it came up apparently stronger, with a dark, rich, green colour, and ripened from two to three weeks earlier in the field than it did in the garden where no poudrette had been applied. On the 18th of August, corn from the field was brought on the dinner table, and was found too hard and ripe to eat as green corn; and therefore I dare presume to say, *that corn, manured with about one gill of poudrette in the hill, even in our worst and coldest summers in which we have been afflicted with frost,* would have ripened sufficiently early to make an entire crop. It was sufficiently ripe on the 1st September to be cut up by the roots and put in shocks to ripen complete. The Mercer potatoes with poudrette ripened some two weeks earlier than other potatoes; and I never ate finer or saw larger potatoes in the month of August. A. DEY.

September 13, 1839.

EXTRACTS.

Experiments with Manures.

[*From the Essex Agricultural Society's Transactions.*]

DANIEL PUTNAM'S STATEMENT.

To the Committee of the Essex Agricultural Society, on Experiments on Manures:

Gentlemen—The following account of experiments in the use of unbleached *wood ashes* as manure, is submitted, that you may make any use of it which in your judgment will render it serviceable to the farmers of the county. In the latter part of August, 1837, I broke up about one acre of low land, (too low and wet to till with ease,) which had become so much bound out that it yielded not more than 14 or 15 cwt. of hay, and that little was of poor quality. After ploughing, I rolled this land, and then dressed it with 40 bushels of wood ashes, mixed with wash (mostly sand,) from the road-side, making probably about one and a half cord; sowed half a peck of herds grass and three pecks red top seed; then harrowed thoroughly and rolled. The seed took well. In 1838, I obtained from this piece of land 35 or 40 cwt. of very good hay, mostly herds grass.

In November, 1834, I broke up a field, dressing it with about four cords of manure to the acre; on a part turning it under the sod, and the remainder putting it on the furrow. In 1835, planted with corn, the crop large; in 1836, without mowing the sod, sowed oats and hay seed. Obtained 40 bushels of oats to the acre. The hay seed took well, but in the following winter was killed by ice forming and remaining long upon the field. In 1837, obtained not more than 15 cwt. of clover to the acre. Thought I must take this field in hand again. In April, 1838, ploughed an acre and a half of it, rolled, dressed with forty bushels of wood ashes, unmixed with any other material, to the acre; sowed oats and hay seed. The oats had a fine growth and the hay seed came up well, but (for I think it best to tell the *whole,*) the rust which visited my neighbors' oats was not kept out of my field by the ashes; I mowed for foddder before the crop had ripened; there was growth enough for forty bushels to the acre. The young grass, too, did not find the ashes a matchless sanative, for its sickness, (in the scorching weeks of August,) which a draught of pure water would have cured, proved mortal.

Shall I tell you, too, what virtue there is in bones? From Mr. Ward, of Roxbury, I obtained, last spring, 20 bushels ground bone, (cost at Roxbury, 35 cents per bushel,) sold one bushel to a neighbor; mixed the remaining 19 bushels with about one cord of soil taken from the side of the roads in the fields where the mixture was to be used. Some of it was used in ten or twelve days after it had been mixed, and some remained in heap five or six weeks. About the 10th of May, when planting corn where four cords of manure to the acre had, the pervious autumn, been turned under the sod, and where I was putting four cords to the acre in the hill, I selected four rows through the centre of the piece, in which I put the bone mixture, at the rate of fifty bushels bone to the acre; no other manure *in the hill.* The corn here looked as well through the season as on the remainder of the piece, and ripened a little earlier. At the time of harvesting, 104 hills on bone yielded 184 lbs. of corn on the cob. The same number of hills in the adjacent rows on manure, yielded 188¾ lbs. That on the bone was the dryest at the time of weighing.

The first week in May, I planted a piece of corn, where I put three and a half cords of manure upon the furrow, and four cords in the hill, to the acre. Through the centre, I left four rows until about the 10th of May, when I planted them with bone, as in the other piece. Here, from 66 hills on bone, I obtained 90 lbs.; from 66 on manure, 96 lbs. Here, too, the corn on the bone ripened earlier, and of course weighed less.

May 21st, when planting potatoes, where four cords of manure to the acre had been turned under the sod the previous autumn, and where I was putting five cords to the acre in the hill, two rows were planted on bone, fifty bushels to the acre. This ground was furrowed only one way, and the hills on the bone happened to be put nearer to each other than those on the manure. When dug, *equal quantities of ground* were taken; of bone, 14 hills; of manure, 12 hills; the bone yielded 55 lbs.; the manure 52.

Between the 15th and 20th of May, I sowed sugar beet, in drills, three feet apart. In some used barn manure, six cords to the acre; in others muscle bed or sea marl, five cords; in others bone, fifty bushels. Three drills of each kind, about three rods long, yielded as follows, viz: from barn manure, 247 lbs.; muscle bed, 355.; bone, 337½.

At the same season I sowed carrots on barn manure, muscle bed and bone. Barn manure, six cords to the acre; muscle bed, 4; bone, 50 bushels. Some of the bone and the other manures were spread broad-cast, and a part of the bone was put in the drill; rows fourteen inches apart. Two rows of each kind, three rods long yielded as follows: barn manure 75 lbs.; bone in drill 105 lbs.; bone spread 82 lbs.; muscle bed 88½ lbs.

I sowed with ruta baga, June 1st, ten drills, three feet apart and fifteen rods long; five drills on barn manure, part of it fresh from the barn cellar and part partially decomposed, nine cords to the acre. The other five on bone, fifty bushels to the acre. Those on the bone were less eaten by the fly than the others, though the others were not very badly injured. A strip (17 feet in length) across the drills, where five had bone and five manure partially decomposed, yielded, bone 248 lbs.; manure 228 lbs.

Another strip 16½ feet long, where there was bone and fresh manure, gave, bone 212 lbs.; manure 227 lbs.

About the 10th of June, I sowed ruta baga on reclaimed meadow land; drills three feet apart; manure nine cords to the acre; bone fifty bushels. Soon after the plants came up, those on the barn manure were nearly all destroyed by the fly; it was necessary to sow a second time. Those on the bone were but very little injured. Four drills, two rods long, on bone, yielded 486½ lbs.; four on manure 439 lbs.

DANIEL PUTNAM.

North Danvers, Dec. 5, 1838.

MR. HOW'S LETTER.

Methuen, December 5, 1838.

Dear Sir—In compliance with your request, I suggest a few ideas, on a subject of no small importance; for success in farming depends principally on the quantity of manure that is made. And, in fact, a locomotive may as well be propelled without steam as a person have good success in farming without manure. There are various ways by which manure may be increased. Cellars under barns for the reception of manure are highly important, as its value is much increased by being preserved from drenching rains and drying winds. Also, the quantity may be much increased by hauling muck or soil, or throwing in hay, straw, or some other materials to receive and suck up the urine, as this is supposed to be worth nearly as much as the droppings. A suitable plan for a cow yard is of no small importance. It should be much hollowing in the middle; the sides so elevated as to prevent the water from running in, consequently there will be but little to run out, to wash out the manure. A large quantity of manure may be made in such a yard, by hauling in muck, soil, or some other material, and ploughing or pitching it over occasionally. But it is said, we have no meadow from whence to get muck; there are no scrapings in the road to be collected; therefore, we have nothing to make compost of. But I would say, if they have nothing else, take the soil from the field, and with a little additional manure, the field may again be restored to its former fertility. Another object of some importance is to have the manure applied in the best manner. I have until recently been of the opinion that it is best to be applied in a green state, and have the fermentation take place in the ground; but of late I have had a different opinion, although I have tried no experiment that is satisfactory in my own mind. I would suggest the idea of recommending a premium to be offered for the best experiment on the application of manure, that it may be ascertained which is the most profitable, to apply manure in a green state or to make a compost of it by mixing other materials, taking into the account all the additional expense of labor.

Another thing is, to keep the hogs at work. By keeping a good supply of hogs and accommodating them with materials to work with, they will add much to a farmer's stock of manure.

Some farmers are averse to the credit system; to supply their hogs with materials to work with; to fill their cow yards and barn cellars with muck, &c. and to give one, two, or three years credit is too much. This is one important reason why so little improvement is made in farming. I believe there are the materials on almost every farm, and means within the reach of almost every farmer, to enrich his farm to almost any extent.

Suppose a person to make a certain additional quantity of manure; consequently in the same proportion the products of his farm will be increased, from which, by spending on the farm will again increase the manure, and so on, until his farm may be enriched without limit. Finally, I believe that if all the farmers would pay their attention to making manure and enriching their farms that their interest requires, the western fever would be less prevalent among us, and our young men, instead of leaving the farms of their sires and engaging in speculation, or emigrating to the far west, would cultivate the land of their fathers and learn from experience that they may be amply repaid for all their toil, and that the cultivation of the earth is second to no other employment. Yours, with sincere respect,

JOSEPH HOW.

Vegetable Kingdom,

A term including all plants and roots which grow above and under ground; being nourished by the air, water, &c.

Vegetables may be considered, botanically, as to the apparent parts of the plant, of which we have already treated under *Botany:* or physiologically, as to the organization of the plant: or anatomically, as to its component, or chemically, as to its constituent parts.

In treating of Botany, we have given an account of the parts employed in classification according to the prevailing systems of *Linnæus* and *Jussieu;* the one founded on the sexual organs, the other on the cotyledons that envelop the seed.

Physiologically, a plant may be considered as composed of roots, stem, branches and leaves.

The roots are formed by the growth of that part of the seed called the radicle, whether by extension of parts already formed, or by apposition of new parts derived from the food according to the laws of organic crystallization, is not accurately known. The roots are the mouths of the plant: by the property of irritability dependent on organization, they are attracted to move in that direction where food is to be found.

The food of plants consists in those substances only which are found by experiment to be universally, in all cases and in all places, the component parts of a plant, viz. carbon, hydrogen, oxygen, sometimes azote and alkali. The siliceous, calcareous, and magnesian earths, the earthy salts, and the iron and manganese found in plants, vary in quantity according to the circumstances of soil, climate, and manure artificially applied. All of them may be wanting in a plant, and yet the plant be perfect. Hence manures that increase the substance of the plant, are such as are decomposable into carbon, hydrogen, oxygen, azote and alkali: the other kinds of manure, are those that stimulate the irritable fibre of the plant to stronger action, as salt, plaster, lime, &c.—those that increase or decrease the tenacity of the soil in which plants grow—those that act by increasing or decreasing the capacity of the soil to retain moisture.

Plants, however, do not exclusively feed by their roots. A very great part of the nutriment of all plants is derived from the carbonic acid of the atmosphere, which the leaves decompose, feeding on the carbon and throwing out the oxygen—and form the atmospheric moisture which the leaves drink as well as the roots. The effect of atmospherical electricity, as a stimulant or a sedative, we have not facts enough to form any opinion upon. Light is certainly consumed by plants, and enters into their composition, being almost the only source of colour, and probably of the light emitted during combustion. Leaves also perform the office of lungs to a plant.

Plants may be considered anatomically, as composed of the epidermis, the thin skin that covers the bark—the bark analogous to the skin of animals—the wood (liber)—the pith—the sap—the tracheæ or air vessels—and the cellular tissue, analogous to the cellular membrane of animals.

The systems of the vegetable are analogous rather than similar to those of animals: they have the woody stem, analogous to the osseous system of animals—a system of vessels for the sap to ascend—another wherein the recent sap is eliminated into the peculiar juices of the plant, analogous to our glandular system—a system of vessels wherein the charged sap descends and nourishes the plant—leaves analogous to lungs—and excretory vessels, as well as the secretory vessels which we have noticed as analogous to our glandular system.

Plants are young, grow by feeding, digesting, and assimilating their proper food; they arrive at adult age and full growth, they beget offspring by sexual commerce, they are subject to disease, to accident, to be preyed upon by parasite plants, to grow old and die.

They have irritable fibre, analogous to our muscular fibre, and like this, contractile on the application of stimulus. It has not yet been ascertained, that they have any system analogous to our nervous system, hence they have not (so far as we know) any apparatus to authorize us to ascribe to them sensibility, sensation, or voluntarily: though in some plants noticed by Dr. Smith, the English Botanist, when one part is stimulated a distant part contracts, so as to suggest a common sensorium.

All these properties of plants, depend upon their organization: they are developed as the organization is developed, they are complicated and perfect in proportion to the organization; they are injured when the organization is injured; and they disappear when the plant becomes disorganized; analogously to the faculties or properties called mental in man. What is the immediate cause of organization, vegetable or animal—or in what way that principle causes an assimilation of parts derived from the food employed for nourishment—or whether the lowest forms and modes of organized matter depend on accidental apposition or approximation of particles separately unorganized—we know not in our present state of knowledge. Whether life depends on the property of organization, or the property of organization on communicated life? are questions, curious, but useless, in proportion as they are abstruse.—*Domestic Encyclopedia.*

Wintering Bees.

[*From the Genesee Farmer.*]

Mr. Tucker—Agreeably to your request, I called on Mr. Eggleston, and obtained from him the following statement of his method of wintering bees, and the success attending it.

In the fall of 1837, he buried 30 or more hives, and the following spring they were taken out without the loss of any. In 1838 he buried 10 hives, with the same success, but lost 7 or 8 hives of bees that stood in his bee-house through the winter. He says that he finds very few, or no dead bees under his hives that are buried, and that they winter on much less honey than when left in the house; some small swarms have lost but 3 lbs. in weight in wintering, and the largest but 10 lbs. He has buried his bees or some of them, each year, for four years past, and has not lost a swarm that was buried, and shall hereafter bury all that he intends to winter; he has now about 40 swarms. Another fact—those that are buried do much better, and swarm much earlier in the spring.

Mr. Eggleston's method of burying his bees, is to dig a shallow trench in the ground, long enough to set the number of hives he wishes to bury, with a gentle slope in the trench, to carry off the water if there should any collect, and then place the hives in the trench, raised a little from the ground by a small stone under each corner of each hive, then covers them with straw and lastly with dirt, to use his expression, as you would a pile of potatoes, so deep as not to freeze under the hives.

As to the success of Mr. Eggleston in preserving bees, as described above, there can be no doubt, as it is known to all his neighbors, who (if necessary) will certify to the facts as stated. Yours, respectfully, ANSON ANDREWS.

Reading, August 20, 1839.

Agricultural Geology.

[*From Prof. Jackson's Third Geological Report.*]

CONCLUDED.

In order that a plant should absorb the requisite nutricient matters, it is essential that its rootlets should have free play, and hence the necessity of a proper texture in soils. It is also requisite that the materials should be rendered in some degree soluble; and that the soil remain permanently good, it is essential that it should not be too loose in its texture; for, against the opinions of some farmers, I still maintain that the principal and most active ingredients of manures and soils, are lost by solution and infiltration; the evaporation being as it were but a drop in the bucket. On this point however, I shall present some considerations hereafter.—There is also another property of soils too generally lost sight of, namely, their electro motive power, and their influence in this manner, upon the absorbing spongioles of the radicles, producing the effect called by M. Dutrochet, *endosmose* or *internal impulse*. This effect is most assuredly produced by those mixtures and combinations of mineral matters and salts, with vegetable humus, which characterize luxuriant soils. Here, then, is a new field of research for the philosophical farmer, who will find the still small galvanic currents which take place among the particles of soil, are busy preparing his bread. The influence of electricity has long been known to hasten vegetation, and plans will ultimately be adopted to bring the results of the laboratory into the hot bed and green house, while a contemplation of the phenomena will illustrate those great natural laboratories—the corn-fields of the farmer. A soil consisting of *one kind of earth, is barren*—no matter of what earth it may be composed, whether silex, alumina, lime or gypsum. *Pure vegetable matter, is also barren; but proper combinations or mixtures of three earths, always produce fertility*, provided the *pabulum* or food of the plant be present also. Certain saline matters are said to stimulate plants, and by this I understand that they produce electrical movements or endosmose, for they will act in a similar manner upon dead or inorganic matter, as seen in Dutrochet's experiments. By saline stimulants, the foliage of plants is rapidly and substantially developed, owing to the absorption of carbonic acid gas from the atmosphere, and the retention of its carbon, while the oxygen gas is exhaled by the green leaves. And since such stimuli tend only to the development of the foliage, and act against both germination and ripening, the proper time to apply such substances, is after the plant has shot up, and before it begins to ripen its seeds or fruits.

These principles are generally unknown to farmers, and hence their unskilful appplication of gypsum, salt, &c. as dressings to soils. They also neglect to consider the native *habitat* of their plants, and hence often apply the wrong stimuli. Now it is evident, that since asparagus plants, onions, cabbages, and similar vegetables, are native plants of the sea-coasts of those countries, to which they are indigenous, that if they are to be cultivated in soils free from saline matter, salt may be advantageously used in small quantities, to render them more luxuriant. Gypsum and sea salt have nearly the same effect upon plants, and hence when the soil derives saline matter from salt-water spray, or vapor, gypsum will not benefit the soil, or act as a stimulant upon plants.—This opinion, which is proved in the Prize essay of Professor Le Cocq, on saline manures, explains the fact well known in Maine, that gypsum exerts but little action upon the soils near the sea-coast, but does act favorably on the soils of farms situated in the interior of the State, especially on those which contain small quantities of carbonate or geate of lime.

As I have formerly stated, it is evident from an examination of the mineral ingredients of soils, that they *all originated from the decomposition and disintegration of rocks, which for ages have been acted upon by air and water;* those agents having, by their mechanical and chemical powers, shivered and crumbled the solid ledges into those pulverulent matters which form the basis of all soils—to which, subsequently, small quantities of vegetable humus are added by the decay of plants.

ANCIENT SOILS. There have been various epochs in the earth's history, when soils were thus formed, and after bearing their luxuriant vegetation, were reconverted by aqueous and igneous causes, into rocks, the structure, and fossil contents of which, denote their origin to have been from sedimentary matter, hardened by pressure and heat. Thus, when we look back to the epoch of the transition formations, we find the rocks composing that series to be composed of agglomerated sand and pebbles, cemented by clay, which presents itself in an indurated form, the results of igneous action. Marine shells, contained in the graywacke rocks just described, evince that this deposite was chiefly formed beneath the waters of the sea, while some portions of it were deposited in fresh water, as proved by the presence of certain plants, peculiar to bogs and lakes. The slates of this formation contain prints and casts of numerous plants—such as ferns, equisetaceæ, lepidodendræ and stigmaricæ; while beds of anthracite coal, shewing by their structure and composition their vegetable origin, are also included between the strata.

Now it is evident, that the above mentioned plants could not have grown without a soil, and the rocks in which they are imbedded bear every proof that they were once in that condition.

SECONDARY SOILS. We come next to the secondary epoch; and here again we are astonished to find proofs of a numerous succession of alternating beds of soil, each having, for long periods of time bore their perennial verdure of intertropical plants, allied to those above noticed, but more complicated and perfect in their structure. The sandstones and shales of this formation are vast herbariæ of ancient vegetation, and their strata contain, well preserved between their sheets, perfect impressions of numerous genera of plants, the species of which are now extinct. Large trunks of trees are also exposed by opening coal mines and quarries of sandstone, while the numerous and reiterated strata of coal itself also bear ample proofs of their vegetable origin.

Here, then, we have another epoch, at which soils existed, produced their abundant vegetation, stored the earth with fuel, and then were reconverted into solid rocks, to be again subjected to the wear and tear of elemental strife.

The TERTIARY EPOCH was of a milder character, and but little disturbance of the solid rocks appears to have been effected during those submersions, when the plastic clay, calcareous marls and strata of perfectly preserved marine shells, were deposited. These sedementary matters appear to have resulted from a slow and gradual deposition of clay and other fine sedementary matter, which beneath the sea became soon inhabited by numerous shell fish, and were imbedded in succession as we now find them, since the elevation of the land above the encroachments of the sea.

When we consider the several periods which I have briefly mentioned, it will at once reveal to any reflecting person, that the world has been during the lapse of inconceivable ages, subject to great revolutions in its geological organization. At one time, the rocks are worn down into soils, and bear their vegetation—then continents were sunk in the ocean's depths, and subsequently were raised again, the soils having in the mean time, been converted into rocks. By such considerations, we soon learn to respect the antiquity of the world; and knowing that such records are legibly written on the tablets of stone, we feel a natural desire to read and understand their meaning.

ANCIENT ALLUVIAL SOILS, OR DILUVIUM. Subsequent to the epochs of which I have spoken, we find that another scene of violence disturbed the tranquillity of the great deep, and the northern ocean was hurled, with its seas of ice, over the land, sweeping the loose materials from the very mountain tops, and depositing them far south of their former resting places—while the grooves, scratches and water marks upon the surface of the fixed ledges, shew the direction in which the current passed. By such a flood, (proofs of which are nearly universal in Maine, as elsewhere,) the soils were transported and commingled, so that we rarely find a soil similar to the rocks beneath it, but identical with that derived from other rocks, which occur to the north and northwest.—Having already cited so many localities in proof of this position, I shall not here recapitulate, and the intelligent observer will find so many illustrations in Maine, to satisfy his rational curiosity on the subject, that he need not long remain in doubt as to the facts.

MODERN ALLUVIAL SOILS. The present causes which act upon the solid rocks, are both chemical and mechanical.—Oxygen, from the atmosphere and from water, is constantly affecting some portions of the work, especially where the rocks contain pyrites. Rivers, torrents, brooks, and even rain, are gradually sweeping away the solid rocks, by their continued action; but more powerful than all others, is the action of freezing water, which, by an almost irresistibly expansive force, rends all rocks, into which water can find a passage, and crumbles down those which are porous in their structure. Upon the coast, the sea ever beating the solid rocks and hurling the loose fragments with the force of battering ordnance against the shores, wears away the ledges, the detritus being either spread out on the bottom, or sifted up at the mouths of harbors and estuaries.

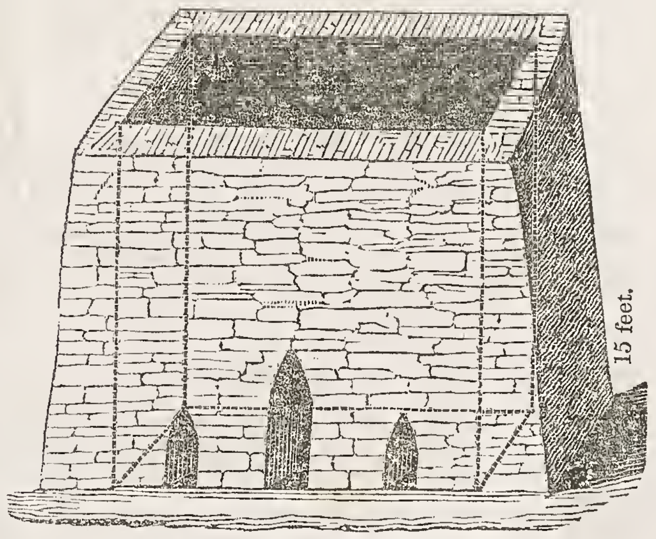
Alluvial soils are produced by the transportation of fine particles, by aqueous agency, from higher sources, and are especially brought down and deposited during freshets, when a river bursts its confines, and being diminished in its velocity, deposites its sedementary matter over the intervales. The force of the wind is also constantly removing fine particles of soil from one district to another, and the dust of ages is of greater importance than is commonly believed. Enough has been said on this subject to excite inquiry, and to stimulate others to look over the pages of nature, for their own satisfaction, and this is all that can be expected from introductory remarks, such as I now offer to the reflecting observer.

REMARKS ON LIMESTONES.

A tabular view of the chemical composition of each variety of limestone, analyzed in my laboratory during the present year, is herewith subjoined. From this table, it is easy to fix the relative values of each kind of rock, and to learn how they will burn in the kiln. Many of them will bear the heat requiste for converting them into lime, by the discharge of the carbonic acid gas, at a full red heat; others must be burned more slowly and with a gently increasing fire, which may be ultimately driven to a dull or cherry redness. All those marked as good, will slake perfectly, after being burned, and are sufficiently pure for all ordinary uses. They are generally free from magnesia, and hence are better adapted to agricultural use, than the magnesia limestones. Magnesia will remain a long time exposed without absorbing its equivalent of carbonic acid, and thus it does not act favorably, excepting when thoroughly saturated by the fermentation of compost, or by long exposure to the air. When such limestones are skilfully managed, they answer nearly as well as the pure lime. The argillaceous matter contained in some of the limestones, that occur imbedded in slate rocks, does no harm to the soil, and is even beneficial in some cases. The Dexter and Guilford limestones will make a good and strong mortar, and will also prove very valuable in making compost, or for the treatment of soils by liming. So will also many of the other varieties hereafter mentioned in the tables.

Under the description of each locality, I have made ample observations on the nature of the lime-rock, and shall here present some views or plans of such kilns as may be required for the conversion of the rocks into quicklime.

[Fig. No. 40.]—15 feet.



Lime Kiln for burning 300 *casks of lime at a time.*

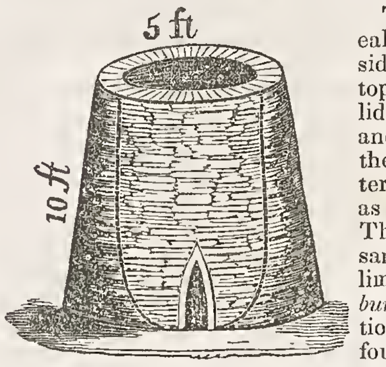
Fig. 40. Kiln built of refractory rocks, lined with clay, and laid outside with mortar—fifteen feet wide—fifteen feet high—five feet back. Arches—middle, five feet high—side arches, three and a half feet high.

This kiln is of the form commonly used at Thomaston, and the lime is burned by means of wood fuel—thirty cords of wood being required to burn the charge of rock. The operations are divided into four turns, and from three to four days and nights the fire is kept unremittingly in action. At the close of the operation, the limestone is found to be converted into caustic lime. A more full statistical view of this business, may be seen in my former Reports on the Geology of Maine. It is necessary, in case the rock is liable to slag, that it should be broken into pieces of pretty uniform dimensions, or at least, care must be taken to place the larger masses near the fire, and the smaller ones more distant from it. The arches are to be built up of large angular pieces of the rock, not more than six or eight inches in diameter, and they must be laid loosely, so that the flame may penetrate freely through them, and act upon the superincumbent mass of broken lime-rock. I have seen some persons break the limestone in the kiln. This should never be done, for the small pieces fill up the interstices in the charge, and prevent the passage of flame and heated air, required for the draft of the kiln.

In laying the arches of limestone, make them coincide with the arches of the kiln—pack the pieces so as to allow the passage of the fire, and lay the limestone in a very loose manner, until the kiln is half full. Then you may throw in the smaller pieces in confusion, and fill up the kiln to the top. This being done, place your fuel in the arches and kindle your fires, and drive them until the lime is sufficiently burned, which may be from three to four days and nights, according to the kind of rock, and the intensity of the fire.

A smaller kiln may be required in some towns, and in cases where the farmer burns his lime for his own use only. I therefore, herewith present a plan for such a kiln.

[Fig. No. 41.]



This kiln is of a cylindrical form, rather wider outside at the bottom than at the top, so as to give it more solidity. It is ten feet high, and five feet in diameter at the top, while the bottom internally contracts a little, so as to support the charge.—This contraction is unnecessary, excepting where the limestone crumbles or "*fine burns*," during its calcination. The arch may be made four and a half or five feet high, and two and a half or three feet wide so as to allow room for discharging the lime, after it is burned. The kiln may be made of any rock, capable of withstanding a full red heat. Talcose slate, mica slate, or even common clay slate, will answer. It must be pointed with clay inside, and with mortar on the outside. In charging this kiln, the stone is broken into suitable sized pieces, and an arch is built up, corresponding with the arched opening and extending quite across the diameter of the kiln. Having laid up this arch loosely, pack the kiln in a careful manner, until it is half full of the broken limestone; then you may throw in the smaller pieces on the top, and fill the kiln entirely. It is now set for burning, and you have only to place the wood and kindle a fire in the arch, keeping the heat gradually increasing, until the limestone is sufficiently burned. This may be known either by the time required, or by the appearance of the pieces at the top of the charge. It will generally be noticed, that when the fire has done its office, that the smoke ceases to appear at the top of the kiln, and a flame rises through the interstices at the top. The charge begins also to settle a little. The time required for the burning of lime, varies with the different kinds of lime-rock, and hence it is alone to be learned by experience in a particular case, and with the kind of kiln with which the lime burner is acquainted. One or two fair trials, will teach any intelligent man how to do the work in a proper manner.

The cost of the lime prepared in a small kiln, is always a little more than when it is made in a large way; hence where an extensive demand exists, the three hundred cask kiln would prove the most profitable to the manufacturer.—Most of the limestones here described, may be burned at the cost of twenty-five cents per cask, in bulk—or for fifty cents, packed in casks. Where it is to be used on the spot, in agricultural improvements, it may be thrown out of the kiln, and allowed to slake itself, and then is ready for immediate use. Its weight is increased from thirty to fifty per cent by slaking, and its bulk is tripled or quadrupled; hence, where it is to be transported to a distance, it is better to take it in its caustic state, either in bulk or in casks.

A shed ought to be built near the kiln, so as to keep the lime under cover, to prevent its being wet by rain.

Rock, fresh from the quarry, burns more easily than after it has become dry by laying exposed to the action of sun and air.

Limestones, containing pyrites, like that at Brown's corner, in Clinton, give out sulphurous acid gas during the process of burning, and in such cases, it is unpleasant to have the kiln near the house. In all cases, at the commencement of the operation, much smoke is produced, and it is. therefore, convenient to place the kiln where people are not likely to be annoyed by it. When driving the fire in a lime kiln, you perceive that the limestone melts or slags, you must not increase the heat beyond that point.

Poor limestones are frequently burned best by means of wood that is not perfectly dry, so as not to burn too rapidly. A little experience and discretion, however, will teach any man how to regulate the fire, so as to make the best kind of lime.

By examining the tables, knowing how one kind of limestone burns, you may judge of the others which are there presented. Nearly every variety of limestone found in Maine, I have burned in my laboratory, and know, practically, exactly how they will burn, and the quality of lime that will result. Where the oxide of iron is more than two per cent the lime will have a brownish tinge, so as to render it unsuitable for plastering ceilings. The slate is merely inert, and gives an ash grey colour to the lime, where it abounds.

Silex, when chemically combined with the lime and oxide of iron, forming what are called by chemists *silicates of lime and iron*, produces a hydraulic limestone, liable to melt at a full white heat. It is frequently a valuable article for making hydraulic cement, and abounds in several places in the State, especially at Machias, and at the forks of the Kennebec river. Many of the rocks described in the catalogues appended to this Report, as calciferous slates, will also make hydraulic lime. They may be burned at a red heat, but beyond that temperature run into a deep green glass or slag.

Tabular View of the Analyses of Limestones collected during the Geological Survey of 1838.

Number.	Locality.	Variety.	Cabonate of Lime, per cent.	Insoluble matter, per cent.	Oxyde of Iron, per cent.	Lime, per cent.	Remarks.
1	Abbot: Ira Witherum,	Blue—dull,	74.0	24.8	1.2	41.9	Good.
2	Athens Road,	Greyish white; crystalline,	70.4	25.2	4.4	39.6	Good for agriculture, makes brown lime.
3	Athens Village,	Bluish, compact,	72.6	2.8	....	40.8	Good for agriculture, slags at white heat.
4	Bingham,	Reddish brown, dull; micaceous—hard,	42.6	55.8	0.6	24.4	Poor, not worth burning for lime.
5	Carthage: B. Winter,	Light grey; granular, containing mica,	89.8	8.8	1.4	50.4	Bears full burning; good for mortar and for agriculture.
6	Do Mr. Reed, No. 2,	Reddish white,	76.2	23.4	0.4	42.8	Good; burns easily; liable to slag if over-burned.
7	Clinton: J. D. Burrell,	Bluish grey, slaty,	47.2	50.4	2.4	26.5	Poor; burns at red heat; slags; makes brown lime.
8	Clinton: L. Brown,	Bluish, containing slate and pyrites,	5.40	43.0	3.0	30.3	Slags at full red heat; makes brown lime; rather meagre, but good for agriculture.
9	Clinton: A. Brown,	Blue, interstratified with thin folia of slate,	76.8	17.2	0.6	43.1	Good; bears full red heat; makes a fair lime.
10	Dexter: E. Crowell's,	Blue, interstratified with thin folia of slate, containing small veins of calc. spar,	90.0	8.6	1.4	50.6	Very good; bears full red heat; makes nearly white lime.
11	Dexter: Mr. Fish,	Bluish, mixed with small veins of quartz and slate,	89.2	9.6	1.2	50.1	Good; like the above.
12	Dexter: L. Pullen's,	Bluish, compact; interstratified with thin folia of slate,	78.2	20.0	1.8	44.0	Good; but not quite so strong as the preceding.
13	Dexter: John Puffer,	Bluish, slaty; compact,	84.0	14.4	1.6	47.2	Good; makes strong lime.
14	Dixfield,	Bluish, with crystals of actynolite,	69.4	29.2	1.4	38.9	Burns at red heat; slags at higher temperature: slakes coarse.
15	Dover, south side of river,	Bluish grey; mixed with slate, calc. spar and qurtz,	70.6	25.4	4.0	39.7	Burns at a full red heat; slags at white heat; makes brown lime.
16	Dixfield: Mr. Holman's,	Dark bluish grey, dull; micaceous, containing small crystals of actynolite,	79.6	20.0	0.4	44.7	Burns solid at a full red heat; slags at white heat; good lime.
17	Dover,	Bluish grey; seams of calc. spar, containing slate and quartz,	70.6	25.4	4.0	39.7	Not so good as the above; makes brown lime.
18	Farmington, Titcomb's Hill: J. D. Coney's,	Dull bluish; mixed with slate,	88.8	6.4	4.8	49.4	Bears a full red heat; slags at a white heat; makes brown lime.
19	Farmington Hill: D. J. Coney,	Bluish, slaty; mixed with mica slate,	84.4	14.4	1.2	47.4	Like the above; but makes a better colored lime; ash grey, white when slaked.
20	Forks of Kennebec: Mr. Foster. Recommended for hydraulic lime,	Buff-colour; compact, stratified,	45.4	silex 27.0 a8.2	*	30.5	Good for hydraulic lime, to be burned at red heat. Runs into glass at white heat.
21	Foxcroft Falls,	Light blue; containing calc. spar, pyrites and slate,	35.6	62.0	2.4	19.9	Too poor for lime, but will answer for flux to iron ore.
22	Foxcroft: Cave near river,	Bluish; interstratified with slate containing pyrites,	48.8	47.8	3.4	27.4	Poor; good only for flux to iron ore.
23	Guilford: River,	Dark blue,	84.8	13.8	1.4	47.6	Good; bears a full red heat; makes white lime; will answer for all ordinary uses.
24	Hampden,	Blue, slaty, hard; not good,	5.0	93.2	1.8	2.8	Turns red in the fire; is not suitable for lime.
25	Harmony,	Bluish, slaty,	61.4	36.4	2.2	33.9	Burns at a red heat; slags at a white heat; makes a poor brown lime.
26	Industry: on Farmington Road,	Blue, micaceous, containing blue calc. spar,	76.0	21.2	2.8	42.7	Good; bears a full red heat; makes a brown lime.
27	Jay: Mr. Noyes,	White; crystalline, containing quartz and actynolite,	†				
28	Livermoro Falls,	Grey, with numerous crystals of actynolite,	62.8	34.0	3.2	35.3	The lime burns white, but is full of crystals of actynolite, but will answer for agriculture.
29	Mount Vernon,	Greyish white; granular; numerous crystals of actynolite, mixed with mica slate,	48.8	47.0	4.2	27.4	Bears a full red heat. The lime is white, but is full of crystals, that make it coarse. It will answer for agriculture.
30	New Sharon: J. Bean,	Blue, mixed with mica slate,	53.8	36.0	10.2	33.1	Bears a full red heat. The lime contains brown scales of mica, & is dark brown.
31	New Sharon: J. Winslow,	Light blue; micaceous,	77.0	20.6	2.4	43.3	Good; makes fair lime, of a brown colour.
32	New Sharon: S. Tollman,	Light blue; micaceous,	88.2	10.2	1.6	49.6	Good; less brown than the above.
33	Norridgewock: S. Sylvester,	Bluish, mixed with slate,	88.2	10.6	1.2	49.0	Good; burns solid; slakes well; is light brown, but strong.
34	Norway: W. Parsons,	Greenish grey,	51.4	47.6	1.0	28.8	Makes a weak lime; slags at full red heat.
35	Norridgewock: A. Wood,	Dark blue, micaceous,	51.2	48 4	0.4	28.7	Weak lime; slags at high red heat.
36	Phillips: I. Whitney,	Granular, stratified with dark and light stripes,	64.8	34.4	0.8	36.3	Makes good lime; fine, burns a little; will slag at a white heat.
37	Phillips: E. side Co. Road,	Greenish grey, compact,	67.6	26.8	5.6	37.9	Weak, slags; makes brown lime.
38	Phillips: I. Whitney,	White; granular,	65.0	34.6	0.4	36.5	Like the other variety; fine, burns a little.
39	Phillips: W. side Co. Road,	Greyish white,	5.2	88.2	6.0	2.9	Not good for lime.
40	Poland: N. Bray,	Greenish white; granular, containing actynolite,	43.6	54.4	2.0	24.4	Makes brown lime, coarse when slaked.
41	Rumford Falls,	Greyish white; crystalline, with crystals of actynolite,	78.0	20.8	1.2	43.9	Fine, burns; but makes a good strong and white lime; good for all usual purposes.
42	Skowhegan Falls,	Bluish grey, mixed with a little slate,	52.6	38.6	3.8	32.3	Good for agriculture, but is brown coloured.
43	Strong: Norton's Mills,	Containing calc. spar, mixed with a little slate,	90.5	8.4	1.0	50.8	Good for lime; makes a good mortar.
44	Temple: I. Varnum,	Bluish grey, dull, micaceous, containing spots of iron,	70.2	28.4	1.4	39.5	Burns at red heat; slags at higher temperature; makes light brown lime.
45	Thomaston, Beechwood Q. hard stone,	Stratified with blue and grey stripes,	55.6	2.8	‡1.2	31.2	Burns solid; slakes well; makes good white lime for mortar.
46	Turner: S. Davy,	Greyish white; granular; with crystals of actynolite,	74.6	25.0	0.4	42.9	Good; burns to good lime, but contains crystals of actynolite, and is coarse.
47	Turner· Oak Hill,	Greenish grey; granular,	40.0	59.0	1.0	23.7	Not good; will not make lime.
48	Union,	Brown; with numerous pieces of hornblend,	9.8	32.0	58.2	5.4	Not good for lime.
49	Waterville: Gen. Robinson	Bluish, dull, interstratified with slate,	47.2	47.2	5.6	26.5	Too weak to make a good lime.
50	W. Waterville: Great Falls	Bluish, interstratified with thin folia of slate,	73.8	24.8	1.4	41.4	Good for agriculture; makes lime of a light brown colour; slags at white heat.
51	Do Mr. Crowell's	Light bluish, interstratified with thin folia of slate,	89.8	9.0	1.2	50.4	Good; makes light brown lime.
52	Winslow: James Wall,	Light bluish grey, with small veins of calc. spar,	73.8	24.2	2.0	41.4	Good for agriculture; makes brown lime.
53	Winslow: T. Simpson,	Light grey, dull, coated with slate,	68.4	31.0	0.6	38.4	Burns at red heat; slags at higher temperature; makes weak lime.
54	Do Mr. Drummond's	Blue; interstratified with slate,	81.8	16.2	2.0	45.9	Good; burns at full red heat; slags at white heat; makes brown lime.
55	Winslow: Mr. Forbur,	Dark blue, mixed with a little slate,	77.8	20.6	1.6	43.7	Good; burns at red heat, and slakes light brown.
56	Winthrop: J. Richard's,	Dark granular,	78.8	20.2	1.0	44.3	Good for lime; burns well at intense red heat; makes a solid lime, that slakes well, and is full of scales of mica. It is strong.

* Carbonate of iron 2.8 per cent. Silicate of iron and manganese 2.4 per cent. Magnesia 5.0 per cent.

† Not good—rejected as useless.

‡ Carbonate of magnesia 39.4 per cent.

[We append the following, from Professor Ducatel, as interesting to a portion of our readers.]

"The mode of conducting the operations of the *perpetual kiln* in the state of New-York, in which *anthracite* is burnt. is as follows:—The coal and stone are arranged in alternate layers. The first charge is made by constructing a grate over the *eye* with large stones fitted in loosely and sufficiently apart, to allow the kindling of the coal, of which a layer is first put on: the stone is then *lowered* down upon it, and properly disposed of by hand, and so on alternately with the coal, until within eight feet of the top. The kiln is then fired from below, and at the expiration of four days the whole being ignited, more stone and coal are thrown in. The coal should *not* form a complete layer over, or covering to the stone, but a little more than fill up the interstices between the peices, and care must be had not to allow too much of it to settle round the walls, as the heat would destroy them: the kiln is then finally dressed off with smaller stone. The morning of the next day after this operation, the kiln is opened at bottom, and from 90 to 100 bushels are taken out to be slaked; this is repeated in the evening. and successively every morning and evening without interruption.—When the materials in the kiln have sunk down to within six or eight feet of the top, fresh supplies are added, and this is continued indefinitely.

At Barnegat, as soon as the lime is taken out, it is slaked by using two pails of water for about 3 and 1-2 bushels of lime; and before being shipped, (for most of this lime is used for agricultural purposes,) an additional quantity of water is thrown over it. One ton of coal, it is supposed, will burn over 200 bushels of lime. The lime-burners here are of opinion that the stone may be used indiscriminately, of all sizes, but this is an error; the universal practice in Europe being, to break it down to the size of the fist.

Wood, charcoal, peat, bituminous coal, and especially coke, are also used in *perpetual kilns*, and the arrangement of materials, as well as the relative proportions of each to be employed, will vary according to the nature of both. When coal is used, its layers should be thicker in the centre than on the sides, in a ratio of difference of 4 to 3. In those kilns that are provided with two or more fire-places, choice must be made in kindling of that towards which the wind is setting, provided it be not too strong. It is always important to try to obtain an equal fire throughout each successive layer,—but this is not always easily effected, because it frequently happens, that the combustion goes on more rapidly in one direction than another, which is partly owing to the layer of stone being thicker on the sides, and also less supplied with coal. Those parts of the kiln where the fire has become checked may be discovered, by remarking that in such places the stones are not so discolored by smoke, as where the fire is more regular. The lime-burner is then immediately to turn his attention to those spots, and with his poker clear the impediments to the free circulation of the air. The perfect calcination of the inferior layers of stone, is generally indicated by a great diminution of smoke, which usually takes place when the fire has reached about the three-fourths of the height of the kiln. The practice in Europe is then to take out all the lime that has been made, (being about two-thirds of this same height,) or as high as where pieces of ignited coal are observed intermixed with it. It must be taken out with care: for a sudden fall would endanger the result of the operation."

Agricultural Chemistry.

BY HENRY R. MADDEN, ESQ. L. R. C. S. EDINBURGH.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

2. *Inorganic or Mineral Manures.*—In our last we completed a short sketch of the composition of the animal, vegetable, and vegeto-animal manures which compose our division of organic manures: we shall, therefore, at once proceed to make a similar examination of those substances belonging to the mineral kingdom, which farmers are in the habit of employing for the purpose of enriching their land.

We have before remarked, that these substances act in a manner totally distinct from organic manures, the reason of which is obvious, because they *cannot* be, from their nature capable of supplying either of the four elements, viz: *carbon, oxygen, hydrogen* or *nitrogen*, which, as we have so repeatedly stated, form the essential constituents of all plants; we must therefore look to other circumstances besides the mere nutrition of vegetables, in order to explain the true cause of those beneficial effects which, beyond doubt, result from their judicious employment.

The advantages to be gained by the use of mineral manures may obviously be either direct or indirect, according to the effect which they produce; for example, those substances which either alter the texture of the soil, or more especially such as supply saline matter to the plants themselves, may be said to be directly beneficial; whereas those which merely act as chemical agents in hastening the decomposition of the organic matter existing in the soil, can be said to be benefiting the plant in an *indirect* manner only. It will be impossible, however, to form any subdivision of this class of manures, upon the above fact, as many of them act in both ways, and moreover, the whole subject is as yet involved in so much doubt, that we should well deserve the imputation of rashness, were we to attempt any classification of these substances founded upon their mode of action. The more important purely mineral manures are *lime, its carbonate, or chalk, its sulphate or gypsum, marl, saltpetre, common salt, and kelp.*

Lime.—This is undoubtedly the most important of this class of manures, from which circumstance alone it well deserves to rank first in the list. Like all great benefits it has been most shamefully *abused*, but I think that it will be by no means difficult to prove that the fault lies entirely with the farmer who unfortunately is far too apt to follow example blindly, in place of really examining the *principle* upon which the *practice* is *founded*, and without which success is always precarious, and often absolutely impossible. In the subsequent remarks which we propose to make upon this class of manures, it will be necessary to enter much more fully into practical details than we have hitherto done, as the whole success or failure of these manures may be said to depend almost entirely upon their mode of application, and I may here premise that many of the *practical observations* which I shall have to make, are derived from the excellent, but now rare, pamphlet on manures by the justly celebrated Arthur Young.

The action of lime upon soil differs entirely according to the state in which it is used, namely, in the form of *true lime, hot lime*, or in the state of *mild lime*, as it is termed, in assuming which condition it has undergone some most important chemical changes which we shall mention presently.

The *chemical* properties of lime, and its *chemical* action upon organic matter, must, in the first instance, occupy our attention, in order that the subsequent remarks upon its use as a manure may be clear and intelligible. Lime is ranked by chemists among the *alkaline earths*, by which term is meant those earthy substances which exhibit characters similar in many respects to the true caustic alkalies, *potass, soda, &c.* it is always prepared by heating its native carbonate or limestone, to a temperature sufficiently high to drive off all the carbonic acid and water which it contains; so that were limestone composed of nothing else but *carbonate of lime* and water, pure lime alone would be left after burning; this, however, is never the case, as other substances, especially alumina, silica, iron, and often magnesia, occur mixed with the lime, but in good specimens these should be in very small quantities, as of course, I need hardly say that their presence diminishes the value of the specimen in direct proportion to their quantity. On this account, the proportion of lime contained in any new specimen of limestone should be accurately determined before applying it to agricultural purposes, more especially if there should be any reason for suspecting the presence of magnesia which we have so repeatedly said is injurious to vegetation, particularly in its caustic state. On this account we shall here give a few directions for the examination of limestone, which we trust will not be considered out of place. Let us suppose that the experimenter is not desirous of ascertaining the exact constitution of the limestone which he is about to examine, but merely wishes to discover whether it contains any considerable quantity of magnesia, alumina, or iron.

1. Let him take a small quantity of the sample to be analyzed, say 100 grains, and dissolve it in one ounce of strong muriatic acid (spirit of salt) mixed previously with about 2 ounces of pure water; when the effervesence (owing to the escape of carbonic acid) has entirely ceased, if any thing is left undissolved it must be separated from the solution, by filtration through white blotting paper, and the insoluble matter when dried and weighed may be noted down as *silica.*

2. The operator must next add to the filtered fluid successive portions of *strong ammonia (hartshorn)* until the liquid smells of this substance; any thing which is thrown down during this operation must be likewise separated by filtration; this will consist of *alumina* and *iron*, the proportion of the latter being judged by the darkness of the colour (*pure alumina* being white.)

3. The next step is to add to the fluid a solution of *oxalate of ammonia* (this should be prepared by a druggist) as long as any precipitate appears; this is the lime in combination with the oxalic acid.

4. Lastly, having again filtered the solution, add a small quantity of *carbonate of soda* (common soda) dissolved in water; if the former parts of the process have been performed carefully, no precipitate whatever will now appear, unless *magnesia* is present, so that the quantity of this substance may be judged by the proportion of this precipitate.

Difficult as this process may appear to those who have never performed any chemical analysis, still a very little practice will make it quite familiar, and it is the only method by which the presence of magnesia can be detected with unvarying certainty; at least without making use of chemical tests, which cannot be easily purchased, and are very troublesome to prepare. Should any one wish to render himself expert at the above operation, I should recommend his taking some specimens of limestone, and repeating the process several times, until he arrives at the same results by each experiment. If the quantity of lime is wished, the precipitate of No. 3 must be carefully collected, dried, and weighed; and then, every 100 grains will denote 34 grains of pure lime, or 61 grains of carbonate of lime in the original specimen.

Whenever lime, in its pure or *hot* state, is exposed to the air, it has a very great tendency to return to the original form of carbonate; in undergoing which change, it first absorbs a large quantity of water; and then assumes the form of slaked lime, or, according to chemical nomenclature, has become a *hydrate;* this hydrate, in its turn, rapidly absorbs carbonic acid from the air, and thus, in no long period, the burnt lime returns to its original condition, with the only difference, that whereas it was formerly in large stony masses, it is now in the state of a fine powder. When the lime is completely slaked, and *partially* carbonated, it forms the substance termed *mild* lime, by farmers.

Of these three conditions of lime, namely, the *hot*, the *mild*, and the true *carbonate*, the first is possessed of by far the most energetic powers. The true carbonate of lime, in fact, differs completely in its action from the others. We must, therefore, of necessity, treat of each separately.

Hot Lime.—When any organic matter is mixed with hot lime, it undergoes putrefaction with much greater rapidity than when left to itself. The exact cause of this is not well known; but the immediate *changes* which the various substances undergo, especially in the case of vegetable matter, have been pretty accurately examined. Thus, for example, it has been proved,*first*, that *woody fibre, gum, sugar*, and many other vegetable matters, are converted into *humic acid*, with more or less rapidity, when kept in contact with hot lime, or any other chemical substance which possesses strong alkaline properties. *Secondly*, that this *humic acid*, when formed, unites with the lime, and generates a compound which is not very soluble in water, but is easily diffused through it. And, *lastly*, it has been proved, that a very little lime is required to produce this compound, with a large quantity of humic acid. For example, 28 grains of pure lime are capable of combining with no less than 318½ grains of this acid; so that the lime in this compound amounts to little more than eight per cent.

To apply these facts, therefore, we may remark, that there is very little doubt, that changes similar to those above mentioned take place, when hot lime is applied to soil; or, still more so in the case of lime composts. At the same time, it is exceedingly probable, that during the production of *humate of lime** (the compound of lime and humic acid above mentioned,) other compounds are formed, many of which are very possibly soluble in water; at least if we may judge by the appearance presented by vegetable matter, after it has been long exposed to the action of this or any other alkaline matter. From these remarks it would appear, that the most important object to be gained by the application of hot lime, is the decomposition of *woody fibre*, and the consequent formation of *humate of lime*, and various soluble matters.

Mild lime does not act by any means so powerfully as the preceding compound; in fact, it appears to have no effect whatever upon woody fibre. On the other hand, however, it is capable of uniting with the humic acid existing in the soil, precisely in the same manner as hot lime; on which account, Sir Humphrey Davy remarks, that mild lime is useful in preventing the too rapid decomposition of substances already dissolved; the truth of which is evident, when we call to mind the well established fact, namely, that organic substances, which of themselves are extremely liable to decomposition, may be rendered much more permanent, nay, often perfectly so, by entering into *chemical combination* with any *inorganic substance*. Pure carbonate of lime will be treated of under the head of chalk.

So much for the pure chemistry of this most important manure. We must, however, now proceed to what the majority of our readers will consider as by far the most interesting part of the subject, namely, the practical deductions to be drawn from the above remarks; or, in other words, the manner in which practice is to be guided by the principles above laid down.

First.—It is perfectly clear, that *hot lime* will be useful in all cases where there is an excess of undecomposed vegetable fibre, as in peat-soils, moors, heaths, &c. in fact, in all places where the natural growth has not been interfered with for a great number of years; from which it follows, that hot lime will be a peculiarly useful application to old grass, which has lost heart from age, particularly if it is, at the same time, broken up for tillage.

Secondly.—Sir Humphrey Davy has proved, that hot lime, whether solid or dissolved, is injurious to growing plants.—For example, he states, that he has frequently killed grass by watering it with lime water. From this fact, therefore, it follows, that *hot lime* must be an extremely useful application, when it is desired to free land of its spontaneous growth; as for instance, in places overgrown with weeds.

Thirdly.—Hot lime is extremely useful in purifying (if we may be allowed the expression) the original herbage of moors, and other *uncultivated* grounds. The mode in which this is effected being somewhat interesting, we shall here say a few words upon the subject. It is generally allowed, that the finer grasses, &c. require richer food than those which are less valuable; and also, that the same remark holds good, the lower we descend in the scale of vegetables: namely, that the lower the plant is, the more easily it is nourished by the contents of the *atmosphere;* and hence the less dependent it is upon the soil for its subsistence; the consequence of which is, that when, in the lapse of time, the soil of any spot becomes more and more exhausted, the most valuable and important grasses gradually die away, from the want of sufficient nourishment, and give place to those diminutive species, which so frequently constitute the herbage of the almost barren moors; these again, if moisture be present, give place, in their turn, to various mosses, &c. so that at last, unless the improving hand of man steps in to avert the doom, the spot will return to a state unfit for the support of any living plant, with the exception of those which derive most, if not all, their nourishment from the surrounding air. Should it be otherwise, how different the result! For instance, should *hot lime* be applied, from the looseness of their texture, this destroyer first attacks the mosses and all other useless plants, and thus converts them into useful manure, which, by being washed into the soil by genial showers, revives the seeds of those plants which grew there ages previously, and, in a comparatively short time, the lately unprofitable waste glows with the return of its pristine verdure. How beautifully many of my readers must have seen this exemplified, in the crops of white clover which so frequently appear, almost like magic, after the liming of some barren moor!

Fourthly.—*Mild lime* is a most useful application in all cases, where any of the above circumstances occur in *cultivated land.* For instance, if the lime is comparatively fresh, it is much safer to employ it in the mild form, when we desire to destroy weeds or other injurious plants, growing upon richly manured lands, which, from carelessness or other such cause, have been allowed to become foul; for, were the lime, in this instance, applied in its *caustic state*, although it would unquestionably kill the weeds, still, their destruction would be accompanied with a great unnecessary loss of manure.

Fifthly.—It sometimes occurs, more particularly in garden ground, that the crops become rank, from the existence of a superabundance of soluble manure, the evil effects of which can almost always be counteracted by a dressing of *mild lime*, which, by combining with the humic acid, renders a large quantity of the organic matter much less prone to decomposition, and likewise, at the same time, less soluble; *humate of lime*, as before remarked, being by no means very soluble in water. It may very probably be asked here, how can it be advantageous to apply lime in any case to soil, since it tends to render *soluble* matters *insoluble*, when it has all along been stated that the very reverse is the proper mode of preparing the food for plants? An answer to this question must, therefore, of course, be requisite. It must be observed, in the first place, that we have already stated that lime is useful chiefly in those cases where the organic matter is *insoluble*, because it causes the formation of *humate of lime* and different *soluble* matters; all we have to account for therefore is, how humate of lime comes to be a useful manure? It may be remembered that I stated in No. 2, of this series,* that humic acid was of itself "quite *insoluble* in water:" from the result, however, of some experiments published since that number was written, it appears that this statement is not strictly correct, for humic acid is *soluble* in water (more especially when newly formed) except under particular circumstances, so that it is extremely probable that the humic acid derived from the slow decomposition of humate of lime, will, at the moment of its liberation, be capable of dissolving in water, and thus of course become a useful manure. We shall now conclude our remarks upon lime with a few important cautions to be attended to in its application.

Mr. Arthur Young remarks, that the best directions for applying lime are those given by Mr. Craike of Arbigland, who advises, that the whole quantity of lime that the farmer intends to apply to any field of moderate size, should be carted out, and laid together in a heap, at some spot where water can be obtained with the greatest facility. The whole is next to be thoroughly slaked; and *immediately* after it has cooled, which will take place in a day or two, the lime is to be recarted and spread over the surface of the land as equally as possible. Mr. Craike further remarks, that the more common method of laying down the lime in small heaps all over the field, and allowing it to slake by rain, is *very erroneous;* for in this instance it is very liable to get too much rain, which, in place of merely slaking it, and thus reducing it to a fine powder, converts it into "running mortar," in which condition "it will neither spread easily, nor mix with the soil." On the same principle Mr. Wight observes, that both the lime and the soil should be perfectly dry at the time of application. The truth of these remarks could have been predicted by scientific examination alone, and it is at all times pleasing to discover that the *results* of successful practice directly correspond with the *indications* of true theory. For example, there are many scientific objections to be made to the plan of laying the lime in small heaps all over the field in order to be slaked by the rain, in addition to the evident one, mentioned by Mr. Craike, namely, the formation of "running mortar." These are, 1st, that it exposes a far greater surface for the absorption of carbonic acid, which, as is evident from the remarks already made upon this subject, diminishes materially the effect of the lime. 2d, It must necessarily be exposed for a much greater length of time, and consequently will most probably be entirely converted into *carbonate of lime;* or it must be spread upon the land during wet weather, which will of course render it far more difficult to incorporate properly with the soil. And lastly, its being slaked by rain-water is directly injurious, as it has been proved that there is a greater quantity of carbonic acid present in the air, during dull than in bright weather, which gas will of course be absorbed by the rain, and thus carried to the lime, so as to increase still more the chances of its becoming carbonated. On the other hand, however, it is evident that all these objections may be obviated by adopting the simple, and if we look to the result, the much more economical method proposed by Mr. Craike.

As to the period at which the lime should be applied, this must depend so much upon peculiar circumstances affecting each farmer differently, as convenience, leisure, &c. that it is impossible to fix the time so as to suit all persons. When, however, a choice can be made, summer is by far the best season according to Mr. Young, the reason of which is obviously because it is the driest period of the year, and likewise, when hot lime is used to destroy weeds, they are generally in their greatest vigor at that time, and consequently are capable of being destroyed more effectually.

The quantity of lime to be used is likewise a subject of considerable importance, but nevertheless is one which is apt to be far too much neglected; upon this subject Mr. A. Young is most explicit. "In common cases," says he, "the quantity should be guided by a *chemical analysis of the soil;*" and, beyond doubt, this is the only sure way of applying it with success. What, for instance, can be more absurd, than for a farmer to go on applying lime to his land, time after time, when perhaps his soil is already loaded with calcareous matter? It is a well established fact, that an excess of any of the earthy ingredients of soil exerts a most important influence over the plants which grow there: this is remarkably the case with the natural productions of all soils. To such an extent, in fact, does this hold true, that a good botanist will tell with great accuracy the chemical nature of the soil, by the plants which he finds growing upon it. If this, therefore, takes place naturally, where seeds of all kinds must be be constantly deposited on every species of soil; if, I repeat, *nature* thus arranges the plants according to the constitution of the soil, shall we deny that they have any effect upon cultivated plants? Shall we presume to say that we can grow all kinds of plants equally upon every variety of soil? most assuredly not. How, then, can that farmer expect to be successful, who, by constantly adding lime to soil already *calcareous*, at length increases this substance to such a degree that it is unfit for the support of any plants, except those which naturally prefer a soil of this description? That the above statement is not a mere *theoretical* objection, is most distinctly proved by many facts. Who, for example, does not know that wheat is an unprofitable crop upon light soils? Or, again, who would attempt to cultivate turnips upon strong clay? *Chemical analysis*, likewise, of the plants themselves, prove most distinctly the influence which the earthy constituents of soil exert over the saline composition of the ashes of these plants. Thus M. Saussure found, that 100 parts of the ashes of common fir contained 43 parts of carbonate of lime when grown on a limestone hill, whereas the same quantity contained only 29 parts when grown on granite; and again, the ashes of the leaves of the *Rhododendron ferrugineum* grown upon limestone contained 43½ per cent of chalk, whereas it yielded 16⅔ per cent only of that substance when cultivated upon a granite soil. There can be no doubt, moreover, that the proportion of the different constituents of the ashes of plants have the greatest influence upon the vigor and productiveness of the plant itself, and I have no hesitation in saying that the culture of plants (more especially the *garden culture of exotics*) will never be brought to any thing like perfection until they have each and all been submitted to *chemical* examination; the proportion of all their saline constituents accurately determined; and the nature of the soil for each chosen upon these grounds. I leave it to those interested in such matters to decide, whether it would not be worth their while to take the requisite steps for the accomplishment of such an undertaking.

On the other hand, however, a very large quantity of calcareous matter may naturally exist in soil, without rendering it unfit for the purposes of cultivation; for instance, it is stated by Mr. Cuthbert Johnson, in the "British Farmers' Magazine" for April 1837, that "the richest soils, on the banks of the Parnel, in Somersetshire, contain more than seventy per cent of chalk!" But we are all well aware that there are many peculiarities in the cropping of calcareous soils which must be attended to in order to insure success. Almost all soils, however, contain more or less of this substance, and it is remarked by Professor Low, that it "generally, though not always, exists in larger quantities in the better, than in the inferior soils." None of these remarks, nevertheless, by any means favor the employment of lime upon calcareous soil, in addition to which the plea of not being able to succeed without it, will be shewn to be untenable, when we are treating of the "Economy of Manure;" consequently we may rest assured that Mr. Young's remark is perfectly true, namely, that the quantity of lime must be judged by a *chemical analysis* of the soil.

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* I have continued to denominate this acid, humic acid, although I find that, latterly, especially in chemical works, the term *ulmic acid* has been substituted for it. I trust, however, that this will cause no confusion, as the difference is in the name only.

* No. XLII. p. 241.

Lastly, the farmer must always bear in mind that neither hot nor mild lime can act as a manure until it has become converted into *carbonate* or *humate*, and consequently that the fertilizing effect of these substances are produced *at the expense of the organic matter previously existing in the soil;* so that although lime is directly useful by calling into activity otherwise inert matter, nevertheless it undoubtedly *exhausts* the soil by so doing, and this of course should make the farmer cautious about repeating it too frequently; and he must be particularly careful lest he mistake the dimunition of the productive power of soil, caused by the too frequent application of lime, for a proof that more lime is required, as in this way there is no doubt that many agriculturists have as it were *poisoned* their fields, by the very means by which they had hoped to effect a cure. The two apparently opposite effects of lime must also be born in mind, namely, that although it *increases* the solubility of *inert* vegetable matter, still it renders much *less soluble* those parts of the organic constituents of soil which have already become capable of solution.

Carbonate of Lime or Chalk.—This differs from limestone merely in its being of a much softer texture, and hence capable of being broken down with greater facility. In its action it differs entirely from the last substance; thus it has no effect whatever upon inert vegetable fibre, and I should very much doubt whether it is in all cases capable of uniting with humic acid, so as to render the soluble parts of the manure less prone to decomposition. Its action, however, is nevertheless most beneficial; for example; it tends greatly to alter the texture of the soil to which it is applied, and possesses likewise the very useful property of being retentive of water, without at the same time becoming adhesive; consequently, it can be used with the greatest advantage both to clays and sands, under certain circumstances. If, for example, you wish to open the texture of a clay, and render it more friable, but at the same time are not desirous of diminishing to any considerable extent its retentive powers, you cannot do better than apply chalk; and again, if you are anxious to increase the absorbent power of a sand without at the same time adding to its tenacity, a good dressing of chalk will in most cases produce the desired effect. The advantages of chalk as a top dressing to meadows is far too well known to require any notice here. It is, however, by no means easy to understand its mode of action, except there were an actual want of that substance in the land previous to its application; in which case, of course, the good effects could be explained upon the principle adhered to throughout all these observations upon Agricultural Chemistry, namely, that we can never expect to be successful in the cultivation of any plant, unless we supply it with all the ingredients, whether *organic* or *mineral*, which it contains when growing in a state of nature, upon a soil of its own choosing, if we may so express it; the importance of which remark, in reference to chalk, will at once appear, when it is considered that scarcely a plant exists which does not contain more or less of this substance. As the total want of chalk, however, is a very rare occurrence in soil, we must look to other modes of action, in order to explain the frequent beneficial effects which result from top-dressing grass with this substance; and I may here premise, that this subject is one upon which extremely little is known at present, and consequently we can do little more than make a few conjectures regarding the various possible modes of action; these, nevertheless, may be of use in directing the attention of those who should wish to examine the subject to certain points which they might otherwise be apt to overlook.

It will be remembered, that, in enumerating the various constituents of soil, in the first number of this series, I had occasion to mention iron as a constant ingredient of soil, although I at the same time observed that it seldom occurred in any considerable quantity in fertile soils. All my agricultural readers must be well acquainted with the fact, that, when this substance, by any means, becomes soluble in water, it is most prejudicial to vegetation of all kinds. Now, it is extremely probable that this fact will be found of great consequence in explaining some cases, at least, in which the beneficial effects of chalk have been observed. There is no practice more common (and I by no means wish to censure it) than the top-dressing of old pasture-land with farm-yard dung at the interval of a certain number of years; but all animal matters contain more or less sulphur, so that whenever these substances undergo decomposition, *sulphuretted hydrogen* is always one of the products. Now, it is well known to chemists that when *sulphuretted hydrogen* and *oxide of iron* (the form in which iron exists in the soil) come into contact, a mutual decomposition takes place, and there results *water*, and *sulphuret* of *iron*. This compound, however, is of itself *insoluble*, so that were no further change to take place, no harm whatever would accrue from this chemical combination; but unfortunately this is not the case, for the *sulphuret of iron*, by exposure to air, gradually undergoes an entire change, and is at length converted into a very soluble substance, namely, *sulphate of iron, or common copperas, or green vitriol* as it is termed. In this manner, we perceive that, in the progress of time, the application of farm-yard dung or any other *animal* manures to soils rich in iron, renders this substance *soluble*, in which state, as before mentioned, it is exceedingly prejudicial to vegetables. How, then, is this to be remedied? or how is it that this does not always take place? In soils rich in calcareous matter, although the change does take place, it is of no consequence whatever, for as soon as the *soluble* sulphate of iron is formed, it is acted upon by the carbonate of lime, and the results are *sulphate of lime* or *gypsum*, and *oxide of iron*, or in other words the iron is restored to its original *inoffensive* state; but where there is not sufficient lime in the soil, as for instance, where there is a large quantity of iron, this substance must be added; the form of chalk being of course preferable, as in this case no action upon the vegetable fibre of the soil will be required. When such intricate and important chemical changes are constantly going on in the soil, and when it is considered that, unless the remedy is at hand, the very *food* given to the plants carries *poison* with it, and consequently, that unless checked by proper means many valuable pastures would be rendered useless. Who will deny the importance of *chemistry* to the farmer? or who will dare to say that practice *alone* acts more *certainly*, though more slowly than when aided by *science?* Surely it must be evident to every thinking mind, that the practice of agriculture would be upon a much surer basis, were all its votaries acquainted with the principles upon which their art was founded. And if so, why is there such an apathy evinced by the supporters of this all-important art to the advancement and cultivation of *its science?* To be sure, a slight stir of late has been made among some of the leading societies connected with agriculture, but with what effect *who can tell?* and the reason of this is obvious,—the majority of the agricultural population are by no means devoted to reading, and consequently, though all the agricultural societies in Great Britain were to publish upon the subject, it would be long ere the farmers became acquainted with the fact. To do good they must have the advantages of the science *laid before them practically*, and this can be done only by the establishment of experimental farms under the direct superintendence of both a *practical* and a *scientific* farmer; or by the formation of agricultural schools, in which the youth intended to follow such pursuits shall be properly instructed in the principles which should guide them in the prosecution of their business. That some such decided step will be immediately taken by those capable of rendering its success a comparative certainty, is the most ardent wish of the author of these papers.

Marl.—This substance naturally comes under our consideration here, as it is generally allowed that marls are valuable in direct proportion to the quantity of calcareous matter which they contain. The marls most common in England are the clay, stone and shell marls; they are in general composed, similar to soil, of silica, alumina, carbonate of lime, and frequently oxide of iron, so that, in fact, they might be compared to calcareous soils. The carbonate of lime varies from 20 to 80 per cent. One of the best clay marls quoted by Arthur Young was composed of carbonate of lime 40 per cent, alumina 40, silica 8 or 10, and a distinct trace of iron. The action of this substance is, of course, in the main similar to chalk, but the clay marls are likewise very beneficial in giving tenacity to loose sands. There are two or three points to be borne in mind with reference to the application of this substance, which we shall here mention.

First, And this is of great importance, marls are often very injurious when applied to the soil immediately after they are dug; whereas this effect is completely prevented by allowing them to remain exposed to the air for a certain length of time, as, for example, by placing them in a heap and turning it frequently. I have never been able to find any attempt to explain this very curious fact, and I candidly confess that I do not know how to account for it. The fact, however, is universally acknowledged, and that the only probable plan of discovering the cause of the injurious effect would be to subject specimens, wherein the evil was known to exist, to careful chemical analysis, and, in this manner, discover in what particular they differ from others which do not possess this injurious property. An investigation of this sort is, however, far too delicate to be performed by any person who does not possess a thorough knowledge of chemistry, and I should therefore recommend the proprietors of marl-pits of this description to employ a professional person to discover the cause of the injury, as in all probability such discovery would point out some means of cure, which would require much less time and trouble,—those invaluable commodities,—than the process by exposure above referred to.

Secondly, The farmer must always bear in mind that marl acts merely on account of the carbonate of lime it contains, unless it is added for the express purpose of altering the texture of the soil, as, for example, when applied to very light sands, in which case it will act beneficially, even although the land should not be in actual want of calcareous matter. In this instance, however, pure clay would answer as well, and be more advantageous, inasmuch as the whole quantity carried will be of value, whereas if marl were used, about one-third of the quantity would consist of chalk, which, in this instance, would be of no value. On the other hand, marl is of course far inferior to chalk or lime for clay land; this fact seems well known to farmers, as will be seen by the following rhymes, which occur in a paper upon peat, published by the Rev. Dr. Walker in the Transactions of the Highland Society for 1803. In speaking of the application of marl as a manure, he observes that the Lancashire farmer says,

> "If you marl *sand* you may buy *land*,
> "If you marl *moss* you shall have no *moss*,
> "If you marl *clay* you *throw away all*."

Lastly, When marl, or any other substance dug from below the surface of the ground, and used in large quantities, is applied, the farmer must always recollect that surface-soil alone contains organic matter, and that fresh subsoil has the power of combining *chemically* with a considerable quantity of soluble manure, and rendering it much less decomposable, so that, unless the soil is rich in manure at the time of application, the farmer must not expect to see any marked improvement immediately after he has applied the marl; nor should he condemn the practice even although the first crop should be somewhat inferior to those before the marl was used.

Gypsum, or sulphate of lime. This substance more properly belongs to a class of manures, which are at present very little known among farmers, but which I trust will soon attract that degree of attention that they undoubtedly merit; I mean those which the ingenious Mr. Grisenthwaite denominates *specific manures*, by which term is implied, that the substance in question does not act as organic manure, by supplying organized matter to the plant, nor as many mineral ones, by acting chemically upon the vegetable fibre of the soil; but owe their beneficial effects to their power of supplying the plants with certain *saline combinations* which are essential to their perfection, and are for the most part peculiar to the plant itself, or, in other words, belong to a few plants only. Upon this very interesting topic we have frequently had occasion to throw out a few hints, but have not hitherto made any express remarks, as we considered that they would be much more suited for this place. The subject being almost entirely new, is at present in a very imperfect state, and the subsequent remarks will serve merely to direct the farmer's attention to the point, and I sincerely hope they may be the means of inducing some one to follow out the work in the only way in which it can be achieved, namely, by *chemical analysis*.

It has been proved by chemical analysis, that many plants, probably all, contain some saline substance peculiar to themselves, and consequently of great importance to the welfare of the plant. These salts are frequently of a kind which by no means constantly occur in soil, as for example, *phosphate of lime, sulphate of lime, nitrate of potass, &c.* and, of course, the plants which require these cannot be expected to thrive under such circumstances, unless they are supplied artificially with the required substance. It comes, therefore, to be a point of the greatest consequence to the farmer, that a very careful analysis should be made of all the cultivated plants, in order that the exact constitution of the saline matter should be ascertained, and in this manner the farmer will be enabled, in many instances, to grow plants in situations which probably could never before be made to bear them profitably. For example, to apply this remark to the specific manure now under consideration. *Gypsum* has been the subject of several experiments, in order to ascertain its value as a manure, the results of which prove that it is often useful for *grasses*, and always valuable for *clover, saintfoin, lucern*, and analogous leguminous plants. Now these are the very plants whose saline matter contains abundance of sulphate of lime. Sir Humphrey Davy's remarks upon this subject are truly valuable. He says, for example, that most grasses, especially *meadow fox-tail, cocksfoot* and *fiorin*, contain gypsum; and he observes that the application of this manure would probably be of great value in restoring lands which have been exhausted by frequent *clover crops* and the like. The reason why this substance is not constantly required is, that most soils contain a little of it, but more especially because *all animal manures* have a certain proportion of this substance, and therefore, cultivated land seldom requires any to be added to it. On the other hand, however, it is well known that there are few crops so uncertain as the clover crop, and consequently it would be of great importance to ascertain how far this failure may depend upon the want of sulphate of lime, as, of course, that could be prevented with the greatest ease. There is one point to be attended to with reference to the use of gypsum, namely, that is is apt to fail in some cases where a farmer would least expect it, namely, in soils rich with *animal manures;* chemically, however, this is just what we should have been led to expect; because, during the decomposition of animal matters, *carbonate of ammonia* is produced, which reacts upon the *sulphate of lime*, and produces sulphate of ammonia and carbonate of lime, neither of which are capable of supplying the place of gypsum as a *specific manure*. It is stated that gypsum is particularly useful when it is intended to cut the crops green, as it makes the plants renew their shoots much more vigorously than they otherwise do.

Annual Address,

Before the Kentucky State Agricultural Society—delivered at the Capitol in Frankfort, January 14, 1839, on the dignity of the profession of agriculture, and the propriety of legislation for its improvement.

BY COL. C. S. TODD, OF SHELBY.

(Concluded.)

Agriculture constitutes the business of seven-eights of every civilized community, and is the ultimate source of all national power and wealth, commerce and manufactures being only subordinate results of this main spring. If it be conceded that it is the duty of the legislator to consult the good of the greatest possible number in the community, the transcendant claims of this class will not be questioned; and taking for granted that the condition of our agriculture admits of improvement, and that such improvement will lead to the receipt of greater revenue, there will be no difficulty in obtaining an assent to the proposition that the state is bound to elevate the standard of good farming. This high object has been effected in some of our sister states and in some portions of Europe, by the endowment of agricultural societies of Europe, by the endowment of agricultural societies and of agricultural professorships in colleges, to induce experiments and impart scientific knowledge in all the branches of farming. These measures have been adopted with the happiest results—those who originated them having concurred in the opinion of Sir John Herschel, the great astronomer, that "the arts cannot be perfected till their whole processes are laid open: they are the application of knowledge to a practical end; if this knowledge be experience, reasoned upon and brought under general principles, it is *scientific art*."

The advances made in agriculture by the Romans, so beautifully illustrated by their poets and orators, shared the fate of other improvements that were buried in the dark ages, and it was not until after the revival of letters that the present system of farming commenced in Flanders about 800 years ago; and although the soil was originally a barren white sand, it now yields twice as much as the lands in England. The practicability of *creating* soil is shown in the history of Flemish husbandry. They seem to want nothing but a space to work on, whatever was the quantity or the quality of the soil, they made it productive. It is their maxim, that "without manure there is no corn—without cattle there is no manure—and without grain crops or roots, cattle cannot be kept." The productiveness of their lands proceeded from six causes—small farms, manure, rotation of crops, clover and roots, cutting the forage and grinding the grain—and the farmers giving their personal attention to their farms: no lumbering, no fishing, no speculation, no hankering after office. If the personal digression be pardonable, I will refer in connexion with this subject, to an incident which occurred in my own history when entering upon the cultivation of the soil. In conversing with an experienced farmer, I was led to inquire as to the best mode of making corn. He told me that I must *keep my work horses fat*. I did not then perceive the comprehensive character of his counsel, but have long since realized that it implies every thing connected with good cultivation, although neither he nor I then knew that Cato, one of the most illustrious of the Romans, 2000 years ago, had announced that "the true secret of farming consists in *feeding well*."

The great Von Thaer first introduced into Prussia, under the auspices of the sagacious Frederic, the agricultural schools, which "connected the science with the practice of agriculture—which made gentlemen farmers, and farmers gentlemen—combining intellectual with physical power, and literature with labor." Frederic expended a million annually for these purposes, and said he considered it as *manure spread upon the ground.* In Paris a society has been formed which communicates with more than 200 local societies in France, receiving annually $100,000 from the public treasury. Agricultural colleges have been established at St. Petersburgh and Moscow, in Prussia, Bavaria, Hungary, Wurtemburg, Ireland, France, and in Scotland, who effected her late astonishing improvements by her skilful agriculturists reducing their practice to writing, thus establishing agriculture as a science. Fellenburg has a school in Switzerland with pupils from Switzerland, Germany, France, Spain, Portugal, North and South America. The Highland society in Scotland has appropriated 500 sovereigns as a premium for the first successful application of steam-power to the cultivation of the soil, and premiums for other objects to the amount of $15,000. The agricultural condition both of England and Scotland, has been advanced to its present prosperity by the lights of science applied to the cultivation of the soils. The tour of Sir Arthur Young, to the continent in 1788-9, for the purpose of looking into the countries there under the best system of farming, produced the first decided advances in England to her present agricultural maturity and the perfection to which the art has been brought in Scotland, is ascribed chiefly to the endowment of an agricultural Board, through the influence and exertions of Sir John Sinclair.

Agricultural societies are not now to be regarded as experiments: they are the peculiar privileges of modern times. Before they were formed, in New-England and New-York, 10 bushels of rye, 20 of corn, 200 of potatoes and one ton of hay, was the average crop. Since premiums were offered, claims have been presented for having raised from 40 to 50 bushels of rye, from 115 to 122 or corn, from 400 to 500 of potatoes and from 3 to 4 tons of hay. Massachusetts gives a bounty equal to the cost of manufacture upon the growth of silk, and upon manufacturing beets into sugar. After experiencing the benefit of a former appropriation she has voted to continue it. Maine, Vermont, Connecticut, New-Jersey and Pennsylvania have also granted a bounty upon the growth of silk. Will these examples and these results be lost upon us? Will not the State as well as our farmers profit by the experience acquired in other States of the value derived from legislative encouragement, and ought not an agricultural survey to follow the geological reconnoisance now in progress, which will develop the intimate relation between the minerals that the earth covers and the true method of cultivating its surface?

An improved state of husbandry in Kentucky, and the system of improved roads and navigation, will act with reciprocal benefit upon each other; the roads and rivers will enhance the price of agricultural products by the greater facilities afforded in conveying them to market, and thus increase the revenue from tolls; while the increase in the products of the soil will not only add to the tolls but will furnish an increased revenue, both from the value of the increased products and the increased value of the lands. For the want of any accurate statistical tables shewing the agricultural product of the whole State, it is impossible even to approximate to a correct estimate, but it is palpably evident that 10 per cent upon the amount would yield a large revenue, and will any sensible farmer doubt that our modes of cultivation may not be improved so as to add 20 or 50 per cent to the wealth of the State? And if, according to Pliny, Egypt with only 6000 square miles, at one time contained a population of 20,000,000 by reason of the immense fertility superinduced by the government leading canals from the Nile, what may not be the future destiny of Kentucky, with more than six times the territory, when her resources shall be developed and invigorated by the same beneficent policy? Of the value of canals, or slack water navigation, which is more beneficial, upon the agricultural interests of a country, a striking illustration is given by Count Chaptal, a Peer of France, distinguished for his attainments in agricultural chemistry and his experience as a practical farmer, who traversing a barren part of Flanders, accompanying Napoleon, the latter expressed his surprise at a meeting of the council of the department, that so great a tract of land remained uncultivated in so illustrious a nation. The answer was, "If your Majesty will order a canal to be made through this district, we pledge ourselves that in five years it will all be converted into fertile fields." The canal was ordered to be made without delay, and in less time than they promised, "not an unproductive spot remained." This was effected by means of the easy transportation upon the canal, of the manure from the rich districts.

The chief magistrate, alluding in his last annual message to the deep interest which the State ought to cherish in the cause of internal improvement, uses the emphatic language that "Kentucky cannot stand still." A noble sentiment! worthy indeed of a patriot, and which may be illustrated by reference to many pround periods in the history of the State. The soldiers of the revolution, who were the pioneers in planting the standard of liberty, law and civilization on this once "dark and bloody ground," rescuing it from the savage and from the forest, "did not stand still." In the second war for independence waged in defence of commercial interests and of sailor's rights, of which she was not personally the victim, Kentucky "did not stand still;" her valor and her patriotism having signalized every field of blood from the shores of the lakes to the banks of the Mississippi.—"Kentucky did not stand still" in the cause of human freedom, whether she supposed that standard was unfurled among the children of the sun in the south, or on the classic shores of Greece; and now in this age of improvement, she stands ready to take her place among her enlightened sisters of the confederacy, by entering upon a noble career in reference to the high interest which the Governor elucidates with so much ability. But may we not hope that if the day has not already dawned, it is rapidly approaching, when she "will not stand still" in efforts to advance the great cause of agriculture? All the motives which may be sudposed to have influence in causing her march to be "*onward*" in relation to the cause of internal improvements, apply with equal force to the encouragement of her agricultural interests; for if the appropriation of seven millions of dollars to the construction of paved rail-roads and slack water navigation, be justly predicated on the assumption that it will increase the wealth and consequently the revenue of the State, there can be no conceivable reason why an improved condition of agriculture, superinduced by the application of science to art, shall not demand of the legislative councils some display of the public bounty. The selfish as well as the more elevated motives which ought to prompt the farmer to adopt such methods and to seek such information as science imparts to the cultivation of the soil, whereby an increased profit may attend his labors, address themselves with undiminished force to the legislative councils; for if, as in the case of Scotland and the New-England States, the endowment of agricultural societies and professors, and the authorizing of agricultural surveys, should lead to a *fourfold* increase in the productions of the soil, the bounty granted by the state would be more than repaid in an increased revenue. But this subject is too transcendent in its beneficial influences, to be estimated merely by the dollars it would yield to the treasury of the state or of individuals. An improved condition of agriculture carries with it a train of blessings which money cannot purchase, in an increased intelligence and a higher toned morality in the mass of the people. In proportion as science shall shed its rays upon the path of the farmer; and in proportion as "mind, the grand source of intellectual pleasure, the master power which abridges labor," shall be exerted on the pursuits of agriculture, the character and dignity of the profession will be advanced, the sources of national strength will be developed, and the indications of moral improvement will be visible in the public countenance. If it be contended that the plans which are in progress for the improvement of the soil partake of the character of experiments, and that therefore the legislature should pause in granting aid, we may derive an instructive lesson from the history of the growth of cotton and of sugar. Fifty years ago it was not known that cotton would grow in the United States, but the experiment received the fostering care of government, and from only 200,000 pounds being exported in 1791, more than *four hundred millions* are exported at the present time. Then, its production was limited to one state—now, it is the staple of seven, regulating by its price nearly every other production, and supplying, in addition to our own great and increasing demand, two-thirds of all that is used in foreign climes. Indeed, the culture and manufacture of cotton have now become the support of more than ten millions of the human race in Europe and America, and of more than fifty millions in Asia and Africa. A more recent experiment in Maine and Massachusetts, has served to exhibit the value of legislative encouragement in aid of agriculture effort. Maine granted a bounty to the growth of wheat of $150,000, and a large bounty was given by Massachusetts upon the same article, at a period when her consumption of imported flour amounted to $7,000,000. It is now ascertained that both these states will be able to export flour—the policy having originated from the supposed fact that their inhospitable soil and climate would not produce grain; but intelligent, scientific agriculturists, men whom the ignorant stigmatize as "*book farmers*," acted upon a different opinion, and its truth has been demonstrated in the fact that wheat has been successfully grown in Maine, further north than Massachusetts, thus presenting another instance of the soundness of the maxim that experiment is the mother of improvement and improvement is the true source of wealth.

I cannot exaggerate to myself the importance which a free people should attach to agricultural periodicals and to agricultural education. All the valuable improvements in husbandry have been the result of scientific effort and of the wide spread dissemination of the opinion which the writings of the most eminent Romans inculcated, that the cultivation of the soil and of elegant letters were not incompatible pursuits. By the application of the physical sciences, the wonderful creation of modern times, agriculture has become not merely a mechanical employment, but a science founded upon the process of induction from ascertained facts, and if a medical institute be entitled to legislative regard, the claims to a bounty for an agricultural education are equally imposing, science being alike beneficial to both—the one to preserve and prolong life, the other to nourish it and multiply its comforts. The public mind should be excited to the tone which prevailed in ancient Sparta, of regarding the children of the republic as the property of the republic, as the materials of our temple of freedom, erected upon the principle of teaching the hands to *work* and the mind to *think.* In reference to this vital interest, the late De Witt Clinton indulged in a prophecy in his last message to the legislature of New-York, which the experience of the schools in Prussia and other German states has since fulfilled. He said, that "by a proper system of education and correct modes of teaching, our children might become familiar with the physical sciences, botany, mineralogy, the various classes of animals, chemistry, natural philosophy, astronomy, the fundamental principles of agriculture and political economy, and much of history and biography."

The endowment of agricultural schools and the circulation of agricultural journals is rendered the more necessary from a consideration of the peculiar habits and modes of thinking prevalent among our farmers. As a class of people they have little intercourse with each other; they do not preserve the result of their experiments in books, like mechanics and manufacturers; they have rarely held conventions to concentrate into a focus the lights of the day, to be thence imparted through the press to the remotest ends of the republic; they entertain an unworthy prejudice towards the attainments of book farming; they profess to be too old to seek or to receive information upon the great business of their lives, and therefore we must look to the means which shall enlighten the rising generation for any hope of future high attainments in agricultural knowledge. In designating the source of these unpropitious notions among our farmers, we shall perceive at once the pernicious influence of their reluctance to read agricultural journals; and as if they had designed to set at nought all the maxims of common prudence, we find them encouraging and sustaining nearly one thousand political papers, whilst not more than twenty papers devoted to agriculture are supported by a class whose numbers and importance are in the inverse ratio of their distinctive journals.—The farmer is content to meet his neighbor at the court yard, at the muster, at the election, and occasionally at the fireside in the winter, to converse about his farm and its products, and sometimes about the reason of different modes of cultivation, but he will reject a newspaper devoted to agriculture, which conveys to him the concentrated experience of all the intelligent and practical farmers who have lived in every country and in every age, and cannot be persuaded to realize that in persuing the pages of the N. Y. Cultivator, the Genesee Farmer, the Farmer's Cabinet, of Penn., the Farmer's Register of Va., the Buckeye Ploughboy, of O., and the Maine Farmer, the N. E. Farmer, the Farmer and Gardener of Balt., and the Franklin Farmer, he is conversing at his leisure with those in every age who have made farming both a science and a business. In view then of these facts, who can estimate the vast amount of every species of improvement in cultivation, the results of individual exertion for ages, that has been lost for the want of convenient methods of communication; or who would now attempt to calculate the addition that has been made to our stock of agricultural knowledge and wealth by the publications which are now diffusing their light all over the country?

As an evidence of the deep necessity for the adoption of some stimulating measures in relation to our agricultural condition, we have only to advert to the crop which is annually produced in Kentucky, not exceeding upon an average 35 bushels of corn, 12 of small grain, 500 lbs. of hemp and one ton of hay to the acre; and whilst the Atlantic States present the humiliating spectacle of importing hay and oats from Scotland, eggs from France, potatoes from Ireland and Germany, and bread stuffs from every country in Europe, Kentucky imports clover and timothy seed from Wheeling and Ohio, and seed Irish potatoes from Pittsburg. How few among us understand the amount which an acre *perfectly cultivated*, will produce. How few understand the secret of producing the greatest result without deterioration to the soil; the object being not merely to obtain the greatest crops for a few years, but the largest annual returns compatible with the increasing value of the soil. And how few now realize the startling fact that a farmer from Flanders would support his family by the cultivation of the fence corners now in weeds upon any of the large farms in Kentucky.

These reflections, gentlemen, are submitted to you in the hope that we may all begin to learn something of our duty, and I shall be more than compensated if they shall have the auspicious effect of leading my brother farmers to *think*, and the legislative authority to *act* in relation to the great interest upon the prosperity of which every other depends; for the sentiment of Dean Swift is not less true now than when first published, "that whoever could make two ears of corn or two blades of grass to grow upon a spot of ground where only one grew before, would deserve better of mankind and do more essential service to his country, than the whole race of politicians together."

Allow me then, in conclusion, to appeal to your pride of character, to your patriotic feelings and to your patriotic energies, by addressing to you the language once applied to our profession by that ripe scholar and able financier, who has since won golden opinions for himself as President of the Bank of the United States. "In this nation, agriculture is probably destined to attain its highest honors. The pure and splendid institutions of this people have embodied the brightest dreams of those high spirits who, in other times and in other lands, have lamented or struggled against oppression; they have realized the fine conceptions which speculative men have imagined, which wise men have planned, or brave men vainly perished in attempting to establish." * * "The American farmer is the exclusive, absolute, uncontrolled proprietor of the soil. His tenure is not from government. The government derives its power from him. There is above him nothing but God and the laws; no hereditary authority usurping the distinctions of personal genius; no established church spreading its dark shadow between him and and heaven. But his character assumes a loftier interest by its influence over the public liberty. It may not be foretold to what dangers this country is destined, when its swelling population, its expanding territory, its daily complicating interests, shall awaken the latent passions of men, and reveal the vulnerable points of our institutions. But whenever these perils come, its most steadfast security, its unfailing reliance, will be on that column of landed proprietors—the men of the soil and of the country, standing aloof from the passions which agitate denser communities, well educated, brave, and independent—the friends of the government without soliciting its favors, the advocates of the people without descending to flatter their passions; these men, rooted like their own forests, may yet interpose between the factions of the country, to heal, to defend and to save."

On the Preservation of the Fruits of the Earth by Drying.

[*From Chaptal's Chemistry Applied to Agriculture.*]

In all vegetable products, water exists in two different states, one part of it being found free, and the other in a state of true combination: the first portion, not being confined except by the covering of the vegetable, evaporates at the temperature of the atmosphere; the second is set free only at a temperature sufficiently high to decompose the substances containing it: the first, though foreign to the composition of the vegetable, enters into every part of it, dissolving some of its principles, serving as a vehicle for air and heat, and being converted by cold into ice; by these several properties it greatly facilitates decomposition: the second portion, from which no evil of the kind arises, is found combined and solidified in the plants, and its action is thus neutralized. Drying, then, consists in depriving the product to be preserved of the water contained in it in a free state, by heat; and from what has been observed above, it follows, that too great a degree of heat must not be applied, as, in consequence, the taste and the organization of the substance would be changed by a commencement of the decomposition of its constituent principles: the temperature should never be higher than from 35° to 45° of the centigrade. (= from 95° to 113° Fahrenheit.)

Drying can be performed either by the heat of the sun or in stove rooms. In the southern climates the heat of the sun is sufficiently powerful to dry the greater part of the fruits, and thus to preserve them unaltered: the drying is effected by exposing them to the rays of the sun upon hurdles or slates, where they will be protected from rain, dust, and injury from animals. Practice alone is sufficient to enable one to judge of the degree, to which each kind of fruit must be dried in order to its preservation.

When the outer skin or rind of the fruit is of a kind to prevent the water from passing off freely, incisions are made in the rind to faciliate its evaporation. In this manner are prepared most of the dried fruits, which form so considerable an article of commerce between the south and north.

Those fruits which contain much sugar, as prunes, figs, musk grapes, &c. may be prepared in the above manner, and preserve nearly all their qualities, but the acid fruits acquire a disagreeable sharp taste by the concentration of the juices; some of them, however, may be kept advantageously in this way.

In the hottest countries the process of drying is often commenced by subjecting the fruits to the heat of an oven, after which they are exposed to the sun; some kinds of fruits are thrown into a weak ley, till their surface becomes wrinkled, when they are taken out, carefully washed in cold water, and afterwards dried in the sun: cherries particularly are treated in this manner. When the heat of the sun is not sufficiently great to evaporate all the water contained in the pulp of large, fleshy fruits, they may be cut in pieces and then dried: in this manner apples and pears are prepared for keeping.*

But this method is neither speedy nor economical enough for such preparations as have but little value in commerce, and which can never supply, for domestic purposes, the place of those whole fruits, which may be easily preserved from one season to another: it is therefore customary to perform the drying either in stove rooms or ovens. In the first case, the fruits, after being cut, are placed upon hurdles arranged in rows in a chamber heated to 112°: in the second, the fruits are put into an oven, from which bread has just been drawn; this is repeated if the fruits be not sufficiently dried the first time.

Some of the fruits referred to above, may be dried without being cut: of this kind are the tender pears, which cannot be preserved fresh through the winter; such as the rousselet, the butter pear, the doyenné, the messire-jean, the martinsec, &c. These are first peeled, and then thrown into boiling water, after which they are put upon hurdles into an oven heated less than is required for bread; after an interval of three or four days the pears are again exposed to the same degree of heat, having been however first flattened between the palms of the hands, whence they have acquired the name of *pressed pears*.

Fruits prepared in either of the above ways are susceptible of fermentation upon being soaked in water, and they thus serve to make a cheap and useful drink.

In those countries where these fruits abound, the drying of them is commenced about the first of August, and those are made use of, which then fall from the trees; in autumn, when the harvest is gathered in, the soundest and finest fruits are carefully selected to be used fresh, whilst the rest are dried and preserved in a place free from moisture, to be employed in making drinks. I shall in another chapter speak of the processes by which this is effected.

The herbage, which serves as food for domestic animals, can be preserved only by drying, and this in all countries is practised at the time of cutting. Fodder, which is imprudently stacked up whilst still damp, ferments, and the heat thus produced is sufficient to change the quality, produce mouldiness, and is sometimes even great enough to set the whole on fire.

There are some fruits, which may, by a few slight precautions, be preserved throughout the year. The first of these precautions is, that of depriving their surface of all moisture before putting them up; and the second consists in keeping them in dry places, where the temperature will constantly be between 50° and 54° Fahrenheit: the third, in separating the fruits, so that they shall not come in contact; I have seen apples preserved in this manner eighteen months. It is necessary to be particular in selecting fruit for preservation; that only should be taken which is perfectly sound.

Wood and other portions of vegetables, and various animal substances are likewise preserved by drying; this process increases their hardness and renders them less accessible to the action of air, insects, and other destructive agents.

The process of drying is not confined to preserving fruits from decomposition: it furnishes the means of securing their juices unaltered for the formation of extracts of them.

When the juices of plants can be extracted by pressure alone, it is only necessary to evaporate these juices at a due degree of heat and in suitable vessels, till, being deprived of all the water which retained them in a liquid state, they are reduced to dryness. Evaporation, if continued for a long time at the temperature of boiling water, changes these juices a little; the albumen, which is contained more or less abundantly in all sweet fruits, is coagulated, and after this they are no longer susceptible of undergoing the vinous fermentation.

The must of grapes, operated upon in this manner, furnishes an extract called *raisiné*, which is an article of food both wholesome and agreeable, and which, when soaked in water, decays without producing alcohol. The fermentative power of this substance may however be restored by mixing with it a little of the yeast of beer. as this repairs the loss, which the juices had sustained by heat during evaporation.

All the juices obtained from sweet fruits may be converted into extracts and thus furnish agreeable food: the quality of the extract varies according to the quantity of sugar contained in the fruit, and the care taken in the operation: when the juices are several times clarified, and evaporation carried on in a water bath, care being taken to stir the liquid to prevent its adhering to the sides, the colour and taste of the extract or jelly obtained is far superior to that procured without employing these precautions.

The sweetest fruits, however, even the well ripened grapes of the south, contain a portion of acid, which, when concentrated by evaporation, acts upon the copper boilers in which the operation is carried on, so as to form an acetate of copper: this by producing colics, would render the use of the extract dangerous, especially at the south, where the principal article of food for children is the *raisiné*. In order to obviate this serious evil, an ancient and generally followed custom is observed: as soon as the must of the grapes begins to boil in the coppers, a bunch of keys is thrown in, and allowed to remain till the operation is completed: these keys attract the copper and become covered with the precipitate thus formed; and nothing remains in the extract but the acetate of iron, which is not injurious.

I have observed that the juices of all succulent fruits might be converted into extracts, and thus preserved for use in the course of the year; but the greater part of these juices, when concentrated by evaporation, are so excessively acid as to be totally unfit for food, and they only form, when mixed with water, a very sour drink. In order to correct or conceal this acidity, these juices are boiled with an equal weight of sugar and thus made into sirups and jellies.

As it is of importance to be able to extract and preserve for domestic purposes, for pharmacy, and for the arts, certain vegetable products, which can be only very imperfectly obtained by mechanical pressure, recourse is had to other means; those liquids are made use of which will dissolve the wished for principles, and the solution is afterwards evaporated to dryness.

The fluid most generally employed for solutions is water; this dissolves the extractive matter; mucilage, sugar, and the greater part of the salts, and mixes with the mealy portions of plants; it may be applied cold or hot to the vegetables, or they may be boiled in it, according to the nature of the principle to be extracted; water will dissolve all that is soluble in them, and the extracts may be obtained from the solution by evaporation.

The resins, which are found so abundantly in some vegetables, are not soluble in water, and the place of this liquid must be supplied by alcohol, in which the plant must be digested; evaporation will separate the alcohol from the resin which it holds in solution. In order to avoid the accidents that might occur from the dispersion in the atmosphere of a very inflammable vapor. the evaporation must be so conducted that the dissolvent may be received into an alembic or close vessel.

In addition to the methods of preserving fruits by drying, and by reducing their juices to the state of sirups and jellies by natural or artificial heat, M. de Montgolfin has applied the action of the air pump with great success. I have tasted juices prepared and thickened in this manner, and I thought they were much superior to those that had been evaporated in either of the modes hitberto usually practised. I do not doubt that, when this method becomes better known, it will be generally adopted.

[*From the Domestic Encyclopedia.*]

Vegetation

Is the natural process by which plants receive their nourishment.

Naturalists have formed various conjectures, to account for the mysterious phenomena occuring in vegetable nature; and though unable to discover the primary source from which plants are enlivened, yet it is now agreed, and proved, that all vegetables originate from seeds, each of which comprehends three parts, namely: 1. The *cotyledons*, or two porous lateral bodies or lobes, that imbibe moisture: 2. The *radicle*, or *eye*, which appears between the lobes: and, 3. The *plumula*, a small round body attached to the radicle, though wholly concealed within the cotyledons, forming the part that shoots upward.

If a seed be deposited in the earth, in a favourable situation, it imbibes moisture, and evolves carbonic acid gas; but if any oxygen gas be present, it is gradually absorbed by the seed, and the farinaceous matter, contained in the cotyledons, acquires a saccharine taste. Numerous vessels then appear in the lobes which convey the nutriment to the radicle, that progressively increases in size, and at length assumes the form of a root; strikes downwards into the earth; and thence derives the nourishment necessary for the support of the future plant. Now the cotyledons shoot above the ground, become leaves, and form what botanists have termed the *seminal leaves*. Thus, the *plumula* is gradually enlarged, and rises out of the earth, spreading itself into branches, &c. after which the seminal leaves wither and decay, while the different processes of vegetation are carried on in the plant, without their assistance.

Plants are very various, and of course, the structure of each species must have many peculiarities. Trees have principally engaged the attention of anatomists. We shall therefore take a tree as an instance of that structure of plants: and we shall do it the more readily, as the greater number of vegetables are provided with analogous organs dedicated to similar uses.

A tree is composed of a root, a trunk, and branches. Each consists of three parts, the bark, the wood, and the pith.

The *bark* is the outermost part of the tree. It is usually of a green colour. If we inspect a horizontal section, we shall perceive that the bark itself is composed of three distinct bodies. The outermost of these, is called *epidermis*, the middlemost, is called *parenchyma*, and the innermost, or that next the root, is called the *cortical layers*.

The *epidermis*, is a thin transparent membrane, which covers all the outside of the bark. It is pretty tough, is reproduced when rubbed off. In old trees it cracks and decays, and a new *epidermis* is formed. Hence, old trees have a rough surface.

The *parenchyma*, lies immediately below the epidermis; it is of a deep green colour, very tender and succulent. Both in it, and the epidermis there are numberless interstices which have been compared to so many small bladders.

The *cortical layers*, form the innermost part of the bark, or that next the wood. They consist of several thin membranes, lying the one above the other; and their number appears to increase with the age of the plant.

The wood consists of concentric layers the number of which increases with the age of the part. Next the bark, the wood is much softer and whiter and more juicy than the rest, and is called *alburnum* or *aubier*. The perfect wood is browner and harder, and the layers increase in density, the nearer they are to the centre.

The pith occupies the centre of the wood. It is a spongy body, containing numerous cells. In young shoots it is very succulent, but it becomes dry, as the plant advances, and finally disappears.

The leaves are attached to the branches of plants by short foot-stalks. The whole leaf is covered with the epidermis of the plant; containing many glands.

Plants are continually increasing in size. New matter is continually making its appearance in them, and this matter they must receive by some channel or other. Plants then require food as well as animals. Now, what is this food, and whence do they derive it? These questions can only be examined by an attentive survey of the substances which are contained in vegetables, and an examination of those substances which are necessary for their vegetation.—This subject has already been treated of, under articles, *food of plants*, and *manure*. Some additional remarks shall now be given.

The analysis of vegetables affords but three essential principles, namely, *carbon, hydrogen, and oxygen*, or charcoal, inflammable air, and pure air; and the proportions between these principles form all the shades, varieties, modifications, which the vegetable creation exhibits. Analysis further shews, that vegetable fibre, when cleared of all extraneous matter, is scarcely any thing else than a congeries of carbon. But how is carbon conveyed into the body of the plant? It is well known, that pure carbon, such as is used for burning mixed with pure, dry earth, affords no nourishment to vegetables: and it is also known, that when dead plants are so far decomposed, that their texture is softened or destroyed, living vegetables imbibe all their constituent principles.—This difference appears to arise from hence, that in the last case, the carbon remaining dissolved in the oily, resinous, or alkaline principle, the water, which has the property of disjoining these natural combinations, serves as a vehicle to convey them into the vegetable system. Air, heat, acids, and even rest alone, are sufficient to precipitate the carbon; so that, the agents proper to facilitate the concretion of the fibre, and to promote nutrition, are every where to be found. The principle of life, which governs and animates every organ, suitably divides this nutritive matter. It modifies the action of external agents, and presides over all the operations of this living laboratory. Hence it is easy to see, that hydrogen, carbon, or oxygen, predominates in the plant, according to the nature of the soil, exposure and climate, and according to the proportions in which these nutritive principles are presented.

Since the only part of plants which is contiguous to the soil is the root, and since the plant perishes when the root is pulled out of the ground, it is evident, that the food of plants must be imbibed by the roots. It is highly probable that the *great* changes, at best, which the food undergoes after absorption, are produced, not in the roots, but in other parts of the plant. The sap, as Dr. Hales has shown us, ascends with such impetuosity from the cut end of a vine branch, that it supported a column of mercury 32½ inches high. It is certain that the sap ascends through the wood, and not through the bark of the tree; for a plant continues to grow, even when stripped of a great part of its bark, which could not happen, if the sap ascended through the bark.

It is impossible to account for the motion of the sap in plants by capillary attraction, or by any mechanical or chemical principles whatever; we know indeed, that heat is an agent, but its influence cannot be owing to its dilating power; for unless the sap vessels of plants were furnished with valves, (and they have no valves) dilatation would rather retard than promote the ascent of the sap.

We must, therefore, ascribe it to some other cause; the vessels themselves must certainly act. Many philosophers have seen the necessity of this, and have accordingly ascribed the ascent of the sap to *irritability*. Saussure supposes, that the sap enters the open mouths of the vessels, at the extremity of the roots; that these mouths then contract, and by that contraction propel the sap upwards; that this contraction gradually follows the sap, pushing it up from the extremity of the root to the summit of the plant.

This irritable principle is seen in many plants, particularly in the *stamina* of the barberries, which are thrown into motion when touched. *(To be continued.)*

For Burns and Scalds.—Mix in a bottle three ounces of olive oil and four ounces of lime water. Apply the mixture to the part burned five or six times a day with a feather.—Linseed oil is equally as good as olive oil.

Young Men's Department.

Chemical Catechism—Chapter IX.

[*From Parkes' Chemical Catechism.*]

OF SIMPLE COMBUSTIBLES.

What is a simple substance?

Those bodies* which have never yet been decomposed, nor formed by art, are called simple substances.

How many simple substances are there?

Very lately the simple substances were said to amount to more than 50 in number;† but since the truly interesting and very important discoveries of Sir Humphrey Davy, it is scarcely possible to say what substances are not compound bodies.

Can you enumerate what are now deemed simple substances?

All the simple substances that we are acquainted with are fifty-two;‡ viz: electricity, magnetism, light, caloric, chlorine, oxygen, nitrogen, iodine,§ the metals, (reckoning as such the bases of potash, soda, and some of the earths,) and the simple combustibles, carbon, phosphorus, sulphur, hydrogen,* boron, and fluorine.

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* In this country, apples, pumpkins, squashes, and peaches are kept by drying.—Tr.

* The most minute particles into which any compound substance can be divided similar to each other, and to the substance of which they are parts are termed the *integrant* particles: thus the smallest atom of powdered marble is still marble; but if by chemical means the calcium, the carbon, and the oxygen of this marble be separated, we shall then have the *elementary* or constituent particles.

Suppose a little common salt were reduced to powder, even though it be ground as fine as could be effected by art, still every single particle, however minute, would consist of a particle of sodium and a particle of chlorine; common salt being a compound body incapable of decomposition by mechanical means. But if we take a piece of sulphur and pulverize that in the same way, every particle will be a homogeneous body, sulphur being one of the simple substances.

† If these substances were all capable of combining, the compounds formed by them would amount to many thousands; but several of them cannot be united by any means we know of.

‡ Of these simple substances it may be remarked that four are imponderable; four others exist in a gaseous state; six are bases of acids; and thirty-eight are metallic bodies.

§ Iodine is a peculiar substance procured from kelp; it pos-

Is it well ascertained that these are all simple substances?

It is extremely probable that some of these bodies may be compound, but as no mode has yet been discovered of decompounding any of them, it will be more conducive to science, to consider them, for the present, as simple undecomposable bodies.

Having already examined the nature of all these substances, except the combustibles, we shall now enter upon the consideration of that class of bodies.—Endeavor, therefore, to enumerate the simple combustibles.

Besides the metals there are six simple combustibles, viz: hydrogen, sulphur, phosphorus, carbon, boron, and fluorine.

Why are these substances called simple combustibles?

They are called simple because we have no proof that they are compounded: whereas oil, spirit of wine, wax, tallow, and other combustible bodies, are well known to consist of two ingredients at the least.

It will be necessary to examine each of these substances separately:—therefore, what is the nature of hydrogen.†

Hydrogen is the basis of what has been generally called inflammable air,‡ and is one of the component parts, of water,§ but it cannot be exhibited in a separate state. We therefore know it only in combination with other substances,‖ or in the gaseous form, that is, with caloric.¶

In what other compounds is hydrogen an ingredient?

Hydrogen gas may be combined with water, sulphur, phosphorus, or with carbon.

What is the nature of the compound of hydrogen and water?

Water may be made, by pressure, to absorb a considerable portion of hydrogen gas. It is called hydrogenated water, and is said to be useful in medicine.

What is the nature of the compound of hydrogen and sulphur?

Sulphur dissolved in this gas forms sulphuretted hydrogen gas, which is a very fetid elastic fluid, somewhat heavier than atmospheric air and soluble in water.

What are the properties of sulphuretted hydrogen gas?

SULPHURETTED HYDROGEN gas** is transparent and colourless; it has the property of inflammability, is nauseous to the taste as well as fetid to the smell; it possesses all the characters of an acid: it combines with earths, alkalies, and with several of the metallic oxides; and forms with them those substances called *hydrosulphurets*.

What are the properties of the hydrosulphurets?

The HYDROSULPHURETS are generally soluble in water, and their solutions precipitate the metallic oxides, from metallic solutions. Exposure to the air, however, decomposes these hydrosulphurets when dissolved in water,* and partially converts them into hydroguretted sulphurets.

How many compounds are there of sulphur and hydrogen with the alkaline and earthy bases?

There are three distinct combinations of sulphur and hydrogen with the earths and alkalies, which differ in their properties in consequence of the difference there is in the proportions in which their constituent parts are combined.

Can you explain what difference there is in the composition of these three distinct classes of substances?

The first, which are called *sulphurets*, are merely compounds of sulphur united with some earthy or alkaline base; the second, called *hydrosulphurets*, are formed by the union of some base with sulphuretted hydrogen; and the third called *hydroguretted sulphurets*, consist of a base united with supersulphuretted hydrogen.

What is the nature of supersulphuretted hydrogen?

SUPERSULPHURETTED HYDROGEN is merely sulphuretted hydrogen combnied with an additional proportion of sulphur; that is to say, one part of hydrogen combines with 15 parts of sulphur to form sulphuretted hydrogen, and with 30 parts of sulphur to constitute supersulphuretted hydrogen.

What is the nature of the combination of hydrogen and phosphorus?

Hydrogen gas when combined with phosphorus forms *phosphuretted hydrogen gas*. This gas has a fetid putrid smell, and takes fire whenever it comes in contact with atmospheric air.

What is the nature of the combination of hydrogen with carbon?

This elastic substance, which is called *carburetted hydrogen gas*,† is carbon dissolved in hydrogen; it has likewise been called heavy inflammable air. It is this gaseous compound which has occasioned so many dreadful accidents in coal-pits. The miners call it the *fire-damp*.‡

What is meant by SUPER-CARBURETTED HYDROGEN?

This is a gaseous compound of carbon and hydrogen, containing exactly twice as much carbon as the carburetted hydrogen gas. It is extremely inflammable, and emits more light during combustion than is given out by the inflammation of that gas. It has been called *olefiant gas*.

What is the origin of SULPHUR?

Sulphur is found in most parts of the world§ combined with metals, from which it is procured by roasting; it also flows from volcanos; it is sublimed from the sulphurous grounds in Italy, and is found in many mineral waters,‖ combined with hydrogen.

What is the nature of sulphur?

Sulphur or brimstone as it is sometimes called, is a solid, opaque, combustible¶ substance, of a pale yellow colour, insoluble in water, very brittle, and possessing a peculiar taste and smell. Its specific gravity is 1.990, or nearly twice as heavy as water, and it is a non-conductor of electricity.—It has various uses in medicine and the arts.

*What compounds** are formed by means of sulphur?*

Sulphur is the base of several compounds; it unites with oxygen, hydrogen, carbon, phosphorus, the alkalies, the metals, and with some of the earths.*

What are the compounds of sulphur and oxygen?

If sulphur be kept in fusion in atmospheric air, it absorbs a small quantity of oxygen, and forms oxide of sulphur; if it be heated sufficiently to take fire, it burns with a pale blue flame, and becomes converted to *sulphurous* acid; but if sulphur be burned in pure oxygen, it absorbs the full dose of this gas, and *sulphuric* acid is the product.

What are the compounds of sulphur and the alkalies?

Sulphur will combine with potash, with soda, and with ammonia; which compounds possess several curious and interesting properties.

What are the general characteristics of the alkaline and earthy sulphurets?

They are hard substances of a brown colour, resembling the liver of animals; they absorb water from the atmosphere, and then emit a fetid odor, similar to that of putrid eggs.†—They have the property of decomposing water, and by that process become partially converted to alkaline or earthy sulphates.

What knowledge have we acquired of the combinations of sulphur with the earths and metals?

Sulphur may be combined artificially with most of the metals, and with some earths: but many of the metallic sulphurets are found native in great abundance.

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sesses the singular property of being convertible into a violet vapor by heat.

* If we omit the earths and alkalies (and there is abundant evidence that these are compound bodies,) most of the simple substances are combustible, or bear some relation to combustion. Light and caloric are evolved during combustion; oxygen is the principal agent of combustion: and hydrogen, sulphur, phosphorus, carbon, and the metals, are the subjects, or the true instruments of this process.

† Mr. Cavendish was the first person who examined hydrogen gas and pointed out its nature. This was in the year 1766. Dr. Black then suggested the propriety of applying it to the inflation of air balloons; and Mr. Cavallo was the first who put it in practice. This gas is about thirteen times lighter than atmospheric air.

‡ Like all other combustibles, hydrogen will not burn unless in contact with atmospheric air, or some substance that contains oxygen. If a portion of atmospheric air be mixed with this gas, and fire be applied, it will explode with violence. It is related of Pilatre de Rosier, that having mixed one part of common air with nine parts of hydrogen gas, and drawn the mixture into his lungs, it caught fire by accident as he respired it, and the whole of the gas exploded in his mouth and nearly deprived him of life. The shock was so violent, that at first he thought the whole of his teeth had been driven out, but fortunately he received no lasting injury.

§ Hydrogen is the most inflammable substance we are acquainted with; that is, it combines with more oxygen than any other body, and occasions more heat by its combustion. It may be remarked that oxygen is *mild* when in the proportion of 21 per cent in atmospheric air, and highly *corrosive* in the proportion of 74 per cent in nitric acid or even in that of 49 per cent in sulphuric acid:—How is it then, that it is found in the ratio of 88 per cent in water, and that this compound, compared with the others, should be perfectly mild and innocent! Instances of a similar accommodation of the elementary substances have been adduced; and though we cannot comprehend the nature of their operation, we can perceive that the ultimate end of the Creator is our convenience and happiness. See pages 48 and 160. Most oxidized substances, when taken internally, act perceptibly on the system; yet water, the most oxidized of all others, has comparatively little influence, because its oxygen is so forcibly retained and so completely neutralized by the hydrogen. Had it been otherwise, what is now the most salubrious beverage would have operated as a corrosive poison.

Oil, tallow, wax, &c. used for producing light, do all acquire their power of burning *with flame*, from the hydrogen, which is a component part of all these substances.

‖ Although hydrogen when in an aërial form is the lightest of all known substances, yet when imbibed by living vegetables it becomes a solid, so as to form wax, resin, &c. and in combination with oxygen it constitutes water, which has the property of becoming either solid, fluid, or aëriform.

¶ A mixture of oxygen and hydrogen gases produces the most powerful heat yet known.

** This gas was long known by the name of *hepatic* gas, because the substances from which it was first obtained were called *hepars* or livers of sulphur.

When this gas is set on fire in contact with oxygen gas, it burns with a pale blue flame without exploding. It will of itself extinguish burning bodies, and destroy animals which are made to inhale it.

Sulphuretted hydrogen gas is decomposed by atmospheric air. The oxygen of the atmosphere combines with the hydrogen and forms water, while the sulphur is precipitated.—The sulphur which is found in the neighborhood of mineral springs originates from this cause.

The fetid smell which arises from house-drains is owing, in a great measure, to a mixture of this gas with other putrid effluvia. As the diffusion of this noxious matter within our dwellings tends to produce disease and mortality, it cannot be too generally known that a cheap and simple apparatus has been contrived for carrying off the waste water, &c. of sinks, and which at the same time prevents the possibility of any air ever returning back into the house from thence, or from any drain which may be connected with it. It is known by the name of a *stink trap*, and may be had of some of the ironmongers in London. [Chloride of soda will do this; see Cultivator for Sept.]

* The waters of Harrowgate, Aix la Chapelle, and others of a similar nature, owe their medicinal properties to sulphuretted hydrogen gas and muriate of soda. The *salt of bitumen* of the Hindoos, which is almost the only article of Hindoo physic, and is sold in every village, is chiefly composed of muriate of soda and sulphuretted hydrogen. It is taken by these people for every complaint. The farriers give it to the horses, and seem to understand the principle upon which it acts; for when they have given a dose to the animal, they always give him water to extricate the gas.—Henderson on *Hindoo Physic*.

† In hot weather this gas is formed at the bottom of stagnant waters, and may readily be collected at their surface, by suspending a bottle of water over the pool, similar to the decanting of gases over a pneumatic trough, and stirring up the mud to disengage the carburetted hydrogen.

This gas generally contains a portion of carbonic acid mixed with it. Both these aëriform fluids are produced by the decomposition of water by putrid animal and vegetable matter. Such decompositions take place chiefly when the sun shines upon these waters, caloric being necessary to all gaseous compounds.

‡ What renders this gas so extremely dangerous in mines is the circumstance that whenever the atmosphere of a mine becomes charged with more than one-thirteenth of its volume of carburetted hydrogen gas, the whole becomes explosive. It is, however, now expected that the safety-lamp of Sir Humphrey Davy, which is a most important discovery, will be a means of lessening the number of these accidents.

§ Sulphur is procured in large quantities from martial pyrites and other metallic ores. It is also found in abundance in the state of native sulphur, as it is called, near several volcanos, in different parts of the world. According to Dr. Anderson, there are mines of it in the kingdom of Thibet.

‖ Sulphur has been discovered in cresses, horse-radish, and several other vegetables. It is also evolved from animal substances, during their putrefaction, in combination with hydrogen. The change which silver undergoes when immersed in an egg, shows the presence of sulphuretted hydrogen.

¶ Sulphur during its combustion combines with oxygen, and becomes an incombustible substance. Like phosphorus, it is eminently combustible, owing to its great affinity for oxygen.

**"Nature employs sulpher in a great number of her operations; she presents it under many forms among fossils; charges with it the waters denominated sulphurous; mineralizes with it the metals; causes it to pass into vegetable and animal fibres and exhibits it to chemists in an infinite number of combinations."

* Sulphur is used in large quantities for making gunpowder. When exhibited as a medicine, it penetrates to the extremities of the most minute vessels, and impregnates all the secretions; as may be perceived by those who have taken it for any length of time. Sulphur has many uses in the arts, and has been employed with advantage in stopping the progress of fermentation in wines and other fermented liquors.

† Sulphuret of potash is formed by the explosion of gunpowder, and it is this compound which occasions that peculiar smell which a gun usually has after firing.

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*Moneys received between the 1st of August and 20th Sept. in sums of $5 and over. The total receipts are included from post-offices marked with an asterisk.**

		No. Vols.			No. Vols.
*Alexandria,	D.C.	52	Lindleystown,	N.Y.	5
*Akron,	O.	7	*Lexington,	Va.	28
Atwater,	O.	7	*Milton,	N.Y.	15
*Boston,	Mass.	195	*Marlborough,	N.Y.	9
*Burlington,	Vt.	26	*New-York mills,	N.Y.	20
*Baltimore,	Md.	115	*New-York city,		310
*Buffalo,	N.Y.	21	*New-Brunswick,	N.J.	32
*Buskirk's Bridge,	N.Y.	13	*New-Haven,	Ct.	35
*Carrolton,	Ill.	10	*New-Lisbon,	O.	19
Cordova,	Ill.	7	Norwich,	Ct.	6
Clarksfield,	O.	5	Oxford,	O.	5
*Cincinnati,	O.	27	*Oswego,	N.Y.	28
*Chicago,	Ill.	10	*Providence,	R.I.	9
Catfish,	S.C.	5	*Philadelphia,	Pa.	160
*Catskill,	N.Y.	21	*Poquonock,	Ct.	12
*Columbia,	S.C.	21	*Patorson,	N.J.	11
Elberton,	Ga.	5	*Princeton,	N.J.	16
Fort Madison,	Io.T.	11	Pittsburgh,	Pa.	79
Farmington,	O.	7	*Poughkeepsie,	N.Y.	23
*Flushing,	N.Y.	19	Pilot Grove,	Mo.	10
*Greensborough,	Ga.	16	*Quincy,	Ill.	10
*Geneva,	N.Y.	34	Quebec,	L.C.	7
*Hartford,	Ky.	11	*Richmond,	Va.	198
Huntington,	Ia.	6	*Rhinebeck,	N.Y.	35
*Hartford,	Ct.	63	Rockaway,	N.J.	6
*Jonesborough,	Mo.	23	*Savannah,	Ga.	56
*Johnson's Springs,	Va.	47	*Schenectady,	N.Y.	24
*King George C. H.	Va.	20	*St. Louis,	Mo.	67
Lower Marlboro',	Md.	5	*Steubenville,	O.	26
*Lafayette,	Ia.	16	Sing-Sing,	N.Y.	26
*Lexington,	Ky.	29	*Troy,	N.Y.	40
*Liberty,	Va.	20	*Verdiersville,	Va.	7

PRICE CURRENT.

ARTICLES.	New-York, Sept. 18.	Boston. Sept. 18.	Philadelphia. Sept. 17.	Baltimore. Sept. 17.
Beans, white, per bushel,......	2 12— 2 25	1 75— 3 00	1 75— 1 87	1 80— 1 90
Beef, per cwt..................	....	7 00— 8 50	7 00— 9 00	7 25— 7 75
Bacon, western, per lb.........	0 12— 0 13	0 12— 0 13	0 10— 0 11	0 11— 0 12
Butter, fresh, per lb..........	0 16— 0 25	0 17— 0 28	0 14— 0 16	....
Cheese, per lb.................	0 08— 0 10	0 10— 0 12	0 10— 0 11	....
Cotton, best per lb............	0 10— 0 14	0 09— 0 11	0 13— 0 16	....
Flour, best, per barrel, ...	6 50— 7 00	6 50— 7 00	6 00— 6 25	5 75— 6 00
GRAIN—Wheat, per bushel,....	1 30— 1 33	1 28— 1 33	1 30— 1 35	1 11— 1 18
Rye, per bushel,......	0 84— 0 85	0 83— 0 85	0 73— 0 83	0 73— 0 75
Oats, per bushel,......	0 38— 0 47	0 35— 0 37	0 33— 0 40	0 30— 0 34
Corn, per bushel, ...	0 85— 0 88	0 80— 0 97	0 75— 0 80	0 60— 0 65
Hams, pork, per lb............	0 10— 0 13	0 13— 0 14	0 08— 0 11	0 10— 0 11
Pork, in hog, per cwt..........	....	6 50— 7 50	7 00— 8 00	9 00— 9 50
SEEDS—Red Clover, per bushel,	....	08 00—12 00	....	....
Timothy, per bushel,..	....	2 87— 3 00	....	....
WOOL—Saxony, fleece, per lb..	0 55— 0 58	0 60— 0 65	0 55— 0 60	....
Merino, per lb........	0 50— 0 53	0 55— 0 60	0 50— 0 55	....
¼ and common, per lb..	0 37— 0 42	0 45— 0 50	0 38— 0 42	....
Sheep, per head,....	2 00— 5 50	1 25— 3 25	1 50— 4 25	1 50— 3 25
Cows and Calves, each, ...	28 00—30 00	30 00—60 00	30 00—50 00	....

MULBERRY TREES.—25,000 Multicaulis, Alpine and Expansa Mulberry trees, and a few thousand Silk Worms Eggs, for sale by S. E. GIBBS & SON, West end of Long-Island. Address them at Brooklyn. October, 1839. 3t.

DURHAM CATTLE.—Short-Horned Durham Cattle, of pure blood, bred by Charles Henry Hall, of N. York, comprising Bulls, Cows and Heifers, of all ages. In point of excellence, the proprietor of these cattle will not hesitate to compete at any fair with those lately imported from England, or with any others bred in this country. Their size, beauty of form, and their milking properties, are seldom equalled. Some of these animals have taken premiums, and among them the gold and silver medals of the American Institute, for two succussive years.

For terms, examinations, and pedigrees, apply to the subscriber at Greenbush, Rensselaer county, where the animals are; or to DANIEL A. WEBSTER, No. 67 State-street, Albany. Greenbush, Sept. 2, 1839.

oct.2t WILLIAM DEWEY, Agent.

DURHAM AND DEVONSHIRE CATTLE and SAXONY SHEEP, for sale by the subscriber.

1. The Bull *Memnon*, ftom the herd of F. Rotch, Esq. of Butternuts, N. Y. Pedigree No. 2,297, English Herd Book.
2. A four years old full blood Cow, a beautiful specimen of the Devonshire and Durham cross, with her calf, a heifer, six months old, by Memnon.
3. A bull calf, two and a half months old, by Memnon, dam Experiment.
4. From 70 to 80 Ewes, 40 to 50 Lambs, and 30 Rams, from my flock of full blood Electoral Saxon Sheep, selected by myself from the purest race in Saxony. H. D. GROVE,

oct.1t Buskirk's Bridge P. O. Wash. co. N. Y.

PURE SOUTH-DOWN SHEEP.—The subscriber will sell at public auction on Thursday the 10th day of October next, at the city of Rochester, sixty-five full blooded South-Down Bucks and Ewes. Some of them have been imported by himself direct from England, and with their produce are not surpassed by any of the same breed in this country. Every sheep offered will be sold without reserve to the highest bidder, and a warrantee certificate given to the purchaser.

The place of sale being in Rochester, the sheep can be shipped to any part of the country desired.

Persons wishing to see the above sheep, can, at any time, previous to the sale, by calling on the subscriber at his residence in Riga, Monroe county, N. Y.

This breed of sheep needs no recommendation to those who are acquainted with them; they are the strongest constitution, easiest kept, apt to fatness, very quiet, less liable to disease, than any other breed of sheep.

oct.1t JAMES PARSONS.

MORUS MULTICAULIS.—25,000 trees for sale, either in quantities or all together, and to be delivered at any time that may best suit the purchaser. They are from imported cuttings, of the genuine Morus Multicaulis, were planted in May last, and are of the most vigorous growth, measuring from three to five feet in heighth, with large collateral branches. Purchasers are invited to call and see them, at the residence of Gen. Morgan Lewis, Staatsburgh, Dutchess county, state of New-York, where the owner lives, as he thinks they will not suffer by a comparison, with any in the United States. Staatsburgh, Dutchess co. Sept. 11, 1839. [oct. 4t] MATURIN LIVINGSTON.

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

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ALBANY NURSERY.—This establishment now offers perhaps the best collection of Pears now in the country; [see the June number of the Cultivator.] Also, Apples, Peaches, Plums, Ornamental Trees, Green-House Plants, &c. &c. A catalogue will soon be printed, and forwarded to order. Address J. BUEL & Co. post-paid. tf

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☞ **ROHAN POTATOES.**—Orders received for Rohan Potatoes, at $5 per Barrel, to be forwarded, as may be directed, without delay, by J. BUEL. tf

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ROHAN POTATOES.—The subscriber is now prepared to furnish the above very valuable root for transportation, at five dollars per barrel, delivered at Albany.—Persons living at a distance, will find it to their interest to forward their orders early, so they will reach their destination before cold weather sets in. Orders enclosing five dollars, (postage paid) or more, will meet with immediate attention.

CALEB N. BEMENT.

Three-Hills Farm, Albany, Oct. 1st, 1839.-3t

SOUTH-DOWN SHEEP.—The subscriber will sell the following Sheep, delivered at Albany, if applied for soon, viz:

			Price
1	full bred South-Down Buck, (imported,)	3 years old,	$80
1	do do do	1 year old,	40
6	do do do	Lambs,	30

10 do South and Hampshire Down Ewes, (some of which were imported by Mr. Hawes, in 1833,) very old, price from $20 to $25. Eight Ewes from 1 to 2 years old, half South Down and half Bakewell, price $10.

All letters, postage paid, will be punctually attended to.

2 CALEB N. BEMENT, Three Hills Farm, Albany.

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicester's flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 28, 1839.

Sept-tf JAMES A. HAMILTON.

THE SUBSCRIBER has located in Albany, where he is manufacturing his machines for thrashing and cleaning grain. He may be found at **53** North-Market-st. or at his machine shop on Patroon's Creek, near the Manor House. Sept. 2, 1839. [oct. 3t] JOHN A. PITTS.

☞ **FOR SALE**—The subscriber wishing to close up his business, offers for sale ☜ the valuable Iron and Lumber Establishment, formerly owned and occupied by Penfield & Taft, situated on Putts creek, six miles from Lake Champlain, in Crown Point, Essex co. N. Y. The premises in question consist of a valuable water power, with a fall of more than 100 feet within sixty rods; on which there is now in operation a Grist-Mill with three run of stones, propelled by an overshot wheel; two Saw-Mills, one with overshot wheel and double gear, all nearly new and in good order; a Forge with two fires; and a machine shop for pounding and separating ore. The water for propelling these works is held in reserve by four ponds or reservoirs on the premises; the upper one being about 2½ miles in length, forming an ample reservoir for the whole works below, and affording sufficient water in itself for driving a forge with four fires and a rolling mill.

Adjoining the works are **600** acres of land, one-fourth of which is under good cultivation; on which are five dwelling-houses, convenient barns and out-houses, a store, blacksmith shop, and buildings convenient for other purposes.

There is also **1,000** acres of fine timbered land lying two or three miles from the above described works. Also, about five miles distant are **800** acres fine timbered land, on which are two Saw-Mills, and one of the richest, most extensive and valuable beds of iron ore yet found in the U. States.

Also, **1,900** acres of land in the towns of Schroon and West Moriah, Essex co. the greater part of which is covered with pine timber; 100 acres of which is under good culture, and on which is a good saw-mill, blacksmith shop, several dwelling-houses, barns and out-houses.

Also, one-half of a farm of 130 acres, situate on Lake Champlain, near the mouth of Putts creek, 2-3ds of it under good improvement; on which there is a large and convenient wharf.

On examining the above described premises, they will be found to combine unparalleled advantages for prosecuting an extensive business in the manufacture of lumber and iron, and for the sale of ore.

Such parts or parcels of the premises as are necessary for prosecuting the manufacture of iron and the sale of ore, will be disposed of separately from, or in connexion with, the lumbering establishment, as may suit the purchaser.

For the terms of sale, and all further particulars, inquire of the subscriber on the premises. ALLEN PENFIELD.

TO THE SILK GROWERS OF THE UNITED STATES.—In consequence of the difficulty of purchasing cocoons in the present state of the silk culture in this country, (competent agents for the purchase, at a distance, are not at present to be had,) and as the reeling of the cocoons is the foundation of the whole business in a national point of view, the subscriber is induced to receive cocoons from all parts of the country, to be reeled on shares, in the Italian style, for exportation; the silk to be returned to the owner, or the market price in cash, as may be desired. Persons sending cocoons for reeling, will please name for what purpose it is intended, whether for *Sewing Silk*, which requires 20 to 25 cocoons (or fibres to the thread,) or the finer qualities for weaving, say from 6 to 10, inclusive, and the product will necessarily vary with the *quality* of the cocoons. Worms poorly fed will produce light thin cocoons, and many of them so light that they will fill with water and sink, and consequently be lost. Cultivators will therefore see the importance of producing good cocoons—the largest are not always the best. The cocoons should be firm and hard to the touch. A large spongy cocoon will not yield much silk.

The terms for reeling for the present season, will be 20 per cent of the silk produced from each parcel of cocoons, which as they will be necessarily received in small parcels, will be attended with more trouble and expense than in after years, when the feeding of silk worms will be as extensively followed as is now the growing of cotton.

SAMUEL WHITMARSH.

Northampton, Mass. July 8, 1839.

N. B. The cocoons should be thoroughly *seasoned* before packing; they should not be *damp*, as they will *heat* in transportation. All bad cocoons in which the worms have died, should be rejected. They may be packed in flour barrels or boxes, with *holes* bored in the top and bottom, to give air, or in bags within crates, or in any way to prevent crushing them. They should not be crowded, but shaken into the barrels with the floss on. They may be shipped from any part of the U. States, direct to Hartford or New-Haven, Conn. whence they will be received by the canal or river boats, directed to "*Samuel Whitmarsh*, Northampton, Mass." sept-2t.

IMPORTED CATTLE—BERKSHIRE PIGS.—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.: great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,
sept-3t. Bergen co. N. J. 5 miles from N. Y.

SOUTH-DOWN BUCKS.—Two two year old very superior South Down Bucks, clothed with fine wool and long enough for combing, were imported last April, direct from England, from the flock of the late John Ellman, Esq. of Glynde, near Lewes, Sussex, and are for sale at one hundred dollars each, or to be let for the season at fifty dollars each, by the personal friend of the breeder.

OBADIAH ELLIOT.

Elizabethtown, N. J. Aug. 20, 1839. s3t

☞ The Genesee Farmer and Farmers' Cabinet, will give the above two insertions, and send bill to advertiser.

BERKSHIRE PIGS.—The subscribers are ready to receive orders for their fall litters of Berkshire Pigs.—Several of their sows will come in from the 25th of August to the 5th of September. Orders for the south can be sent to New-York every day in the week, (Sundays excepted,) and reshipped by a faithful person, without charge, except for freight to, or cartage in, New-York. Orders or letters of inquiry, *post-paid*, will reeeive immediate attention.

sept-2t. H. & J. CARPENTER, Norwich, Con.

ALBANY SEED STORE, GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholesale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.

Sept-tf WILLIAM THORBURN.

NEW-YORK URATE AND POUDRETTE COMPANY, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundanee, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1,211, post-office, New-York, or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. *New-York, July* 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them. aug-4t.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 189 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. VI. NO. 5, WASHINGTON-ST. ALBANY, N. Y. NOVEMBER 1839. No. 10.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance. Subscriptions to commence with a volume.

Special Agents.—Lewis Hill & Co. Richmond, Va.; Bell & Entwistle, Alexandria, D. C.; Gideon B. Smith, Baltimore, Md.; Judah Dobson, bookseller, D. Landreith, and M. S. Powell, seedsmen, Philadelphia; Israel Post, bookseller, 88 Bowery, Alex. Smith, seedsman, P. Wakeman, office of the American Institute, Broadway, New-York; Hovey & Co. Merchants' Row, Boston; Alex. Walsh, Lansingburgh, and Wm. Thorburn, Albany, gratuitous agents; John Thorburn, seedsman and general agent, St. Louis, Mo. E. Valentine, Johnson's Springs, Va. See No. 12, vol. v.

The Cultivator is subject to common newspaper postage.

☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE LATE JESSE BUEL.

Since the last publication of the Cultivator, death has abruptly terminated the existence of its well-known and respected Editor. He sank, after a brief struggle, beneath a severe illness, which seized him while absent from his home, and engaged in the pursuit of his favorite occupation. He breathed his last, at Danbury, Connecticut, on the 6th ultimo, in the sixty-second year of his age. This sudden bereavement has called forth the sympathy of the entire community; and while others are expressing their sense of the common loss, it seems fitting that the paper, which he first established, and in which he delighted to the last, should furnish some few mementos of his useful life.

JESSE BUEL was born at Coventry, Conn. on the 4th of January, 1778. In early boyhood he removed with his parents to Rutland, Vermont, where he became an apprentice to the printing business, in the office of Mr. Lyons. Thence he went, at the age of 18 to the city of New-York, remained there during the prevalence of the yellow fever, bought out his time, and having formed a partnership with Mr. Moffit, at Troy, he there established the Budget. In 1801, he married, moved to Poughkeepsie, and commenced the Guardian, afterwards called the Political Barometer. In 1803, he came to Kingston and established the Plebeian. In 1813, he settled permanently in this city, and commenced the Albany Argus. He continued to edit that paper and to discharge the duties of State Printer, until 1821, when he retired to his farm in the vicinity of this city. Subsequently to this period, he represented the county for several years in the Assembly of the State; received, in 1836, the support of the whig party of New-York, for the office of Governor; and was, at the time of his death, a Regent of the University. In these several stations, he manifested a soundness of judgment and a purity of purpose, that won for him the respect of all parties, and the reputation of an eminently honest man.

But these incidental interruptions were never suffered to divert his attention, for any length of time, from the great object of his interest, the advancement of agricultural science. From the period of his retirement to his farm, this favorite pursuit engrossed his time and thoughts. To this he devoted the energies of an active and well disciplined mind, and that others might share in the fruits of his study and experience, he established in 1833, the monthly publication which has met with so much favor from the public. Success crowned these praise-worthy and philanthropic exertions. The subject of agriculture began to attract more general and enlightened attention. Sister societies sprang up in all directions, zealous in this good work, and among the first acts of their official existence, was usually the election of JESSE BUEL as an honorary member. His fame was soon wafted across the Atlantic, and there, too, similar distinctions were showered upon the man whose life and labors had been attended with such practical benefits to his country and to the world. Thus in 1821, he was elected an honorary member of the Massachusetts Agricultural Society; in 1829, of the Horticultural Society of that state; in 1830, of the Monroe Horticultural Society at Rochester, and of the State Society of Statistiques Universelles at Paris; in 1831, of the Charleston Horticultural Society, in South-Carolina; in 1832, of the Hampshire, Franklin and Hampden Society, in Massachusetts, and of the Hamilton County Agricultural Society, at Cincinnati; in 1833, of the Tennessee Agricultural and Horticultural Societies; in 1834, of the Horticultural Society of the District of Columbia; in 1838, of the Philadelphia Society of Agriculture; and in 1839, of the Albemarle Agricultural Society. In 1824, he was chosen a corresponding member of the London and New-York Horticultural Societies; in 1833, of the Lower Canada Agricultural Society; in 1836, of the Royal and Central Society of Agriculture, at Paris; and in 1838, president of the Horticultural Society of the Valley of the Hudson.

This brief enumeration affords the best evidence of his devotion to the interests of agriculture. Of the consideration in which his counsels and instruction were held, at home and abroad, the rapid increase in the circulation of the Cultivator is satisfactory proof. His own practical skill was fully attested, in the conversion of the barren sand hills on which he settled, into a garden spot of unequalled beauty and fertility. These congenial pursuits brought with them that peace of mind, serenity of temper and kindness of disposition, which made him in so eminent a degree, the firm friend, the kind neighbor, the indulgent parent, and the devoted christian.

But from the scene of his useful labors—from all these tender ties, he has suddenly passed away. Returning springs may give fresh bloom and fragrant blossoms to the plants in his favorite nursery, but the skilful hand and the watchful eye which cherished their earliest growth, are now the tenants of the tomb. The clods of the valley cover his last remains; but though no earthly summer can rekindle, with its genial warmth, their vital spark, a heavenly season shall ere long impart to them a new principle of existence, and the flower which Time destroyed, shall flourish in unfading beauty throughout Eternity.

☞ To our Patrons.

Owing to the great loss sustained by the death of the late Editor and Conductor of the Cultivator, and the general supposition among its supporters and contributors, that the paper would necessarily be discontinued, it is deemed proper to inform our subscribers, that it will be continued through the present year, under the direction of JESSE BUEL, assisted by several practical gentlemen. He hopes, by unremitted exertions, to have it sustain the high standing which it has heretofore acquired, under the superintendence of his deceased father.

If circumstances should prove favorable, the Cultivator will be continued as usual, according to the terms given in the prospectus for Vol. VII. which has already circulated widely. Should it be discontinued at the end of the present year, due notice will be given in one of our last numbers.

We would therefore tender our thanks to the agents and subscribers of the Cultivator, and request their aid in procuring subscriptions and forwarding names as soon as possible, should no notice appear in our next of its discontinuance.

☞ Notice.

All persons indebted to the estate of the late JESSE BUEL deceased, are requested to make immediate payment to the executors of said estate.

CHARLES BUEL,
JESSE BUEL,
AMOS DEAN, } *Executors.*

Albany, October 23, 1839.

☞ To our Correspondents.

Permit us to tender to our numerous correspondents, both old and new, our thanks, for the many useful and instructive communications heretofore received; and we would respectfully invite their co-operation in the future pages of this journal, in any thing that is new or may be useful to the practical farmer and gardener.

☞ Back Volumes.

We would remark, to those who are not in possession of our back volumes, that but few of the first four volumes remain on hand, and those who may wish them, can be supplied by applying soon, either stitched or bound, at the usual price.

Comparison of the Temperature of August and September, 1838 and 1839,

Deduced from observations made at the Albany Academy.

	August		September	
	1838.	1839.	1838.	1839.
Temperature of 1st half month	72.76	69.30	63.35	66.07
Temperature of 2d half month,	68.28	69.90	61.04	58.57
Temperature of the month, . .	70.52	69.60	62.19	62.32
Highest degree,	90.	88.	83.	86.
Lowest degree,	50.	47.	43.	37.
Monthly range,	40.	41.	40.	49.
No. clear days,	23½	20	20	17
No. cloudy days,	7½	11	10	13
No. of days rain fell,	8	8	7	8
Rain gauge, inches,	4.91	1.24	4.46	2.75
WINDS—North, (days,)	1½	4½	5½	3½
Northeast,	2½	½	7	1½
East,	.....	1½	1	½
Southeast,	1½	1	2	2
South,	8	9½	6	12
Southwest,	4	2	4½	2½
West,	4½	3	½	3
Northwest,	9	9	3½	5

Albany Horticultural Society.

The annual meeting of the Albany Horticultural Society was held on the 18th Sept. at the large room in the *Atheneum Building*. The committee respectfully report the following contributions to the exhibition:

From Walter Elder, gardener for Dr. Wendell, Albany.—15 sorts potatoes, China corn, boquets of flowers, white and red sugar beets, mangel wurtzel, red and white onions, French pumpkin, weight 96 lbs., Spanish pumpkin, weight 90 lbs., kohl rabi, white egg plant, yellow and red tomatoes, 20 sorts hearts' ease.

Philip Henry, Albany—White solid celery, German greens, kohl rabi, case knife pole beans.

Andrew E. Brown, Albany—Large pumpkins, celery, yellow tomatoes.

G. C. Thorburn, New-York—A case containing choice varieties of dahlias.

James Wilson, Albany—Dahlias, green-house plants, varieties of hearts' ease.

J. Buel & Co. Albany Nursery—A beautiful variety of dahlias and other flowers, interwoven in the form of a Castle of Flora: also, a great variety of boquets of flowers.

Theophilus Rossole, Albany—White solid celery, very fine, butter squashes, turnips, blood beets.

Daniel Payne, Albany—Large Roman cabbage, weight 20 lbs., Spanish pumpkins, cocoa nut squashes, ruta bagas, potatoes, cucumbers, variegated corn.

Theodore Allen, Hyde-Park—Salsify or vegetable oyster, purple egg plant and red onions.

Chas. Gilchrist, Albany—Drum-head cabbages, weight 21 lbs. each, egg plant, pears, apples, parsnips, carrots, beets, black cluster grapes.

John Faley, Albany—Large pumpkin, ruta baga, potatoes.

William Buel, Albany—Onions, potatoes, beets, mangel wurtzel, carrots, parsnips, winter squashes, egg plant, ruta bagas, dahlias, peaches, pears, plums, apples.

John W. Smith, Albany—Potatoes and parsnips.

Mr. Benson, Hudson—Sweet water, Isabella grapes, and tomatoes.

Joseph Hall, Arbor Hill, Albany—Pears and quinces.

P. Ashton, Albany—Onions, beets, Lima pole beans, carrots, purple egg plant.

Charles Buel, Albany—Fine tomatoes.

John H. Loucks, Albany—Large pumpkin, weight 110 lbs., cocoa nut squash.

Gen. Dix, Albany—2 varieties pears.

Tho's Ingram—2 varieties grapes.

A. P. Heartt, Troy—Dahlias and egg plants.

Prof. J. W. Jackson, Schenectady—Boquets of flowers and a fine assortment of dahlias.

Thomas Turner, Albany—Plums, grapes, pears, Rohan potatoes, yellow and red tomatoes, beets, cabbages, carrots, 4 varieties corn, ruta baga, largest French pumpkin, weight 112 lbs., celery, squashes, onions, dahlias, and a lot of flowers.

Robert Neely, Albany—Isabella grapes and plums.

Dr. B. P. Staats, Albany—Egg plums.

J. Whalen, Albany—White egg plants, tomatoes, nasturtium in pickle, grapes, dahlias and other flowers.

John B. Hudson, Albany—Purple brocoli, fine carrots, egg plants, long and turnip beets.

Jacob Mayer, Albany—1 large pumpkin.

John E. Lovett, Albany—Magnum bonum and egg plums.

Thomas Dowling, Albany—3 sorts seedling potatoes.

Edward Fortune, Albany—Onions, large water-melons, tomatoes, beets, mangel wurtzel, parsnips, carrots, 7 year pumpkins, crook-neck winter squashes.

Judge Woodworth, Hyde-Park—Onions, carrots, sugar beets, extra large; mangel wurtzel, very large size; purple egg plant, Lima beans, Rohan potatoes, turnips, seedling Victoria potatoes.

C. N. Bement, Albany—Superior white carrots, (a new variety,) long blood beets, mangel wurtzel, tomatoes.

Wm. Bement, Albany—Squashes, parsnips, onions, carrots, mangel wurtzel, very fine.

The committee appointed to award premiums on *Vegetables*, having examined them throughout, and being highly gratified in the extensive show displayed on this occasion, would remark, that many to whom premiums were not awarded, were deserving of them, although the premium list excluded them. They, therefore have awarded the premiums as follows:

Largest pumpkin, weight 112 lbs. to Thos. Turner,	$2 00
Next largest, 110 lbs. to J. H. Loucks,..........	1 00
Two largest heads cabbages, to C. Gilchrist,....	1 00
Two next do. do. to Daniel Payne,..	1 00
Best variety winter squashes, to Edward Fortune,	2 00
Best tomatoes, to Charles Buel,................	1 00
Best fruit of the egg plant, to A. P. Heartt,.....	1 00
Best variety winter potatoes, W. Elder,.........	2 00
Two best heads brocoli, to J. P. Hudson,.........	2 00
Six do. do. celery, Theophilus Rossole,....	1 00
One dozen turnips, for family use, from Judge Woodworth, of Hyde-Park, Dutchess county,.	1 00
One doz. best carrots, for family use, P. Ashton,.	1 00
One doz. do. do. for stock, to C. Gilchrist,..	1 00
One doz. best ruta baga, for stock, to J. Faley,..	1 00
Half doz. best sugar beets, for stock, to Judge Woodworth, of Hyde-Park,.....	1 00
Half doz. best mangel wurtzel, to C. N. Bement,	1 00
Half doz. best beets for family use, to W. Buel, .	1 00
Half doz. best parsnips, for family use, to J. W. Smith,..................................	1 00
Half doz. best salsify or vegetable oyster, to Theo. Allen, of Hyde-Park.,......................	1 00
One doz. best onions, to Edward Fortune, ...	1 00
Half peck best Lima pole beans, to Judge Woodworth,................................	1 00
Half doz. white carrots, (disc. pm.) to C. N. Bement,..................................	1 00
Half doz. yellow tomatoes, (disc. pm.) to T. Booth,	1 00
Three varieties seedling potatoes, (disc. pm.) to Thos. Dowling,.........................	2 00
German greens, (disc. pm.) to P. Henry,.......	1 00
Kobl rabi, (disc. pm.) to P. Henry,.............	1 00
Two Spanish pumpkins, (disc. pm.) to Daniel Payne,................................	1 00

ANDREW E. BROWN,
CHA'S BUEL,
JESSE BUEL, Jr.

The committee appointed to award premiums on *Fruits*, would award the following premiums:

Prem. 1, 2 largest bunches grapes, to J. Whalen,	$5 00
“ 2, Next largest bunches Isabella grapes, to R. Neely,........................	3 00
“ 3, For white Sweet Water grapes, to Mr. Benson, of Hudson,................	2 00
“ 4, 1st on pears, to C. Gilchrist,..........	5 00
“ 5, 2d on pears, to Gen. Dix,............	3 00
“ 6, 1 doz. best variety apples, to Wm. Buel,	5 00
“ 7, 1 doz. next best variety apples, to Cha's Gilchrist,........................	3 00
“ 8, 1 doz. best peaches to Wm. Buel,......	2 00
“ 9, 1 doz. best quinces, to Joseph Hall,....	1 00
“ 10, 4 water-melons, large size, to E. Fortune,	3 00

ISAAC DENNISTON,
R. M. MEIGS,
A. P. HEARTT.

The committee appointed to decide the premiums on *Flowers, &c.* would report that they have awarded the premiums as follows:

1st premium for 25 best dahlias to G. C. Thorburn, New-York,.....................................	$20 00
2d prem. for 25 next best do. to James Wilson,.	15 00
3d prem. for 25 next best do. to J. Buel & Co.,.	10 00
4th prem. for 25 next best do. to Prof. Jackson,.	5 00
5th prem. for 25 next best do. to A. P. Heartt, Troy,..................................	3 00
1st prem. for best design for a centre ornament of a table of flowers, to J. Buel & Co........	5 00
2d prem. for do. do. to Wm. Buel, ...	3 00
1st premium for best boquet of flowers, to W. Elder,..................................	2 00
Premium for greatest variety boquet flowers, to J. Buel & Co..............................	3 00
Premium for best specimen green house plants, to James Wilson,.......................	2 00
Premium for greatest assortment of plants in pots, to J. Whalen,.....................	2 00
Premium for greatest assortment of hearts' ease, to W. Elder,.........................	1 00

ALEXANDER ROSS,
WALTER ELDER,
MARTIN LOWE.

W. THORBURN, *Recording Secretary.*

Acknowledgements.

☞ We acknowledge the receipt of a small box of the Scuppernong Grape, from David White, Esq. of Newby's Bridge, N. C. in fine condition. Fruit very large and highly perfumed.

Also, some fine Quinces, being the product of two small stems, from Lemuel Bassett, Esq. Ovid, Seneca county, N. Y.

CORRESPONDENCE.

On Sea-Weed.

Wheat-Sheaf Farm, Staten Island,
Sept. 16, 1839.

J. BUEL, Esq.—Dear Sir—In your last number, you expressed a wish "to receive a communication from some person familiar with the subject, as to the best mode of preparing sea-weed, and of applying it to the soil." I will not say that I am myself as familiar as I may become on further experience, with the *best* mode; though I have read much of it, and, as attentively as I could, have noticed the practical coincidence of what I have read with the result of my own, and the usual neighboring modes of using it; and I believe I have read essentially all that can be found published, as the result of practice or science, in relation to it.

On turning to page 135 of your same number, among the very excellent observations of Henry R. Madden, Esq. of Edinburgh, we find much of what may be said of it. The sea-weeds of the coasts of Scotland and Ireland are, no doubt, in most respects, similar to ours. Those of our coast, as well as theirs, fall within the general botanical descriptions of *Algæ*, *Fuci*, and *Confervæ*. The similitudes may be traced distinctly in Loudon, where the forms of the entire plants are given.

Though beneficial to a sandy soil of good composition, they have been found, I believe, mostly so to a clay, and well calculated to divide its tenacious or adhesive qualities. They are here usually ploughed in with ordinary manures, after they have become dry and short, through the limited fermentation spontaneously occurring in the sea-weed heap; or after they have been taken thence, more or less dried, used as barnyard or way litter, and thus become incorporated with the manure. On such applications, a free use of the sand of the seashore is also made, intermixed with it, if intended for a clay soil, for several reasons—on account of its saline humidity, and the known attraction for moisture of stony or silicious substances once wet with salt water; of the superior influence of sea sand (in which of course no clay is to be found) above ordinary sand, in amending the composition of a clay soil; on account of the frequent admixture with beach sand, of the granulations or particles of minute sea shells, which the frictional action of the sea on its stones breaks up, and intermixes with it; and also of the operation of the sand on the vegetable substances brought into contact with it by the tread of cattle, and which the acute angles of the sandy pebbles cut and divide, thus accelerating the division of the vegetable matter, and hastening its preparation as a manure.

Sea-weed is also in some instances wind-dried, with little or no fermentation, and thus used for littering horses and cattle, thence finding its way to the manure heap. This practice is well enough *with such surplus* as may be gathered over and above all the farming supply that can be *ploughed in green*, which has ever been considered, *elsewhere than here*, the best course with every description, except that particular species of the *Fuci* class known as the *Zostera marina* (wrack grass,) a long (say two or three feet) flat leaf or spear, a sixteenth of an inch wide, which, in the heap, hangs together in large masses. This is more difficult to decay than the rest; but when short, answers a very useful object, over and above its saline and vegetable properties as an amendator of the texture of clays, in which its detached short pieces will remain visible for many years, dividing its particles. This weed could be readily and expeditiously broken or cut fine by a horse-power operation and machine, similar to the teeth and concave and convex of the common thrasher; and then that too would be best ploughed in green. Its length entire would render the operation of ploughing it in, if at all possible, extremely difficult, and then it would remain undivided by decay too long for free tillage.

Although I, for my own part, entirely disagree with the practice, so often urged, of applying lime, *out of the earth*, to vegetable manures *which have been cured*, or in any way deprived of their succulence or mucilage, or to animal manures or substances in any shape, I would use it freely with all kinds of the sea-weed *while green;* because the lime in that contact will become effectually divested of all its causticity, be thus readily fitted for immediate action on vegetable growth and the soil, and will by its heat overcome the check to fermentation which the saline impregnation of the weed gives to them. If the heap in this state be occasionally wet, it will aid the operation by preventing the excessive heat which the lime would engender.

Lime, as I understand it, not only betters the texture of a clay soil, but its causticity particularly is *destructive of any acidity in it;* and so are the saline parts of sea-weed, as I believe, and propose explaining presently. Perhaps before the causticity of the lime is exhausted by a contact with green vegetable fermentation, or with the soil, but assuredly after, its greatest use is as a stimulant or solvent of the vegetable or animal manures within the soil, and for whatever of pabulum may be requisite to the fibre or rigidity of the plant in sustaining itself against the influence of the winds while attaining its maturity. We have a familiar exemplification of the action of lime on dried vegetable substances, on boards and pickets. The minute splinters left in boards by the teeth of the saw, if soggy or prone to rotting, *whitewashed*, become hard and indurated, and seem checked in their progress to decay by the lime, and the wood is perfectly solid. The same result will be visible if it be applied while yet caustic to dried hay or straw. When lime is brought immediately in contact with animal substances, as with oils, it corrodes and solidifies them; with animal juices, it assails and operates similarly on them, leaving nothing but the mere aqueous fluid; with animal flesh, it checks its putrifactive progress, and as it were petrifies it; with effluvia, it absorbs it. The chemists say, probably with truth, what the lime takes up, or renders *insoluble*, in time it will give back again. This, though true as to a *part* of the substance imbibed, may or *may not* be as to *much of it:* but if even so, it should be recollected that the object of applying manure is to benefit *the first*, as well as the future crops; and the first is dependent entirely, whatever may be the supply put into the soil, upon that portion of the manure which *is immediately soluble;* and if that be held in suspense by the lime, the first crop at least will suffer. This not unfrequently happens with the farmer as to his manure. For the want of an admixture of a portion which is *readily soluble*, his crops come up *ahead of the manure*, and leave him to suppose it not so effectual as he had anticipated; an argument, by the by, for blending manure with the soil before its moisture is assailed and evaporated by the drying influence of the sun, and for that humectation which could be given to it from a reservoir in or about the barnyard for the liquids, and an admixture of it at the moment of taking it out for use. But I am digressing. To return: as to sea-weeds—

I would then *first use them green*, as far as my farming wants might require or permit.

Next. If the supply be sufficiently extensive, (with me it probably is 800 two-ox cartloads annually,) I would use it liberally as litter in every and any shape about my stables, cattle stalls, hogpens, barnyards and muck roads; and that too in opposition to common practice, as far as practicable, *while green;* because, it will be perceived by those who use it, that as (with the wrack grass more visibly) the weeds dry, a white efflorescence of salt gathers upon the surface, which rains wash away, and this salt is one of its most valuable properties. If, while passing from its green state, its succulent, mucilaginous and saline properties escape into the materials for manuring which environ it, the vegetable remains of the weed, divested of its natural juices, will, in escaping, serve as an absorbent of other useful liquid brought in contact with it.

A *third*, and very beneficial mode of using sea-weed, is by *incineration*. Reduced to ashes, its properties become concentrated, and it is both powerful as a manure and useful *commercially*. The carbonate of soda of commerce is obtained by lixiviating the ashes of sea-weed. The best variety is known by the name of *barilla;* an inferior kind, known by the name of *kelp*, is prepared from sea-weeds on the northern shores of Scotland, and may be so anywhere where it is to be found. The purest barilla always contains potassa and soda, and the chlorides of potassium and soda; each of which, though perhaps most profitably employed in the manufacture of soap and glass, would, if applied as a manure to the soil, operate powerfully, and at the same time, from its strong alkaline influence, serve as a solvent to other manuring substances in the soil.

I believe the sea-weed, though best in this point of view if ploughed in green, even in its dry state, a corrective of *the acidity of a soil*. On a field, the soil of which was probably the poorest of my farm, and in which I was preparing to put rye, my carts had deposited some green sea-weed in heaps, with the intention of spreading it before ploughing. A want of time prevented the execution of this purpose in the way proposed, and it was thinned with a fork around the small heaps as it lay, after it had become dry, and ploughed in with the manure for the field. As the crop grew, the grain rose in its growth most visibly within the circumference of the sea-weed thus spread around the heaps, and so much so as to be remarked by all about the farm, and to leave no doubt of its influence. The next year, as the grass came in succeeding the rye, some *sorrel* was seen generally over the field, but *none* was visible within the circumference of the sea-weed; and the grass, in comparison with the rest of the field, was visibly improved, and yet continues so. The sea-weed used on this occasion was of the species familiarly known by the name of *chowder;* a very thin leaf, very aqueous, and prone to rapid decay.

The *principal* kinds in use as a manuring material on my shore, and generally in this vicinity, are the *Zostera marina* above alluded to, (sometimes called, here and in England, *wrack grass;*) the *chowder* also before named, and *rock weed*. There is also occasionally intermixed a dark brown, broad, long and gelatinous leaf, the name of which I do not know.

Sea-weed, particularly the latter and rock weed, are eaten with avidity by swine; and where continual access is had by them to it, will promote their growth and fatten them, though the flesh is far from palatable, if they are not fatted, for two or three months before killing, exclusively on other food better fitted for putting good flesh on them. Some farmers give them little else, up to within that period of fatting time. When thus permitted, however, to range for food on the seashore, they feed exclusively on muscles and such shellfish as they can crush with their teeth, are fond of fish generally, and particularly so of the description known as *horsefeet*.

The wrack-grass sea-weed may also be used as a thatch, and forms a more durable defence against the violent winds and heavy rains than straw.

The latter also is used as a substitute for horse-hair in stuffing matrasses and furniture. For this purpose, it is carefully washed twice in fresh water, and then dried quickly, the intermixture of other sea grasses less fitted for the purpose being picked out.

It is very convenient and effectual for sheltering a manure heap from the drenching of rains, and protecting it from solar heat; for covering plants in gardens, vegetables left in garden grounds, or buried for winter keeping; or for young trees, to protect them from the rigorous frosts of the wintry season, and for a variety of purposes about farming buildings.

An opinion of the practical estimate of its utility may be formed from the fact, that for manuring purposes, it is carted in Ireland to the distance of forty-five miles inland from the seacoast.

Ezra L'Hommedieu, Esq. formerly senator from Suffolk, a very intelligent and skilful agriculturist of his day, in a communication made to the Agricultural Society of this State in 1791, says, "Many farmers are of opinion that one load of sea-weed as a manure, is equal to a load of cowyard manure for raising wheat." And he says, "that within the two years then preceding, he had used more than 200 loads for wheat only, but he did not find it equal by five loads in thirty; that it was found in some respects superior to any other kind for Indian corn, *as it prevents worms and injury from drought;* that the preceding summer, much Indian corn had been cut off by that means, but where the lands were manured by this weed, *the corn was not affected.*"

It may not be amiss here, while quoting from this writer, whose authority is too well remembered to permit a question as to the authenticity of his statements, to notice what he says of the *manure of mud* taken from salt-water creeks and swamps, and in which the weed often grows:—

"Mud from the creeks on Long Island and on the seacoast of some parts of Connecticut, has been made use of as a manure, with *success in some instances*, when *in others no benefit was experienced.* This is owing to their using *two kinds* of mud. In order to determine which is fit for manure, if you run a paddle or a pole into the mud, and it sticks so fast that it is with some difficulty you pull it out, you may determine *that mud unfit for manure,* it being only loam or clay soaked with water; but if your paddle or pole is drawn out easily, the mud is fit for manure. This mud being *taken out in the summer and exposed to the frost during winter*, in the spring, becomes as fine as leached ashes, and is a good manure especially for grass; being spread on poor loamy land, it brings up white clover similar to ashes, though it takes a larger quantity."

To return particularly to sea-weed, and to direct attention to facts, which here have been little if at all noticed. There are many of the *Fuci* class of sea-weed which elsewhere *are*, and here may become *edible.* They are used as condiments by families living near the seacoast in other countries, and by the poor, because in seasons of scarcity they furnish articles of resource as a food.

There are numerous species employed in gardening as manures.

The *Laminaria saccharina* (sweet fucus or sea beet) is sometimes boiled by the common people of England as a pot herb. The Icelanders, Audubon says, boil it in milk to the consistence of pottage, and eat it with a spoon. They are also said to soak it in fresh water, dry it in the sun, and then lay it up in wooden vessels. It soon becomes covered with a white efflorescence of salt, which has a sweetish taste, and in this state they eat it with butter. They also feed their cattle with this species.

The great value of the Iceland and of the Carrigan moss, or *lichen*, in consumptive or pulmonary complaints, is well known every where.

The transparent *edible nests* of the East-Indian swallow, so much in repute at the luxurious tables of the rich in China and the East, are now generally believed to be almost entirely composed of gelatinous fuci, and more especially of the lichenoides. The *plant* also is in high estimation for the table in India.

Of the *Halymenia palmata* (L. dulse,) both the tender stalks and young fronds are eaten fresh from the sea, commonly without any preparation. They are sometimes considered as forming a salad, but more generally are used as a whet. It is said that the inhabitants of the Greek Islands are fond of this species, adding it to ragouts and olios, to which it communicates a red color, and at the same time imparts some of its rich and gelatinous qualities. The dried leaves infused in water exhale an odor somewhat resembling that of sweet violets, and they communicate that flavor to vegetables with which they are mixed. Lightfoot mentions that in the Isle of Skye in Scotland, it is sometimes used in fevers to promote perspiration, being boiled in water with a little butter. It is soft and limber, and does not become rigid in drying, being of a more loose texture than many other sea-weeds.

The *Halymenia edulis* (red dulse) is by many preferred to the *H. palmata*, especially for cooking in the frying pan. Like that species, its smell somewhat resembles sweet violets.

Lmainaria esculenta, (badderlocks or henware.) The midrib, stripped of its membrane, is the part chiefly eaten. In Orkney, the pinnæ are also eaten under the name of *pickles.*

Sphærococcus ciliatus (ciliated dulse,) and *Laminaria digitata* (fingered dulse, sea girdle and hangers,) are sometimes gathered and eaten, like the *Halymenia edulis, palmata,* and other species.

Laminaria digitata. In Scotland, the stem of this species is used for making handles to pruning knives. A pretty thick stem is selected, and cut into pieces about four inches long. Into these, while fresh, the blades are stuck; and as the stem dries, it contracts and hardens, closely and firmly embracing the hilt of the blade. When these handles have become hard and shrivelled, and have been tipped with metal, they are hardly to be distinguished from hart's horn.

Chondria pinnatifida (pepper dulse,) in Scotland, is eaten along with the *Halymenia palmata;* and in Iceland, it is used instead of spice. This species is common to Scotland, Iceland, the Red Sea, and the shores of Egypt.

Floating fucus. The succulent fronds, Turner mentions, are selected and pickled like samphire; and the young shoots are eaten as a salad, seasoned with juice of lemons, pepper and vinegar.

Ulva lactuca, (lettuce leaves or oyster green.) The thin green pellucid membranes, of which this vegetable is composed, are eaten raw as a salad, and esteemed a great delicacy by such as are accustomed to the use of marine vegetables.

Thus, sir, in answer to your wishes, I have given you what I know, or have read of sea-weeds, and their various uses and applications. It may serve to show us that the vegetable kingdom of the ocean, if not as extensive as that of the dry land, has at least its treasures, not only to fertilize the earth, to minister to the weak and the infirm, to feed the poor and the needy, but even to gratify and to satiate the ever-craving and the pampered appetites of the sensualist; that as yet we have not learned fully or perhaps fairly to appreciate them, or this among the many bounties of an ever-good and an all-wise Providence. Yours truly,

W. A. SEELY.

Patent Sausage Cutter.

Fredericktown, Md. Sept. 25th, 1839.

J. Buel—Sir—Please be so kind as to inform the public thro' the columns of your valuable paper, of a newly invented and useful machine, denominated the "Patent Sausage Cutter," the elaborate invention of Mr. A. Henkel, of New-Market, Va. It is erected on a small bench, enclosed by a perforated concave; a crank turns a cylinder, on which are fixed eight revolving knives, which pass through as many upright steel bars, forming a comb. The meat, when cut sufficiently fine, makes its escape through the concave into a vessel set as a reservoir. It manufactures with ease 200 pounds per hour; if pushed and well attended to, much more. The machine is, without difficulty, removed by hand from place to place, to answer the demands of a neighborhood. The knives are readily taken off, when grinding is necessary, and from the neatness and simplicity of the structure, is easily kept in order. To which is added a stuffing machine, which greatly facilitates and expedites that process. We do not hesitate in saying, that every reader of the Cultivator would do well to make further inquiry of its great utility, especially as the price is so moderate as to place it in the reach of the most ordinary circumstances. Price $10. Yours most respectfully,

M. W. WEATHERS.

Proposition for Tow-Path Railway.

Schenectady, September 26, 1839.

Dear Sir—Many years ago, a very aged Englishman, named Johnson, kept a school in this city. He said that he was born in England, but was bred at the *mouth of hell!*—that is, on board of a ship of war.

Those who have dwelt in seaport cities or towns, have had the opportunity of seeing the lives and manners of that class called *old jack sailors.* The term means that class of sailors who do not aspire to office, but they go to sea merely for support of their lives and vices. They are considered to be the most depraved class of men, as to drunkenness, profane swearing and vice.

We who dwell near the Erie canal, have the opportunity of seeing greater depravity in the same vices, in the boys employed to drive the horses used in towing the canal boats. Those boys become abominable blackguards, and swear most profanely. As they are in service at night and in storms, they learn to drink whiskey, and become more wretched than salt-water sailors. Their stopping places, in rum holes, are various; they meet opposition from the same class, and become worse than sailors on board of ship, where their home is limited. The numerous young women and girls also employed in those boats, have the reputation of becoming very degraded, as well as the boatmen. The poor horses too drag out a most severe and destructive service, in being whipped and urged by the driver boys, and are soon destroyed by the cruel service.

Since the canal commissioners will persist in enlarging the canal, instead of using the rivers, I use the freedom of asking you to advise them so to construct the new towpath as to make it the base of a railway, which can most easily be done; and then, by placing rails on it, locomotive engines may run on it and tow all the boats, thereby saving the destruction of the poor horses, and leaving all those numerous driver boys to be employed in some useful calling, and become wholesome citizens, and not worthless and vicious men, as is the present consequence.

Locomotive engines could tow a fleet of boats at the rate of ten or twelve miles an hour. Both the engines and boats could carry lamps, so as to see and travel safely at night, and transport passengers, goods and produce nearly two hundred miles in twenty-four hours, probably from Albany to Buffalo in little more than two days, and thereby reduce the price of freight to a very small sum, probably a barrel of flour to ten or twelve cents from Buffalo to Albany. The saving of time and board to passengers would be so great, as to enable emigrants to remove to the western states at trifling charges. The produce of the *very* far west may be transported through the lakes and canals to the seaboard, at as small expense as formerly they were transported from the Mohawk.

What an immense improvement this would be! It would equal the steam-ships on the ocean for speed and saving of time. It would be truly a new era; and before another century shall pass, men may leave this for the far west, to the Pacific; cross that ocean by steam, and Asia by railways to the Mediterranean, to France and England; and then take the steam-ships as ferry boats to New-York, and thus encompass the globe in a month.

This improvement would save the numerous boys and girls from such exposure to vice, and reserve them for moral service. What a wonderful improvement would be accomplished in the moral, as in the pecuniary world!

If your mind shall accord with mine on this subject, let me ask you to give your advice. I ask this of you, sir, because you have undertaken to instruct and improve all the operations of common life, in agriculture, &c. &c. in your Cultivator.

If the canal commissioners were to furnish the engines and tow all the boats, that may be a source of revenue to the State; and they must do so if engines are employed. Their stations may be at the difficult passes, and where the locks cluster, as the Little-falls, &c.

Most respectfully,

DAVID TOMLINSON.

Judge Buel.

Urate and Poudrette.

New-York, 21st Sept. 1839.

Sir—The New-York Urate and Poudrette Company, finding that gentlemen who had purchased their manures, had been experimenting with the articles, some advisedly and others mistakenly, it became desirable, for many reasons, to learn,

1. On what particular grains or garden vegetables the manure was used, the quantity applied, and the result.
2. To know the precise manner and result of each trial.
3. How the urate and poudrette compare with other manures in their effect, and
4. Generally, whether it was not desirable to the farmer and gardener, to have the contents of sinks and privies made into *inodorous* manures.

In answer to their circular, sent to Mr. Linn, of Schenectady, they have received a letter of so interesting a character, that we ask the publication of it, at as early a day as your arrangements and convenience will permit.

Amended instructions, the result of information received, will be published in a few days, for *gratuitous distribution* among those who have or may wish to use the manures. Yours, &c. A. DEY.

(Copy.)

Schenectady, Sept. 19, 1839.

The N. Y. Urate & Poudrette Co.

Gentlemen—In answer to your "Circular," I would say, that I obtained from your company a barrel of poudrette last spring, intending to test its value as a manure, by a few close and accurate experiments. It came to hand, however, so late in the season, that I was unable to apply it as I intended, or to arrive at results which would in all respects prove the value of the substance as a manure, or the best modes of applying it. I applied it to a variety of vegetables in my garden, and also to a small portion of a field of corn of about five acres, at my farm in the vicinity of this city. The vegetables in my garden have grown with unusual richness and luxuriance, and have most evidently felt the effects of the application. Of the results at my farm, I can speak more satisfactorily, because there I can compare the portion which *has*, with another portion of the same crop, in the same field, which *has not*, received the poudrette. This crop is upon a strong, rich soil, which had been slightly manured in the hill, from the fold-yard, at the time of planting. At the first hoeing, and when the plants by reason of the unfavorable season, were extremely backward, I directed my farmer to apply to a corner of the field, where the crop was the least promising, a handful of poudrette to each hill, covering it at the same time with a thin coat of earth.

This was faithfully done, until the poudrette was consumed. The remainder of the field received, a part the usual dressing of *plaster*, and a part of *ashes*. The plants to which the poudrette was applied, were the first to change colour, throwing off the sickly yellow hue and adopting a deep green. At the period of the second hoeing, the same plants retained not only the appearance of better health, but had obtained greater vigor and more size than any others of the same crop.—They have held the same distinction throughout the season, and it is now plainly visible, although the entire crop is a fair one, that when we come to harvest, we shall gather a greater weight of stalks and more grain from the portion where this manure was applied than from the same space at any other point in the field.

We have certainly no experience proving that the same results could have been reasonably expected from the application of any other of the various manures in common use. With us, plaster has long been considered the grand restorative for this crop, and ashes with many farmers almost a specific; and, indeed, that both substances are very useful as manures on most varieties of soil, is universally conceded. Mills to grind plaster for manuring purposes, are as common throughout the country, as those devoted to grain, and I have seen boats, loaded with *leeched ashes*, toiling their way from the far west, in order to enrich farms on Long-Island. In this experiment, poudrette was applied side by side with plaster and ashes, under circumstances in favor of the latter, and yet they have most indisputably yielded the palm to the former; and all this is not without reason. Heat and moisture are the sources of vegetation: poudrette, if it have it not in itself, will generate more heat and for a longer period than either plaster or ashes, and will absorb and retain more moisture. It seems, also, to decompose inanimate vegetable substances in the soil with which it is mixed, and so to diffuse and incorporate itself with the soil as to change its colour around the plant to which it is applied. Like most other manures, only more sensibly and rapidly, it imparts of its qualities to every substance with which it comes in contact; and by the aid of its own and borrowed heat and moisture, assimilates all to itself, and thus exercises, although applied in most inconsiderable quantities, a certain and immediate influence on vegetation.

I regret that I did not receive the article so as to apply it at the time of planting. I am not sure that the results would have been more successful, and except for the purposes of experiment, I should be content to use it hereafter on most crops, as I have done this season.

Desiccated manures have long been appreciated in Europe. There, one ton of them have been estimated to be equal in fertilizing properties to thirty-six tons of barn-yard manure. At this rate there is a large balance on the score of economy in favor of the former; and when it is remembered that the manures as prepared by your company, are wholly inodorous and may be conveyed in barrels to the most remote parts of the country as commodiously as flour, and at a trifling expense, our agriculturists should be moved by every consideration connected with cleanliness, rural economy, the productiveness of the soil and the right use of the means which Providence places before them, as incitements to industry, to promote the use of substances, which left undisturbed, are worse than useless, scattering, in our large cities and towns disease and death, and which, when submitted to your *alchemy*, spreads health and verdure, and blesses and rewards both the citizen and husbandman.

I shall be pleased to receive your "*Improved instructions for using the manures*," of which you speak, and to know at how early a day this fall, I may order a few barrels for future experiments. Very respectfully yours, &c. A. L. LINN.

Plans of Farm Houses.

Lake C. H. Ia. Sept. 5, 1839.

Hon. J. Buel—My worthy friend—I am much pleased with some of the plans in your last (August) number. That to which you have awarded the premium, certainly is a very convenient house for any family, farmer or other occupation: and I certainly think that that single number of the Cultivator is worth more to every person expecting to build, than all he ever has or ever will pay for the paper.

That the "bump of design and constructiveness," is not possessed by a very large majority of mankind, I think is, or can be fully attested, by viewing the thousands of piles of brick and mortar, and lumber, called dwelling-houses, throughout the country. It seems to me, that if the builders of a great many houses which I have seen, had put all their art and skill in play to make them *in*convenient and *un*comfortable, they could not have succeeded better to their wishes.

But the truth is, that men would rather build a convenient than an inconvenient house, if they knew how; but unfortunately they cannot tell how their own design will suit, until the house is built and tried. And where is a farmer to find good plans of farm buildings? Can you tell, sir? I think not. For in all the architectural designs that ever I have examined, I never have found them. And yours is the first paper that ever I have seen such very useful things published in. I hope you will continue the good work. And I hope every one of your readers, whose *wife* thinks he has a very convenient house, will furnish you at least the ground plan; so that out of a great variety, you might select the best for publication, and out of these certainly every person, by adopting one plan, or parts of several, could always suit his own taste better far than he could do by adopting an original design of his own. I think it will be conceded, that you cannot fill a portion of the Cultivator with more useful matter than such drawings. I hope the additional expense to you will not deter you.

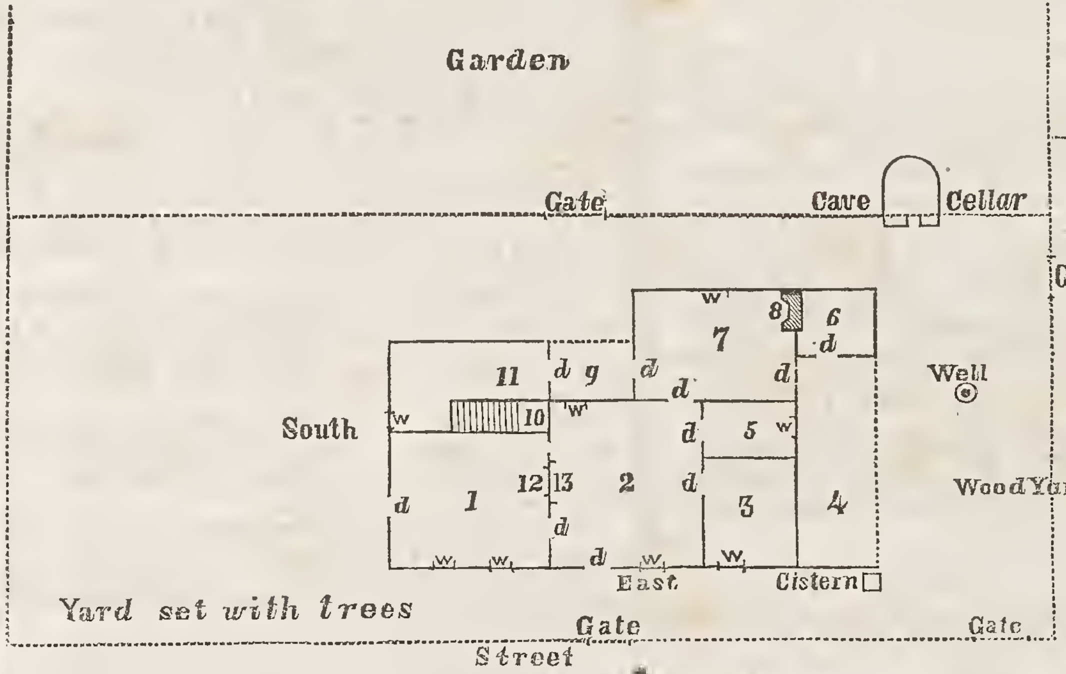
To begin, then, I offer you the ground plan of my own house. It is not of so much consequence to give the elevation, unless where a detailed bill of expense is given.

You have heretofore given a great many excellent plans of out buildings, &c.; that ought also to be continued. No one is fully aware how valuable such plans are, until he commences building himself, and then he sees the want of them. Furnishing farmers with good cheap plans will also tend to prevent another error that some have committed—that is, building a house so big that the whole farm, stock and cash, are sometimes all swallowed up in the house, before it is completed.

It is said that the author of the Declaration of American Independence, swallowed up $70,000 in building a "great house," which has been since sold with 200 acres of land, for $2,500, and now stands a monument of the lack of any proper design in the builder. We all know that the owner died, lacking that independence that he declared all ought to enjoy. This great misshapen mass of materials, was the great cause of his pecuniary embarrassments.

Then let all builders beware, that they do not build a house so big that they cannot live in it, nor so good that when done they cannot use it. I remain, as usual, your friend, SOLON ROBINSON.

Plan of a Western Prairie Cottage.—[Fig. No. 42.]



Explanations.

1. Spare room in the southeast corner of the house, 16 by 16 feet.
2. Common family room, eating room in summer, and cooking room in winter, situated in the centre of the house, so as easily to be kept warm; 15 by 18 feet.
3. Bed-room, 9 by 11 feet.
4. Wood shed in winter and wash shed in summer, 10 by 21 feet.
5. Pantry, 7 by 9 feet.
6. Room for soap, meat, &c. 7 by 10 feet.
7. Kitchen, 12 by 14 feet.
8. Kitchen fire-place.
9. Open passage, to give light to west windows of common room, 6 by 9 feet.
10. Chamber stairs.
11. Buttery, 9 by 16 feet, excepting stairway.
12. Parlor stove.
13. Cooking stove.

d. Doors.
w. Windows.

In the draft, I have sketched the position of the well, cistern, garden, yards, &c. which I consider as a necessary part of the "fixings" about a farmer's house.—Upon our soil, cellars under the house are not admissible; and in my opinion, should never be made under a dwelling-house, only in very dry soils, and then *always kept clean.*

My house is built of hewn logs, but the same plan might be adopted in using any material. It is esteemed a very convenient house, without a foot of waste room.

The south part is a story and a half, the ridge running east and west; the other part one story, the ridge running north and south, and roof extending down over the kitchen. The wood shed is a "lean-to" on the north end.

I am much in favor of one story farm houses. They are much easier for the good woman, and I believe the extra cost of roofing is fully saved in several ways. The frame need not be near as strong for a single story, particularly in a windy situation; and comfort and convenience never should be dispensed with by a farmer for show.

If you think the plan would be of sufficient interest to your readers to warrant its publication, and if I could ever be assured that it added an hour's comfort, or saved a dollar of expense to one of them, I shall be happy to think I have given it. I hope you will be furnished with numerous other plans, so that all tastes may be suited. Your friend, &c.

SOLON ROBINSON.

Farm Dwelling Houses.

Grand Rapids, Kent co. Mich.
20th August, 1839.

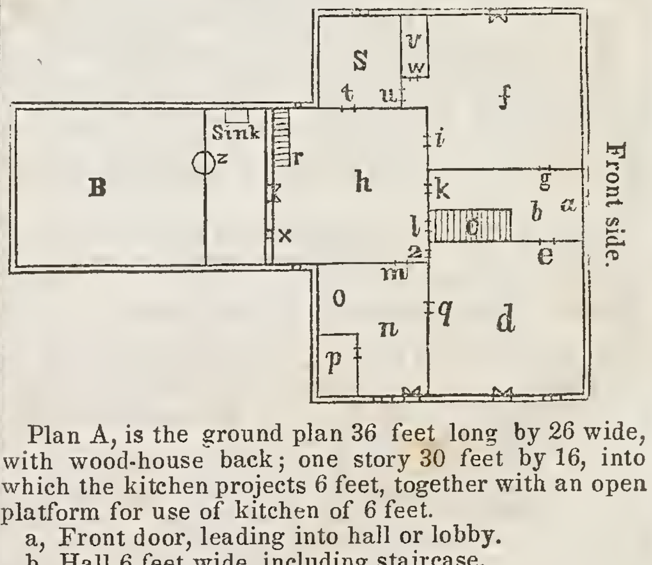
Judge Buel—Sir—Although too late to compete for the premium so liberally offered in your most valuable publication, yet thinking it might (if you deemed it worthy of publicity,) benefit some one else, who thinks as I do in relation to building, I send you the enclosed plan of a dwelling house, to be built of brick, which I commenced making preparations for building the spring past. As I am not a mechanic, but a farmer, unused to drafting, and besides have no other implements than a carpenter's square and compasses and my pen, the drafts will of necessity be rough, but may serve to give an idea of my plan.

In the erection of a dwelling house, there are three things which I consider essential, viz.: First of all, convenience and suitability to the wants of the family who are expected to occupy it. Secondly, economy in the expense of its erection; and lastly, (and by many, perhaps, not thought at all essential,) its beauty or pleasant aspect, which I think ought not to be overlooked. Upon these points I will make one or two remarks. As to the convenience in the arrangement of rooms, the increase of a few additional steps in a part of a house which has to be traversed fifty or one hundred times in a day, would, in the course of the common period of a person's life, amount to a distance of travel that would surprise and astonish us. I have, therefore, endeavored to place those apartments contiguous to each other whose uses have the greatest connexion.

I have always been of the opinion that unnecessary expense in building, is one of the poorest of investments of money, as you receive no profit in return, but are subject to the expense and loss of keeping in repair, and the sure although perhaps slow decay of time. I have, therefore, adapted the size and plan of my house to the wants of that of a common or small farmer, (which I am,) who cultivates and tills from 100 to 125 acres of land, which class, I presume, constitute the largest portion of your subscribers. Many a man has entailed upon himself and family, perplexity and misery by running into debt in the erection of a large and showy "castle," (as some traveller has termed our large country houses,) a portion of which he could neither use nor needed. I always esteem a small well finished and furnished house, preferable to a large unfinished (or finished) empty one.

As to appearance, nothing, I think, which tends to render home delightful and pleasant, which is consistent with convenience and economy, should be neglected. Upon this rule I have endeavored to project my plan.

Plan A.—[Fig. No. 43.]

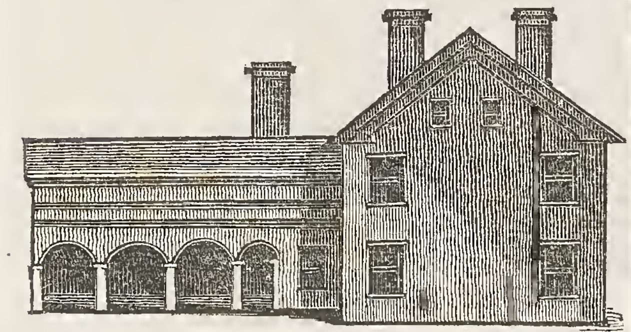


Plan A, is the ground plan 36 feet long by 26 wide, with wood-house back; one story 30 feet by 16, into which the kitchen projects 6 feet, together with an open platform for use of kitchen of 6 feet.

a, Front door, leading into hall or lobby.
b, Hall 6 feet wide, including staircase.
c, The principal staircase.
d, Parlor 16 feet square.
e, Door leading from hall to parlor.
f, Dining room, 16 feet square.

g, Door, leading from dining room to hall.
h, The kitchen, 16 feet square.
i, Door, leading from kitchen to dining room.
k, Door from kitchen to hall.
l, Door to cellar stairs.
2, Door from kitchen to parlor.
m, Door from kitchen to bed-room.
n, Bed-room, 10 feet by 12, including clothes-press, with a small fire-place.
o, Bed recess, size of bed.
p, Clothes press.
q, Door from bed-room to parlor.
r, Back stairs to kitchen and wood-house chamber.
S, Buttery, 7 feet by 8.
t, Door from kitchen to buttery.
u, Door from buttery to dining room.
v, Clothes press.
w, Door from clothes press to dining room.
x, Door from kitchen to platform and wood-house.
y, Platform, open to wood-house, with sink for wash-dish, 6 by 16 feet, &c.
z, Well of water.
|||| Windows.
B, Wood-house.
M, Fire-places.

Plan B.—[Fig. No. 44.]



Plan B, is the elevation view of the end of front part and side view of wood-house. I have thought it unnecessary to draw plans of cellar and chambers. The cellar is intended to be divided in two parts, with windows, and one outside doorway, with steps. One part with fire-place and kettle set in an arch, for coarse kitchen work; cellar wall to be laid in lime mortar; cellar bottom to be floored with hard burned brick, to prevent rats digging under the wall and entering cellar, and no hollow space left for rats or mice, from cellar to garret. The front building to be two stories. The chamber to be divided into four bed-rooms on back side and two rooms with fire-places on front side. As chimneys in brick houses against outside walls, take up very little room and little additional expense, I have prefixed a chimney to each fire-place on ground floor. This will give one to the kitchen, to which is attached the fire-place in cellar; and two to the end of the front part which has the bed-room, and one for dining room at the other end, coming out of front side of roof; another false chimney, for the sake of uniformity of appearance, might be added at trifling expense. This gives the fire-places in the centre of the side of each room.

A house, according to my estimate, of this description, would, at ordinary price of materials and labor, cost about $1,300 dollars, finished in a plain handsome style. Respectfully yours,

J. F. CHUBB.

On Education.

Yates, Orleans County, Sept. 16, 1839.

Hon. J. Buel — Sir — I have come to the conclusion, although personally an entire stranger, of addressing you on the (now much agitated) subject of education; and if business is pressing, you will only need to cast your eye on the signature at the end of this (at least, what I intend shall be,) long communication, to know that its perusal may be dispensed with, till an hour presents in which you can give it your attention without an infringement on your own more important concerns. My apology for thus intruding upon the notice and time of a person of your high standing, will better appear in the importance of my subject, than it could in any words I might utter.

I am well aware that those moral reformations which most materially benefit community at large, originate with, and are most successfully carried on by, those whom Providence has placed high in society. Happy would it be for us as a nation if all great people understood this, and entered as cheerfully into the work for which Infinite Wisdom seems to have designed and fitted them, as do many whom I could name as inhabitants of the truly benevolent city, of which you are both a resident and (forgive merited praise) ornament.

Though I do not belong to the class mentioned above, and am too sensible of my want of talents to think I could do much good if I did, yet since philanthropists have become so deeply engaged in the cultivation of the human intellect, I have felt an almost irrepressible desire to offer my mite of aid; not as one fitted by education to instruct the public—a position I could not maintain — but as possessing some little experience as an *American mother* — a word, a name, sir, as you are already aware, of no small import. I have observed with some regret, that in those eloquent appeals (of late so frequent) to public sentiment, on the subject of education, that a reference to the duty of mothers has not been so often had as I think the public interest requires. There are, indeed, very few who really consider how much the state is dependent on our exertions to cultivate, to refine, and to direct into the proper channels of usefulness, its choicest wealth, the intellect and strength of its junior population. When I reflect on what has been done by some, to educate their families, in this late wilderness of Western New-York, with comparatively no public aid, and then look at the facilities now so liberally held out to parents by the State, I cannot but feel an anxious desire that they may so accept and apply them as shall not only bring comfort and credit to themselves, but enable them also to return to the State "other" with the five talents they are receiving at its hands.

Now, sir, one of the objects of this communication is to suggest to you the idea, that it might be proper to give mothers a more general invitation to enter into the labors of this field of usefulness, than they have yet had. There are many who only need to be reminded of their duty, in order to do it. There is an energy natural to woman, that when once awaked and directed to one object, accomplishes great things: witness the thousands of garments and materials for such, that have been provided and sent off by them to heathen nations within a few years. Now I would not propose to stop these benevolent operations; but I would make them the "mint and cummin of their tithe," that need not be neglected while the "weightier matters" of providing for, of governing, and of instructing their own offspring, must be attended to. I would not be understood to mean that mothers should provide for the temporal support of their children, but for their present and future happiness, by an unremitted attention to all their doings for a number of the first years of their lives. We have divine authority for saying that this duty, when faithfully performed, never fails of being attended with success. I know there would seem to be some exceptions to this rule; but 'tis a great thing to have done our duty. Oh! that parents could be led to realize this while their children are young! How much misery would be avoided, both in time and eternity!

Some years since, I saw a woman at her tub, washing; her two children were in the same room, making cob-houses; a lad some older than her son was visiting there, and at play with them. When they had laid up all their building materials, and not finished their houses, the little girl offered to go and bring more, if her brother and his visitor would not take any of hers in her absence. Both promised faithfully that they would not. As soon as she was out of sight, the visitor proposed that they should each take a few of hers, in order to make their houses the highest; the brother at first refused, but was finally persuaded. The mother was one that (whatever might claim her attention) kept an eye, and an ear open to the doings of her children. She had made up her mind that to "guide the house," meant something more than to keep the clothes clean, though she knew that to be essential. She believed that to have "brought up children," would be to have grown up herself into that perfection of character which the gospel enjoins, and to have led her children up with her. Happy will it be for America, when all its young mothers shall begin with, and adhere to, such principles while rearing their families! She took her seat by her children, and spent the next half hour in obedience to that divine command respecting laws, which says to parents, "thou shalt teach them diligently," &c. Those boys are now young men, both only sons; both their fathers upright, honest men. The visitor has not been under the care of a mother like the one described above; he is now a noted thief, and has been taken up by the public authorities as such. The other is what chivalrous people would call the "soul of honor:" none that know him, would be afraid to trust him with thousands. Now who can say that he would not have been a thief as well as the other? He was persuaded to break his word, and to take what was not his own, and might have been again and again, but for his mother's watchful eye, which was his constant guard until his feet were fairly set in that path from which Infinite Wisdom has said "he will not depart." When I reflect on the incidents of this nature that have come under my own observation, I feel an almost uncontrollable desire to impart the little knowledge I possess to those who are just beginning the fearful task of training immortal beings for everlasting bliss or woe.

'Tis true, yet I know not why, that whatever of reform is started in your city, has a better effect on this part of the State, than if it had originated elsewhere. It was at Albany that, with regard to intemperance, the mighty deep of public opinion was so effectually agitated as to cause its swells to roll with so much force, even o'er this distant land, that almost every distillery was swept from its foundation. Some say, because those first powerful risings of the public mind have subsided, that the temperance cause has died away. I will tell you how it has died away in this little town. At the time of its commencement, there was scarcely one of the beautiful streams with which it is so well watered, but that had one of those public nuisances, a "still," located on it; there was not a church here; the people seemed every day to be growing more and more intemperate and vicious; wives and mothers began to tremble for the fate of their husbands and sons. Ah! and some of them trembled from a cause which even now to write would make my hand tremble. Now our atmosphere is cleansed; the streams of water from which arose such nauseous vapors as distilleries always produce, flow unobstructed and pure into the noble lake to which they are tributaries; we have three large and well-finished churches; and best of all, we have added to the many that may be supposed to have been kept through temperance exertions, some in each church who were called confirmed drunkards, now each Sabbath "sitting clothed and in their right minds," meekly worshipping Him who came to seek and to save that which was lost. The dissipation that seems most prevalent now, is a propensity to waste time. District libraries will prove one of the most effectual remedies that could have been offered for its cure, if the people can be persuaded to apply it; but there are many, very many, not only fathers but mothers, who will not stay at home enough to read and know what they contain. The libraries are a system worthy of New-York and its rulers. But I cannot say what I desire to, on this subject here; therefore I shall accept as a great favor, a sincere opinion expressed by you, whether I had better say any more with my pen at all or not. My husband wished me to consult some of the "learned" of our own county, but as I could not agree with him in thinking there were any superior to himself in literary judgment or taste, I obtained his consent to address a resident of my (once) own Albany county. I thought of D. D. Barnard; of G. Hawley; and indeed I should not hesitate to address that man of powerful mind, William H. Seward, did I not know that the benevolent schemes in which he is already engaged, together with the duties of his station, must fill up his time. Think not it is because we esteem you less, or think your time less usefully employed, that this "lot" of intrusion has fallen upon you. I wish you to tell me, if you think any person in your vicinity would accept an address to parents, scribbled by me, and dissect it, take my ideas, clothe them with their own more eloquent words, and present it to the public. Remember, I speak as a mother that (illiterate though she be) may understand the infantile mind better than man, with all his knowledge of abstruse sciences. Ill health has deprived me of the privilege of laboring as usual in my dairy; so I have turned my attention to writing, and why not as well as though I had been a play-actress and parted with my husband, &c. Respectfully yours,

SELINA TYLER.

On Educating Children at Home.

Schenectady, May 9, 1839.

Friend Buel—In the April number of your Cultivator, under the head "We spread our nets too broad," page 38, the writer says, "The worst place to educate a boy, so far as depends on the advantages of the school, is his native village, where he is wont to lean on parental support, and to remain a mere succor. Send him among strangers, and he will learn *to go alone*, and to depend, for knowledge and character, upon his personal application and good conduct," &c. &c.

These assertions may be plausible to some of your readers; but so far as I have experience, the contrary is the safest course as to the government of children by their parents.

So soon as my children could recognize me, I delighted them by the greatest attention to amuse and please them. This daily attention and fostering care for their comfort and amusement, soon produced their warmest affections and supreme love. They were the most happy when in my care, and were unhappy in my presence, if not in my care and attention. As their knowledge increased and faculties improved, we were extremely careful not to promise the least thing that we did not most rigidly fulfil; so that when they were told any thing, they were certain of its truth, and faithful fulfilment of every promise. Their supreme love and perfect confidence in us was established. If they showed the least disposition to disobey, I told them that I could not love a child who did not love and obey me. This was sufficient for their immediate compliance, for the greatest pain would be the loss of our love, and the birch was never needed nor used. The poet's remark on the influence of love was verified:

> In kindred minds it flourishes alone,
> And claims attachment equal to its own.

We never gave them any *pocket money*, to absorb their thoughts, and to spend at their pleasure. Money was never given them but for specific purposes, although they were always allowed to have free access to it, and were told its objects and uses. They were provided at home with all that was deemed proper, and they had no desire to enter the attracting and debasing cellars and shops for fruit and luxuries, which are the pests of good morals, and ruin of multitudes of otherwise good children.

Before they reached their seventh year, (the age when the human organ of faculty, the brain, is fully developed and matured in volume,) they were manly and womanly enough for that age; for they were spoken to as rational and adult beings, and not in trifling language. They were told that God was the author of them and their kind parents, and all good things; and that their love to him was paramount—next they might love their parents, &c. These are duties not to be looked for from strangers; nor will children receive moral instruction with the same faith from them, as from parents.

When their age increased, and their manners and principles were formed, they travelled without us. They were furnished with money liberally, and were told not to spend money because they had it, but to pay for all useful and honorable wants — to spend nothing in vice nor evil company. They always had enough and to spare, and never asked for a dollar that I had the least hesitancy to furnish, for it never was misused or abused. We are now happy in their reverential and filial obedience and love, and they share in the esteem of society; and the injunction of the wise man, "bring up a child in the way he should go," &c. is fully illustrated in them.

To show the effects of this mode of government, I'll quote one instance in their early years. When their second set of teeth began to appear, I observed that they stood too close, and would crowd some out of regular place. I told them that it would be proper to extract one from each side the upper jaw. They answered that it would hurt. I replied that it would hurt, but that the pain would be short, and the benefit would be ornamental and useful; that if omitted, they would reproach me in riper years for neglect of duty from tenderness, and asked if they would have the teeth taken out on my judgment; they answered in the affirmative. The dentist was sent for, and a beautiful sound tooth extracted from one side; and after a few minutes pause, till the pain was abated, they were asked if they would have one taken from the other side, and it was assented to, and the tooth extracted without further trouble. I then embraced them, and applauded their fortitude and obedience, and they were happy at such result.

I have seen many very fine children, of good and fine minds and manners when they left their parents, ruined, and their manners and morals completely destroyed by being sent from home for education.

I have before heard it said — sending children among strangers makes them manly and womanly. I know it makes them bold; and in some cases they appear in manners to be men and women at twelve or fourteen years, but they are more frequently boys and girls for ever after.

The manners are best formed under parental care: when the first impressions are correct, they will not afterwards be easily rubbed out by improper examples. If they should, through evil communications, be guilty of aberration from duty, their early impressions from kind parents will rise up in their minds, and influence their hearts to repentance and return to duty.

Teachers often make specious promises of useful culture, to influence parents to send their children from home for education and manners; and it often proves useful, particularly to those whose parents cannot, or will not, devote proper care to their children. To such it is often a boon.

When you urge farmers to improve their breeds of sheep, cattle and other farm stock, do you advise them to send them abroad? or to give their best attention to every thing in relation to such stock, if they expect to be successful? And ought not our children to claim so much from us as our cattle?

When children are sent from home for their education, it is not only fourfold more expensive in money and clothing, but often with the loss of good manners, or the acquaintance with evil habits and manners, particularly if they are furnished with plenty of pocket money to use at pleasure while they are not yet qualified to judge of its value and uses, but to be enticed by evil companions to seek opportunities and objects for spending the money merely because they have it.

I can now call to mind many fine children whom I have seen ruined through such means, when they had the promise of fine talents, to become the ornaments of society, had they been prudently educated in early life by examples and precepts of industry and morals. Indeed, I conceive that the most valuable legacy parents leave to children, is a strictly moral and useful education. The want of such education is the direct cause of most of the evils in society. When will the law-makers and conservators of public morals understand and apply these principles, and learn that their true duty is to prevent evils and crimes, rather than the punishment of criminals?

My dear sir, you'll forgive me, I hope, for these observations, as I assure you that I give them to you merely to correct what I conceive to be wrong opinions, and to exhibit a better example. Let parents who have the means, be liberal in establishing good schools at or near home, and employ competent teachers at some additional cost, and save their dear children from exposure to vice, greater expense and ruin, if they believe there is any value in these opinions and experience.

Yours respectfully, ———.

Remark. — If all parents could, and would, imitate the example of our worthy correspondent, it would go far to invalidate our position—that *boys learn best from home to depend upon good habits and good conduct, for reputation and wealth.* There are no teachings so impressive and lasting as parental examples; yet we must take things as they are. Many parents lack either the opportunity, the faculty, or the inclination, to train their sons as they should train them, during their academic years; and where either of these contingencies happen, we are still of the opinion, that the boy is likely to do much better under a good master abroad, than he will do under a slack discipline or misapplied indulgence at home. The master will, or should, be more watchful of the habits of the stranger boy, than of him who is, in other than school hours, under the nominal control of his parents. If the question be tested by the examples of the age, we are inclined to believe that the answer would be in our favor.—*Cond. of Cult.*

Rohan Potatoes—Chinese Tree Corn.

Friendship, Md. October 10th, 1839.

J. Buel, Esq.—I planted two Rohan potatoes, weighing each half a pound, on the 15th March, and dug them the 30th September. The product was one bushel, weighing forty-one and a half lbs. they were planted in drills, 40 inches apart; the pieces about eight inches apart in the drills; the potatoes I cut into 26 pieces, made four short rows, rolled them in lime before planting, hilled them slightly twice, by putting some rich yard manure on them.

A gentleman in this vicinity, planted half an ear of the Chinese Tree Corn, and got about one hundred and fifty good ears from it, and he says it was but partially attended to; he thinks if he had worked it more, the product would have been greater.

I planted a few grains in my garden after the other kind of corn was up, and the tree corn was fit for use the earliest. I remain yours, &c.

ROBERT S. D. JONES.

Chinese Corn.

Albany, Oct. 3d, 1839.

Mr. J. Buel—Dear Sir—I feel called upon to give some explanation respecting the Chinese Corn, I sold the last spring. From a number of communications received from different persons in the northern and western part of this state, the corn has not succeeded at all. It proves a very late variety; I am satisfied this variety of corn will not answer north of this. I have been charged by some correspondents with *intentionally* committing a deception on the public. *This I disclaim.* No one regrets the disappointment more than myself, and I am willing to render every satisfaction in my power. I am not a practical farmer; I was induced to recommend it to our farmers, from the following high recommendations, and sold it in good faith. I will state the experience of three respectable farmers and unprejudiced men, viz:

Mr. Coombs, of *Upper Freehold, N. J.* planted last season, six ears of the Chinese corn, which produced him thirty-two bushels of ears. His general crop of other kinds of corn, last year, was nearly a failure, and is decidedly of opinion that this corn will produce one-third more than any corn grown in that district, and he this seasons rejects all other sorts to plant this on his farm.

Mr. Hendrickson, of the same place, had a great proportion of his corn the last season, destroyed by the cut worm, and replanted his field with the *Chinese Corn* which overtook what was left of the other, and was fully matured some time before corn that was up and well under growing way when the Chinese was planted, and produced the best corn in the field—nor had it any treatment different from the common corn. He this season planted ten acres of it.

Mr. Prentiss, of the same place, planted last season, this same corn, from the 16th to the 21st May. It was perfectly matured and ready for husking on the 1st of September, and on the 16th of September, the whole crop was cut down and stacked. His crop, however, was materially shortened by not then understanding the peculiar branching properties of this variety; notwithstanding this, and the severe drought, his crop was a full average. *Grant Thorburn's* recommendation has been fully before the public.

Under these circumstances, I leave it to the public to say, whether I was not justifiable in recommending it as a new and early variety. Respectfully yours.

WM. THORBURN.

P. S. If it is not asking too much, please add the following, from *E. P. Roberts, Esq.*

[*From the American Farmer.*]

THE CHINESE TREE CORN.

"*John S. Skinner, Esq.*—Dear Sir—I purchased last spring, of Gideon B. Smith, Esq. an ear of the above corn, which had been grown by Mr. Grant Thorburn, of Hallett's Cove, New-York, a part of which I planted in a bed in my garden, and as the success which has attended this experiment may, in part, be owing to the preparation of the ground and mode of culture, it may be as well to detail it.

"The bed was at first highly manured with fresh stable dung, then spaded deep. The ground being thus prepared, I had holes dug four feet apart, about four inches deep, in each of which I dropped two grains of crop, the which I covered with a compost of equal parts of spent ashes and rich mould. When the corn first came up it looked yellow, and supposing that it might be owing to too much acidity being in the ground, I sprinkled over each hill about half a gill of equal parts of air-slaked lime and plaster of Paris, which I mixed with the soil by gently stirring the earth around the plants of corn. I subsequently gave it three thorough weedings and hoeings, taking care each time to make my hoe penetrate deeply into the earth, and each time increasing the size of the hill around the roots. As directed by the notice published by Mr. Thorburn, I have suffered the suckers to remain, and from the luxuriant appearance of my corn, and its prolific yield, I have no doubt he has hit upon the right plan of cultivating it.

"Attracted by its fine appearance, I was induced a day or two since to go into the patch and count the number of ears upon some of the hills. Upon one I counted ten, upon another fourteen, and upon a third, nineteen ears. This, being from two grains of corn planted, must be considered a good yield. This corn is a pearly white, of the flint variety, the ears medium size, and I have no doubt will make an excellent crop of corn. It grows to the ordinary height, yields a great abundance of fodder, and is withal an early corn, having been sufficiently advanced two weeks since, for roasting ears. On strong ground, well manured, with suitable culture, I have no doubt it may be made to yield an average acreable product of a hundred bushels. In the fall I will measure my little patch, and give you a faithful account of its yield in *long ears* as well as *nubbins*, by which you will be able to form a correct idea of its adaptation to field culture.

"By some mistake, two dozen ears of the same corn were pulled some days since for table use, and I have no hesitation in saying that it is equally as sweet as the sugar corn, with this in its favor, that the ears are nearly twice the size.

"Whether this corn originated from a few grains found in a chest of tea, as asserted by Mr. Thorburn, I will not pretend to say; but of this I am certain—it is a most excellent variety, and is worthy of extensive cultivation.

"Should this hastily written note be deemed worthy of insertion, you can give it a place, and oblige your obedient servant, EDWARD P. ROBERTS.

"*Mulberry Grove, Baltimore Co. July* 31, 1839."

Uses of the Sunflower.

Oneida county, Oct. 7th, 1839.

Mr. Editor—Can you or some of your correspondents, inform me, and your subscribers generally, of all the uses of the "Sunflower," and what would be an average yield per acre? &c. &c. and much oblige,

A READER OF THE CULT.

Not having a thorough knowledge of all the uses to which the sunflower is applicable, we copy the following from the London Farmers' Mag.—*Cond.*

"*Cultivation of the Sunflower.*—On inquiring into the use made of this plant, we were given to understand that it is here (in Tartary) raised chiefly for the oil expressed from it. But it is also of use for many other purposes. In the market places of the larger towns we often found the people eating the seeds, which, when boiled in water, taste not unlike the boiled Indian corn eaten by the Turks. In some districts of Russia the seeds are employed with great success in fattening poultry; they are also said to increase the number of eggs more than any other kind of grain. Pheasants and partridges eat them with great avidity, and find the same effects from them as other birds. The dried leaves are given to cattle in place of straw; and the withered stalks are said to produce a considerable quantity of alkali."—*Bremner's Excursions in the Interior of Russia.*

Mammoth Sunflower.

Lake C. H. Ia. September 23, 1839.

J. Buel Esq.—Dear Sir—Enclosed I send you a few seed of what appears to me as a remarkable prolific sunflower, and also as illustrative of the fact, that all of our domestic plants may be greatly improved by care in selecting seed. I have practised for several years past, saving seed from the principal head on the most prolific stalk, and last year I thought I had nearly arrived at the heighth of bearing power, when I had a stalk with forty heads. But the seed which I now send you, is from a stalk with sixty-five seed heads, which grew in my garden the present season. I venture to say there would have been at least ten more heads, but another stalk grew so close on one side that it prevented the branches from spreading in that direction.

Perhaps however, that all this, to you may not be in anywise remarkable or worth notice, but to me, and others who have seen it growing, it is considered so.—It is a well known fact that parsnip and carrot seed, and probably many others of similar branching kind of plants, should only be saved from the principal head. And it seems reasonable to me, that every vegetable may be improved by care in selecting the seed, as easily as I have improved this sunflower.

Many may ask what is the use of raising the sunflower? I reply that it is worth as much or more than corn, and is exceedingly healthy to feed all domestic animals, and particularly hens and horses, and whenever it is raised in sufficient quantities to warrant it, oil mills will be built that will create a good market for the seed. And if no other use than mere ornament was made of it, I should much rather see it growing in waste corners, than useless noxious weeds. I hope you will do me the favor to plant a few of the seeds that I send you, if for no other purpose, that when you look upon their growth, it may be a happy memento to you that there is one other than yourself, that rejoices in every improvement he sees made in the agricultural pursuits of a country, that must soon degenerate below the regard of some of her warmest friends, unless the present awakening spirit of improvement, is made to assume an ever waking watchfulness throughout the whole community.

I am proud to subscribe myself one of your agricultural friends. SOLON ROBINSON.

Mixture of Fruits, Grafting, &c.

J. Buel—Dear Sir—You answered well, all the queries of your correspondent, dated "Michigan, 14 June, '39," except the last query, viz. "Will the trees from the stone of the peach, plum, cherry, apricot, &c. produce fruit the same quality as did the trees on which they grew?"

From my observation, nature is correct and regular, like producing likeness in the vegetable as in the animal kingdom.

The seeds and stones of the fruit of any tree or plant, standing alone, and when the blossoms or the generative organs in them are impregnated from its own genitals, will uniformly produce a progeny of trees and plants, which will produce fruit like the parent tree or plant, lusus naturæ excepted.

We set in the same garden, fruit trees of all sorts, and vegetables to produce seeds of all kinds, near to each other. Those which are in blossom, (their bridal habiliments,) at the same time, and of the same genus, will cast the pollen from their stamina or male organs on the pistils or female organs of their neighbors, and thereby produce hibrids, mules, mulattoes.

I once planted pits of fine yellow gage plums, from a tree in my garden. Two of the trees produced common blue plums, nearly alike; one a large blue plum, tinged with red, late to ripen, and excellent for sweetmeats; and one produced a yellow gage, about half the size of the parent tree, and of inferior quality. The parent tree stood near to blue plum trees, and the progeny were all hibrids.

I planted the pit of an egg plum from a garden of plum trees of various sorts. The egg plum is nearly the size of the hen's egg, yellow, acid, and ripens in September, and probably the best for sweetmeats. The seedling tree produced plums of similar color and shape, of less than half the size of the egg plum, and ripened the first week in August. The flavor was sweet, except near the stone it was acid, like the egg plum.

I reared a peach tree in the same garden. The first season of bearing, the peaches were large, yellow, and very fine; the next season it bore peaches of red blush. An early red peach tree stood a short distance east of the tree in question, and I presume the east wind prevailed when they were in blossom at one time.

Most persons who have planted the sweet boiling corn near to the hard yellow or white corn, and even fifty rods apart, have noticed single kernels of the hard, on the ears of the sweet corn; these kernels appear to be wholly of the hard corn, studded by the side of the shrivelled sweet corn. So all the other trees and vegetables mix in the blossoms, and produce new varieties. Some are inferior; but we are now enjoying some most delicious new varieties of plums, of much larger sizes and of superior flavor: they are hibrids.

Apples are improved in the same way, or are rendered inferior. The flavor of choice apples grafted on the stocks of *sweet* apple trees, is more mild than the flavor of those grafted on stocks bearing *sour* apples.

If you plant potatoes of one color and kind, which were produced near to those of another color, you often collect both colors and sorts from the hill planted of the one color only.*

I have said enough to those who observe the works of nature, to establish the proof of the cause of hibrids and varieties in fruits.

It is often asked, which is the best method to transplant trees? The most successful mode that I have practised, has been, to open a hole sufficiently wide to permit the roots to extend in their natural position, not to be cramped. Fill the hole full around the tree with dry and loose earth, such as of onion beds in the garden, and of good quality; then dash in a pail of water, and shake the tree gently. The water converts the fine earth to liquid mud in the hole around the tree; the mud will cling to all the roots; the water will soon sink below, leaving the mass of mud compact around the roots, and no cavities of air. Then fill up the hole again with dry earth, and press it gently down.

If the tree is set in dry earth, filled in, it leaves vacancies of air under the roots, and they starve and perish. Many fine trees are lost in transplanting, by saving the handsome top. The roots of the newly set tree cannot receive immediate nourishment from the loose ground, sufficient to support a large top; and while the roots are connecting with the ground, the top dies from want of nourishment.

It is best to graft trees immediately after transplanting them, because you then cut off the top to insert the graft, and leave but little of the top, that the scion may not be starved. The roots will support and nourish the trunk and scion, if the season is not too dry. Trees are saved by watering the first year, in dry seasons, when they would perish with a large top, which is apt to be retained if the tree has been grafted in the nursery.

Some persons have great objections to cut off the top of trees. It depends on the treatment, whether it injures the tree. To be perfect, (and we should attempt perfection in all things,) the grafting salve should always follow the pruning knife. The most economical and effectual mode of applying the salve is to get a small furnace of sheet iron, of the size and shape of a lump of refined sugar, such as the tinsmiths use for heating their soldering irons. Let a small hole of about an inch and a half in diameter be cut out near the bottom, with a slide door piece of the iron to cover it, large enough to be fastened above with a rivet, so as to slide the door open when heat is wanted, and to cover the hole and shut out the draft when the draft should be stopped. Get a tin or sheet-iron vessel made, of the shape and size of a tin quart measure, to fit into the top of the furnace, with a flange at top to prevent it from sinking below the top of the furnace, and a wire handle or bail to lift it out by. On the side of the furnace opposite the door, let a small tube be added, or a groove to serve as a chimney for draft, to make the charcoal burn in the furnace, to melt the grafting salve in the quart or pint cup, according to the quantity wanted for few or many trees. When the grafting salve is melted to a liquid state only, you may dip in a painter's brush and apply it to the wound, like painting, when the limb is cut off. It being in a liquid state and warm, it will adhere to the raw wood, and shut out the caustic air, like as balsam of fir does in a cut on the finger, applied before the air inflames it; it heals by what is called first intention, or natural growth of the flesh on the finger, or the bark on the tree.

Some persons prune trees in the month of March, because they then have leisure time. The best time to prune in this climate is about the first of June, or after the juices or blood of the tree is in full and steady circulation. Then, if covered with the salve as above advised, it will exclude the caustic air and rains from injuring the wood and lips of the wound, where the bark must begin to furnish a covering, like the skin on animals, over the raw place. If trimmed in March, or left without a cover of salve or soft cowdung, or something to exclude the air and rains, the wind will dry the raw wood, it will shrink and crack, and let in rain and produce a rot, which will always remain in the trunk to the age of a century, and often cause the trunk to become hollow and die.

Scions should be cut in February or March, here; or before the buds have swelled by the vernal heat, while in their state of hibernation. Place the scions on the damp ground of a cold cellar bottom, cover them with wet straw, and place a piece of board on to keep them wet and from warm air. The scions should be thus kept till about June, and then grafted. If the grafting is performed early, as in the warm days of April, and the cold winds from the west and northwest blow within a few days thereafter, they will check the supply of sap in the stock, starve the scion, dry it, and it will perish.

The safest time to graft, is after the season is advanced so far that the stock receives a full and regular supply of circulation of blood, to nourish the scion. After the scion has begun to receive nutriment from the stock, it will soon starve and perish if the nourishment is stopped by cold and dry winds.

Young plants and animals are prone to life. If scions or plants are once wakened from their state of hibernation by supply of nutriment, they will easily perish if that supply is discontinued. So young animals, if food be withheld from their birth, they will not perish for a long time; but after they have once fed, and become dependent on nourishment through the stomach and alimentary canal, they will not long exist if deprived of nourishment. The house fly, and other dormant insects and animals, will hibernate and lay all winter without food, and waken in the spring in vigor and health, but soon perish of hunger if deprived of food while in active life.

Some fishes also follow this course. The mackerel becomes blind in winter, and sleeps in the deep till spring, when the scales fall from their eyes, and they come on the shoals to feed. The black fish, or rock fish of the rocky places in the sea, hibernate at the commencement of winter, and sleep till spring, like the bear, racoon and squirrel, &c.

It is best to set young forest trees a mere bare pole, except a few buds of the size of a knitting-needle. The roots will supply the trunk the first year, and feed the aftergrowth, and the top will grow regular and handsome. If a small limb be left on one side, it will take the growth, and the tree will be one-sided. Large trees of any size may be transplanted, if the earth is permitted to freeze around the roots, after digging a trench around beyond the small roots, so that the tree may be set in a hole prepared.

Make salve for grafting, of one part tallow, two parts beeswax and three parts rosin, to be melted together, and thrown into water; and while warm, well worked by pulling and doubling and pulling, &c. It should be so hard as not to run off by heat of the sun, and not so hard as not to yield to the growth of the scion.

Most respectfully,
DAVID TOMLINSON.

Schenectady, September 5, 1839.

Queries.

Essex Co. Va. Oct. 1, 1839.

The subscriber will thank Judge Buel, or any of his contributors, to answer the following inquiries, if they can do it by stating the results of actual and careful experiments. He asks not for mere opinion, pro or con, —having quite enough of his own, and some to spare, —relative to the matters in regard to which he is anxiously desirous to be informed by some of his brethren, who have more experience than himself.

1st. What are the indications (if any,) by which we can certainly know, when the beet, the mangel wurtzel, the carrot and the parsnip come to maturity?

2d. Does either, or all lose any portion of their nutritive properties by remaining in the ground after that time?

3d. Which (if either,) loses most?

4th. In digging them up, is there any difference as regards their preservation, between cutting and twisting off their tops?

5th. Is it not best to feed away those tops in their green state, rather than to steam them?

6th. What is the most profitable distance at which to cultivate beets and mangel wurtzel?

7th. Which is preferable in cultivating any or all of these root crops,—to manure broad-cast on a level surface, or to manure in furrows and sow on the ridges formed over them,—the quantity of manure being the same in both cases?

The subscriber believes that he has some good reasons for doubting the propriety of the common practice in most, if not all of these cases, and would therefore be glad to receive any information which experienced root culturists can give him, since the culture of roots is becoming daily more important throughout the Atlantic states.

In stating that he has no wish to receive mere opinions in reply, he begs not to be understood as objecting to them altogether, for he is entertained by many which he reads in your paper, while some are well calculated to excite inquiry, if not to convey instruction. To all such, he always pays due attention; but he must avail himself of this occasion to say, that if that portion of the contributors to the Cultivator who are so fond of indulging themselves in this easy kind of writing, would give us more facts,—more results of experiments fairly and accurately made,—and less speculation, they would greatly increase the value of your excellent paper, to all who seek improvement in the theory and practice of husbandry. J. M. GARNETT.

The Season, Crops, Mode of Culture, &c.

Salem, Indiana, 9th Mo. 17th, 1839.

We have had an extreme drought in this part of the west, which has extended from the middle to the eastern part of this state, a part of Ohio, and the central part of Kentucky, which has affected our corn and root crops very much. We shall not realize more than half a crop of corn or potatoes, and our crop of turnips, &c. will be almost a total failure, though we are not much in that line yet. I planted a few ruta bagas last year; I did not much more than save seed; this year I planted about one-quarter of an acre, early in last month; they have but lately come up, having lain in the ground about six weeks, without moisture sufficient to make them vegetate. One of my neighbors, who takes the Cultivator, put in one-quarter of an acre early in the sixth month, in a piece of new ground, and notwithstanding the drought, his bids fair to be pretty good.

We had an abundant crop of wheat and oats; grass light.

I have not used any other plough in my corn crop this season, since I planted, than the cultivator, and a double shovel, which is similar. I kept them pretty constantly moving, and I find that my corn is much better than my neighbors.

I rented a field on my place to a man, and he worked it well in his way; that is, with a Carey or bull plough, which makes a large open furrow, and there is only a lane between his and the piece that I tended, and his is on much the best and freshest ground, and mine is the best corn.

I should like to see more frequent remarks of the conductor of the Cultivator, as I rely much more on his than the opinions of his correspondents; yet I am well pleased with the Cultivator, and think that I have been and expect my neighbors much benefitted by its excellency in the art of farming. I remain thy friend,

MICAH NEWBY.

Lunar Influence.

Newby's Bridge, N. C. 9th month 26th, 1839.

Respected Friend J. Buel—I have many times heard the remark, that pork killed on the increase of the moon was better, or would waste less in cooking than that killed on the old or decrease of the moon; and that corn, beans, peas, &c. would grow and yield better, planted on the increase, and potatoes, turnips, parsnips, &c. were best planted on the decrease of the moon.—These things I have usually disregarded in my practice.

In the tenth number of the 5th volume of the Cultivator, Calvin Butler states his experience in regard to pork, and on speaking of the subject, among some of my neighbors, one observed, he did not care about the moon, when he killed his pork; if the wind blew from the south at the time, his meat would not shrink in cooking? Another said "if his pigs were littered on the increase of the moon, it was of no consequence to him about the moon or wind when he killed them."

Among my hogs intended for my own use the present year, were two of the same litter so near alike in colour, shape, size, and fatness, that it was not easy to see any difference. I therefore determined to try the matter for my own satisfaction. Accordingly, on the 28th of the 12th month, two or three days before the full moon, one of them was killed with the rest of my hogs, which weighed 103 pounds, was cut up in the usual manner, marked No. 1, and salted away. Two weeks afterwards the other was killed, weighing 118 pounds, was cut up and salted as the other was and marked No. 2. About two months afterwards a ham, No 1, weighing 11½ pounds was boiled whole, except the shank, which lost three ounces; two weeks after that, a ham, No 2, weighing 13 pounds, was boiled as the first, which lost four ounces in cooking. About the first of the summer, the other ham, No. 2, was boiled and lost four ounces; the other No. 1, was used without knowing when, consequently without weighing. Since that time two of the middlings have been used in my family, alternately boiling a piece of one and then the other. I have not, neither has my family, been able to discover any difference in the shrinking of the meat: it was evident that the last killed was the fattest, and if there was any difference in the flavor of the meat it certainly was in favor of that last killed.

I may here remark that in North Carolina and Virginia, hogs designed to make bacon for our families' use, is preferred that will weigh 100 to 150 pounds each, consequently the greater number of hogs when killed, does not exceed the latter weight. Our method of curing bacon is, after the hogs are cold, take off the head and separate the ribs from the back bone, with an axe, split the hog open, take out the back bone, and flakes; then divide each side into three parts, ham, shoulder, and middling; trim the joints smooth; then to each ham or shoulder, put a tea spoon full of salt petre, rub it on the flesh side; then salt it well with common salt, made pretty fine, and pack it away in casks or in bulk:—in a week or ten days overhaul it, arrange the salt on the meat again, and if necessary add more salt, and lay it away again; in two or three weeks after, wash off the salt and hang it up and smoke it a brown colour, and let it remain hanging until used or taken to market.

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* Doubted by the Conductor.

If I can have hogs of about a year old, with small bone well covered with meat and fat, managed as above, whether the moon be old or new, or the wind blow from the north or south, when they are killed, I have confidence that I shall have good bacon, and that it will not waste much in cooking. Thy friend,

DAVID WHITE.

EXTRACTS.

On the Preservation of the Fruits of the Earth by Secluding them from the Action of Air, Water, and Heat.

[*From Chaptal's Chemistry applied to Agriculture.*]

The atmospheric air coming in contact with fruits deprives them of their carbon and forms carbonic acid.

Fruits exposed to the solvent action of water suffer decomposition by having the affinity existing between their constituent principles weakened, and at length destroyed.

Heat dilates the particles of bodies, and thus diminishes the forces of cohesion and attraction, and favors the admission of air and water.

The combined action of these three agents produces very speedy decomposition: the effect produced by any one of them is slower, and the results different. So that in order to preserve fruits from decomposition it is necessary to guard them from the power of these three destroyers.

In several European countries, particularly in the north, roots of all kinds are preserved merely by secluding them entirely from air, heat and water; this is done by digging deep ditches in a dry soil upon a spot a little elevated, and depositing in them the roots, which are afterwards covered over with a layer of earth of sufficient thickness to prevent them from suffering by the frost; over the whole is then laid a bed of straw, broom or fern, in order to protect them from rain and from the water of melting snows, which might filtrate through into the pit.

Roots, to keep well, must have their surfaces entirely free from moisture before being thus buried.

The roots have in themselves a preserving principle, which does not exist in a dead plant or one that has terminated its period of vegetation: they have as yet lived but a portion of their vegetable life; thay have not formed the seeds, which secure the continuance of their species; and to fulfil this great design of nature they profit by every circumstance, which can favor and confirm their vegetation; but when placed for a time beyond the action of air, water, and heat, their organs remain at rest till again excited by the presence of these powerful agents.

As dead bodies do not retain this animating principle, the energies of which are only suspended in roots, grains, &c. during the winter, so they suffer decomposition, though less rapidly, from the contact of air, heat, and water.

In the way of which I have just spoken, beets, carrots, potatoes, and many other vegetables may be preserved uninjured till summer.

A very simple method of preserving them at least free from decomposition, is, to heap them up in piles upon a very dry soil, and then to cover them upon all sides with straw enough to protect them from rain and frost: in England, this is esteemed the best method of keeping turnips.

Vegetables may likewise be preserved by heaping them up in barns to the height of five or six feet, care being taken to cover them well with straw or hay at the commencement of the severe cold weather. Should the roots in these heaps begin to vegetate, they must be removed, and thus their farther development checked.

Thomas Dallas has published some very important observations* upon the modes of treating potatoes which have been affected by the frost. With us such potatoes are rejected, as being unfit either for food or for furnishing fecula. The able agriculturist above mentioned considers them in three different states; 1st, when they are slightly touched by the frost; 2d, when the outer portion of their substance is frozen; and 3d, when they are frozen throughout.

In the first case he finds that nothing more is necessary, than to sprinkle the roots with lime to absorb the water formed under the skin, which would speedily occasion their complete decomposition. In the second instance he causes the potatoes to be pared and thrown for some hours into water slightly salted. When the potatoes are completely frozen, he finds them to yield, upon distillation, a spirituous liquor resembling the best rum, and affording much more alcohol, and that of a better quality, than can be procured from the roots before freezing.

The preservation of grains has always been an object of much consideration both to governments and agriculturists, and it is a peculiarly interesting one, because bread forms so large a portion of the nourishment of Europeans, and because the scarcity and high price of it have been the cause or the pretext for popular discontents and insurrections.

The art of preserving grains unchanged, besides obviating this evil, presents the additional advantage to the agriculturists of enabling him to make a good harvest, compensate for a bad one, by maintaining the price of bread stuff at a rate suitable alike for the consumer and the producer; and thus avoiding those periodical successions of high and low prices, of abundance or scarcity, which disturb social order, and give rise to excesses prejudicial to all.

It appears that the people of the most ancient times preserved their grains uninjured through several years, merely by secluding them entirely from the action of air and moisture.

The Chinese have from time immemorial preserved their grains in pits, which they call *teon:* these ditches are either hewn out in rocks, free from chinks and humidity, or what is still better, they are dug in a firm, dry soil. If there be any danger of humidity about the pits, they are lined with straw, or wood is burned in them to harden and dry the earth. The grain is not put into the pits till some months after the harvest, nor till it has been well dried in the sun; it is then covered over with mats made of the chaff of the grain or of straw, and this again by a bed of earth well beaten down that it may not be penetrated by water.

Varro, Columella, and Pliny inform us, that the ancients proserved their grain in ditches hollowed out of rocks or dug in the earth, the sides of them being lined with straw. Quintius Curtius relates, that the army of Alexander experienced great privation upon the banks of the Oxus, because the inhabitants of the country preserved their corn in subterranean pits, the situation of which was known only to those who dug them.*

I have several times had occasion to visit in Amboise what are called Cæsar's granaries, and from examining the place, I think there can be no doubt that it was intended for the preservation of grain. About thirty feet above the level of the waters of the Loire, there are dug in a dry and solid calcareous rock, deep and broad excavations arranged in three stages separated from each other by vaults. Behind the first excavations, there are formed others, and separated from them by a wall of rock six or seven feet thick, and within these are built, of brick and mortar, circular granaries of about fifteen feet in diameter: the upper part of the granaries is contracted, and the aperture, which is that by which they are filled, is covered over by a stone: the grain is taken from them through a hopper placed at the bottom. To avoid all dampness, the space contained between the walls of the granaries and those of the rock is filled with fine and very dry sand from the Loire. A gallery formed also in the rock communicates on one side with the granaries, and on the other with a staircase cut in the rock, which conducts directly to the banks of the river. It would seem that the excavations served as magazines of stores for daily consumption, and the granaries for reserved supplies. It is difficult to conceive of any arrangement more suitable for preserving grain, or of a situation more favorable for obtaining or for transporting it.

In some warm and dry countries, it has been customary from time immemorial to preserve grain, with less precaution certainly than in the granaries above described, but in situations where it could be kept for six or seven years. Prosper Alpinus relates, that not far from Cairo there was a high wall built, enclosing a spot of ground of about two miles in circumference, which was filled every six or seven years with heaps of wheat: he adds, that the abundant dews of night softened the outer portions of the grain and caused it to germinate but that in a short time the sun dried the young shoots, which then formed a hard covering to the mass, and did not permit either air or moisture to penetrate it. In a similar manner individuals may preserve their grain upon floors in the open air, merely by covering the heaps of it with mats.

In the Basilicata, according to the report of Intieri,† the farmers form their corn into heaps upon the borders of the sea; these are soon covered, in consequence of of the rains, with a strong vegetation, which forms over them a layer impermeable by air or water. * * *

The grains which are consumed in Algiers and Tunis, or which are exported thence, are, after having been well dried in the sun, deposited in trenches cut in the rocks, and having their sides lined with straw. The Count of Lasteyrie has found the same mode followed in Malta, Sicily, Spain, and Italy. There are even some countries where the governments have caused trenches to be constructed, in which the cultivators of lands might deposit their harvest till a favorable season for selling them.

In order to secure a perfect preservation of the grain in trenches, it is necessary to make use of certain precautions, without which the entire loss of it must be hazarded: the means of security are as follows.

1st. The grain should never be put into trenches till it is perfectly dry; it must therefore be first exposed to the sun for several days, and during that time be often turned, that every part of it may become equally dry.

2d. In constructing the trenches, choice must be made of a dry soil, or a rock free from chinks, that there may be no danger either from dampness or the filtration of water. The walls of the trenches may be made with such cement as the Romans used in the construction of their aqueducts; this is composed merely of lime and pebbles; the walls of these aqueducts were raised in frames, and the surface of them carefully polished; I have visited the remains of some of them in various parts of France, and have found them everywhere present the same appearance; I am convinced that this cement is impenetrable by water, and of a solidity more than sufficient for constructing the sides of trenches.‡

3d. The third precaution consists in excluding the air completely; if this fluid should gain admittance, it must necessarily convey in at the same time moisture and oxygen, the two principles of germination; the presence of air will likewise favor the existence and multiplication of insects: whilst if the trench be full of grain and well closed, all the air which it contains will be changed into carbonic acid, (as I have explained in speaking of the action of air upon fruits,) and the insects will remain torpid. This last assertion is, as we shall shortly see, supported by the results of the experiments which have been made by the Board of Provisions of War, for the purpose of ascertaining the best mode of preserving grain.

But the construction of these trenches, as it involves some expense, and requires much care, will be for a long time rejected by mere farmers. However advantageous this arrangement may be, it belongs entirely to public authorities, great cities and governments, to set an example of the use of it, by withdrawing from circulation, during years of abundant harvests, large quantities of corn to be deposited in trenches and preserved against years of scarcity. Much has been written within a few years, upon the best methods of preserving grain; but all those that have been proposed were founded upon the same principles.

The Board of Provisions of War, under the direction of Count Déjean, has performed a series of well directed experiments, from which excellent results have been obtained: the apparatus used in them consisted of lead receivers hermetically sealed and having all their joinings soldered. Meal and grain full of weevils were enclosed in three receivers; when these were opened, at the end of a year, it was found that no injury had been done by the weevils; they were all either dead or in a state of torpor. In one of the receivers there was found a collection of grains adhering to each other in a mass about as large as a middling sized apple; this arose from the entrance of air and moisture through a hole the size of a pin, accidentally left unsoldered in one of the joints.

The elder M. Ternaux caused trenches to be formed and filled with Corn in the beautiful field of Saint Arven; in order to be sure of the preservation of the grain, he caused the trenches to be opened from year to year, and the results were always satisfactory.

Corn, well dried and guarded from air and moisture, may be preserved in the ear for a long time, and it is a well-known fact that in some agricultural countries the sheaves are formed into stacks which are taken down either for consumption or the market, at those times when the laborers upon the farm can be employed only in threshing in a barn.

Instead of constructing trenches of stone without the farm buildings, there might be built, within them, bins of stone, of a size proportioned to the produce of the farm, and with the openings covered in such a manner as to exclude the air. The same purpose may be answered by chests and tubs of wood having their outsides covered with a thick coat of oil paint. The great earthen jars in which oil is kept at the south, are likewise very good for keeping grain in.

Either of these methods is preferable to that of storing grain in such granaries as are commonly used, since the utmost care will not entirely protect it from moisture, insects, mice, &c. nor will it often remain in them unchanged beyond three or four years.

Corn which is housed without being thoroughly dried, or which is stored in a damp place, acquires a musty smell and taste, which render it unfit for the customary uses: but as this alteration affects only the outer covering, and not the substance of the kernel, it may be easily removed by throwing upon the grain double its weight of boiling water, carefully stirring the mass till the water becomes cold. The spoiled kernels which swim upon the top, must then be removed, the water poured off, and the grain spread to dry. M. Peschier preferred employing for this purpose boiling water rendered slightly alkaline, and afterwards washing the grain in pure water.*

When corn has been heated or injured in a perceptible manner, the vegeto-animal portion is almost always changed; in this case the farina is not susceptible of a good fermentation, and the bread made from it is unwholesome: such grain is fit only for the manufactory of starch.

The modes of preserving vegetable juices and other articles of food deserve also much attention.

The substances of which I shall now speak present the alimentary principle so mixed with, or dissolved in the aqueous fluid, as to render them exceedingly susceptible of alteration and decomposition. It is not sufficient to seclude these from the air, since they contain for the most part within themselves those principles of fermentation, which, acting upon each other, produce decomposition.

Seclusion from the air alone will not preserve these substances; the nature of some of the fermentative principles must be changed; and for effecting this I would recommend the preserving process made use of by M. Appert and confirmed by numberless experiments. I shall here only make mention of the mode of preservation; as the work of M. Appert is before the public, it may be consulted in regard to the necessary details respecting each operation.†

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* Bibliothèque Universelle, Art. *Agriculture*, Vol. II, p. 123.

* Des Fosses propres à la Conservation des Grains; par M. le comte de Lasteyrie.

† Della Perfetta Conservazione del Grano; 4to. p. 12.

‡ The mode of building may be used which the Count of Lasteyrie has proposed in his work entitled, Des Fosses pour la Conservation des Grains.

* Annales de Chimie et de Physique, tome VI. p. 87.

† Le Livre de tous les Ménages, on L'Art de conserver pendant plusieurs a nées toutes les Substances Animales et Végétales. 1811, 2e édition; par M. Appert.

The process consists,

1st. In putting up, in glass jars or bottles, those solid or liquid substances which are to be preserved.

2d. In corking the bottles carefully.

3d. In placing these vessels upright in a boiler filled with cold water, as high as the ring of the bottles.

4th. In causing the water to boil, and continuing the ebullition for a longer or shorter time, according to the nature of the substance contained in the vessels.

In this process we see that nothing more is required than a boiler and some bottles or jars; it is one that may be practised in the smallest domestic establishment. In order however to avoid accidents and insure success, certain precautions in each part of the process are necessary: the principal of these, especially those that are indispensable, I shall here point out.

The choice of bottles is a matter of some consequence: the form of the champaigne bottles is the best, and as the glass of these is of a more uniform thickness than that of others, it is generally better annealed; these bottles then should be preferred, particularly if they have proved their soundness by having resisted the action of the compressed air contained in foaming wine.

Too much care cannot be taken in the choice of corks; only the superfine should be used, and these should be free from defects. The length of the corks should be at least eighteen or twenty lines, and the diameter a little greater than that of the mouth of the bottles, into which they must be forced by blows of a mallet.

The bottles must be filled within three inches of the ring; the corks selected for them must be softened a little in water; in stopping a bottle, put the small end of the cork into the mouth of the bottle, and force it in as far as possible with the hand; then wrap the bottle in a towel, and, holding the neck of it firmly in the left hand, drive the cork in by repeated blows with a mallet; a few lines of the length of the cork must be left beyond the mouth of the bottle to receive the wire or twine with which it is to be secured. Each bottle is then to be put into a bag of strong linen, which will cover it to the cork, and placed in a boiler filled with water to the rings of the bottles. The boiler is to be covered, and over the lid must be placed a damp linen cloth, to secure the retention of the heat. The apparatus being thus prepared, the water may be heated to boiling, and continued in that state as long as the nature of the substance to be preserved requires.

When the fire has been removed from the fire-place a quarter of an hour, the water must be drawn off by means of a siphon, or of a stop-cock placed near the bottom of the boiler; the cover must not be removed to take out the bottles till fifteen minutes after the water has been drawn off.*

When meat or other solid food is to be preserved, wide mouthed bottles or jars may be used in the same manner as the narrow-necked bottles mentioned above.—Good gravy of meat, and beef three-quarters cooked, when prepared according to the foregoing directions, have been found as good after being eighteen months at sea, as when first put up. Attention must be paid in putting up solid articles in bottles, to pack them closely, in order that as little air as possible may interpose between the pieces. *Consommés,* strong decoctions,† and jellies of meat containing all those portions of it most nourishing to man, may be thus preserved uninjured for a long time.

Before milk is put into bottles for keeping, it should be evaporated in a water or vapor bath, and the scum which forms upon the top carefully removed; half an hour before evaporation is completed, there should be mixed with every pint of the reduced milk, the yolk of an egg well beaten. After being thoroughly cooled the milk must be put into bottles, and corked tightly to undergo the second scalding. Milk preserved in this way has been found at the end of two years to be unchanged, and to afford butter and butter-milk the same as if new. It is not however pretended, that it preserves all the qualities of new milk; it almost always has a peculiar odor and taste, but such as it is, it forms an agreeable and a valuable article for sea stores for long voyages.

Cream evaporated one fifth-part and put into bottles after having had the skin coagulated upon the surface removed from it, and then subjected to a second scalding for an hour, has not been sensibly altered at the end of two years.

Those vegetables of which so much use is made in all families, may be preserved in the same manner; they are, however, boiled a shorter time, and some of them must previously undergo a degree of preparation. For instance, in preserving asparagus it is necessay, after having washed it, to plunge it first into boiling and then into cold water, to deprive it of its acrid taste; it afterwards receives but a slight scalding.

To preserve the color of the small bush-beans, bottles filled with them are plunged into very cold water where they remain for an hour; they are then drawn out, corked, wired, and scalded for an hour. Artichokes, after having had boiling water poured over them, are washed in cold water, drained, and scalded in the bottles for an hour. Cauliflowers are prepared in the same way as artichokes, excepting that they are boiled but half an hour. Legumes in general, prepared and seasoned, and put into bottles when three-quarters cooked, will keep very well with being scalded twenty minutes.

Antiscorbutic plants, and the juices which are extracted from all fruits and vegetables require only to be scalded. When juices are to be kept, they should be carefully strained and clarified; plants require to be well washed, picked, and dried, and to be crowded into the bottles. When any of these preparations are made use of, they should be dressed in such a manner as to give them the appearance of those prepared daily in our kitchens.

Those articles that have been cooked before being put into bottles, only require to be heated.

The strong decoctions will need the addition of nothing but water to become good broth.

The jellies of beef, veal, mutton, chickens, &c. when diluted with water, and seasoned with salt, make excellent soups.

The legumes must be washed upon being taken from the bottles, and then prepared as if fresh.

The juices may be appropriated as usual, either for food, drink, or medicine.

I shall close this article by observing, that some bodies are preserved from destruction, and guarded from the attacks of insects, and the action of air and water, by means of a coat of varnish laid upon the surface of them; this practice has become very common, and when the varnish is applied to bodies well dried, and does not scale off, it preserves them a long time. Oil paints and tar produce the same effect.

The custom of preserving eggs by immersing them in lime water has lately been introduced into Paris; the shell of the egg thus immersed becomes covered with a thin coat of lime, which preserves its contents unchanged.

[* The translator of this work has preserved the most delicate fruit by a process somewhat similar to the one here described, but with one pretty important difference. As the preservation of the fruit seems to depend wholly upon the exclusion of the air, which would not be effected by corking the bottles before exposing them to heat, and as the bottles would be in great danger of being burst by the expansion of the air contained not only in the fruits themselves but in the interstices which must unavoidably occur between them, the above method appears to be an imperfect one; she therefore takes the liberty of inserting in this note the process which she has used successfully, and particularly as she has found fruit thus preserved exceedingly grateful in sickness at those seasons of the year when no fresh fruit could be procured, and when that which was done with sugar was neither suitable nor agreeable.

Pick carefully over the fruit to be bottled so as to take only such as is perfectly sound, and put it in bottles having wide mouths with closely fitting corks, shake the fruit well down so as to leave as little space unoccupied as possible in the bottles; when they are quite full, set them uncorked into a boiler of cold water over the fire, raise the temperature of the water as quickly as possible to the boiling point, and as soon as ebullition takes place, put the corks into the bottles, and remove them from the boiler; some ready melted cement, such as is commonly used for closing bottles, must be immediately applied over the corks, and the fruit having been freed by the heat from the air contained within the bottles will thus be protected from the action of the external air, and may be preserved fresh for many months.—Tr.]

† Answering to "portable soups."

Memoir on the Classification of Soils.*

BY M. DE GASPARIN.

[*From the Edinburgh New Philosophical Journal.*]

It is undoubtedly a matter of surprise that in an art which engages the attention of so many distinguished men,—which is the great basis of national prosperity, and which excites so many different energies, a name has not yet been devised for the expression of the different qualities of earth which form the theatre and principal material in all its operations. Attempts have been made to confer upon it a nomenclature, one of the first requirements of a rising science; but before success can be obtained, it must make the same attainments that the other natural sciences have recently done. For the discovery of the appropriate characters of his classification, the author has directed a particular share of attention to Chemistry and Natural Philosophy, to Microscopic Observation, Geology, and Botany; and the soils have been analyzed, experimented upon, and observed in relation to all these sciences. As it is impossible, in this place, to enter at length upon the consideration of these laborious researches, we must confine ourselves to the citation of some of the facts which result from the investigation. 1st, The author points out the small quantity of carbonate of lime which is sufficient to change the character of soils. It is known that the five or six per cent of this substance which is supplied by marling, produces very remarkable effects, whilst the one-hundreth part which is contained in the soil of Lille, as analyzed by M. Berthier, likewise sensibly affects its nature and vegetative power. Lime gradually disappears from soils, being changed into a bicarbonate. The enclosure of *la grande Chartreuse,* which is formed of the debris of rocks which contain lime, does not now furnish a single particle of this earth. 2d, The carbonate of magnesia modifies soils in the same way as the carbonate of lime. This earth is contained in great quantities in the soils of the valley of the Nile; and those of *Bas-Languedoc* often furnish from eight to thirty-three per cent. 3d, It has often been attempted to ascertain the characters which distinguish those soils in which gypsum produces an effect upon vegetables, and those in which it has none; but hitherto without success. The author has ascertained that gypsum has no action upon recent alluvial soils, and that it produces a beneficial effect upon all more ancient soils, beginning with the diluvian. 4th, He has found sal-ammoniac in all the clays belonging to the vegetable stratum of soils.—This observation shows the importance of clay as a magazine of the materials which favor vegetation. 5th, If by washing we separate into several portions the coarser and finer parts of earth, we find that the tenacity of such soil is in proportion to the quantity of the latter kind, except in a small number of cases. 6th, Upon examination with the microscope, it is ascertained that these exceptions are owing to a coating of ferruginous clay which adheres to the surfaces of the mineral particles,—that washing separates it with difficulty, and that it serves as a cement, forcibly agglutinating, and increasing the tenacity of the whole.

On the Principles of the Classification of Soils.

If we study the objects which we find in nature, that we may know them as they really are in themselves, under all the relations of their organization and their properties, it is in their innermost existence,—in the relation of their parts,—in their resemblances and dissimilarities, that we must seek for the means of grouping them together, without any regard to the circumstances which are foreign to their peculiar and proper existence.

It is thus that Jussieu established the several families of plants, Cuvier those of animals, and M. Beudant his orders of minerals. Each of their groups collects together the beings or the substances which bear the closest resemblance to each other, under all the appreciable relations of their organization or of their texture, but without intermingling therewith any idea concerning their utility, which could only be considered as foreign to the subject; and this forms pure natural history.

But if we regard it in another point of view, if it be not the being or the substance in itself which we wish to study, but only such and such a property of the object, the classification then ceases to be a natural method or arrangement, and becomes a common classification.—Accordingly, when we would study plants in an agricultural point of view, the consideration of families should not mislead us; as it would be impossible to establish any one agricultural principle which would be common to an entire family. That of the Gramineæ, for example, presents us with oats, wheat, rice, and the sugar-cane, which require different cultures, and serve for very different purposes. Besides, the number of plants which are the objects of agricultural interest is small, and were we to conduct a course of agriculture, according to the order of families, we should have only shreds of these families, which, detached from their natural alliances, would exhibit nothing but disorder, so soon as the intermediate links were withdrawn which maintain the order of their connection. What, then, under these circumstances, is to be done? The answer is clear,—we must combine together the plants whose kind of cultivation has the greatest analogy, and we should thus have, for example, 1st, trees; 2d, the trees and shrubs which yield an annual crop (such as fruit-trees, mulberries, vines); 3d, the feculent grains (wheat, oats, buck-wheat, &c.); 4th, the plants with oily seeds (the poppy, colza); 5th, the plants which yield fodder (lucerne, spurry, ryegrass); 6th, plants used in weaving (lint, hemp); 7th, plants used in dyeing (dyer's woad or glastum); 8th, the oleraceous plants (pot-herbs, spinage, chiccory); 9th, roots (beet, carrot, madder,) &c. &c. According to this method, classes are formed in which the natural affinities of plants are often broken, but which, on the other hand, present another kind of affinities, such as proceed from their mode of culture. They are, therefore, natural classes in relation to farming, whilst they cease to be so considered in the light of natural history. This is a method which has been followed in regard to medical substances, articles of food, &c. Chemistry itself classes natural bodies in a manner different from what mineralogy does, because the view it takes of them is different. Thus, not only the practical arts, but the pure sciences themselves, modify classification, according to the object they have in view, without at all changing the natural relations of bodies; they determine that one of their properties which ought to predominate in the order they impose.

In agronomy, therefore, it is no longer simple substances, or bodies in their individual condition, such as a plant, or crystal, we have to examine; but it is mixtures of many of these substances, of which we form individuals only by abstraction, as we do in rocks, formed as they are by the union of many minerals. But this intellectual operation which regards the habitual union of several substances and forms from them one collective being, is much more natural in practice, than that which would consist in considering in granite only the three minerals which compose it, without regarding their aggregation; and still more than that which, decomposing these minerals into their last chemical elements, would remove granite from mineralogy, and view it only as a compound of oxygen, silicium, aluminium, potassium, magnesium, and iron. It is thus too with soils, although some may present only a single mineral element, as for example, silex; and though others, as much oftener happens, contain many, and these associated with vegetable and animal debris. We can consider abstractedly each of these mixtures as a pulverized rock, and deal with it, as we do with rocks, in forming a systematic whole.

After having thus demonstrated that both reason and custom authorize us to propose a classification of soils with a special relation to agriculture, we may examine; 1st, what the characters are which agriculturists should examine in soils; 2d, the relative value of each of these characters; and, 3d, their application to classification.

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* Report of a communication presented to the French Academy of Sciences. This Memoir is the first part of a work upon Agronomy, which is that branch of the science of agriculture which has for its object the study of soils; what belongs to their susceptibility of cultivation, and to their relative value, is reserved for another publication, the author confining himself on the present occasion to the consideration of their classification.

§ I. *The Characters of Soils in relation to Agriculture.*

When an agriculturist devotes himself to the investigation of a soil, it is a matter of indifference to him whether it is composed of alumina or silica, or whether these substances are in the state of quartz or felspar, or that by their aggregation they form the debris of granite, or finally, that they belong to primitive, transition, or alluvial formations: what he requires, is to know what kind of plants the soil will produce with the greatest advantage, the trouble it will require to put it in a state of culture, the manuring it will need, the quantity of this manure it will yield to the plant, and the portion it will retain in its own substance, these are its agrcultural characters,—those which adapt it to the objects of agronomy, and which shed light on his researches.

What we have already said of the composition and properties of soils, demonstrates that certain of their scientific elements have a relation to the properties which are inquired after by agriculture. Thus, as to the nature of the crops which may be expected from different soils, those which contain carbonates of lime and magnesia are eminently qualified to produce wheats and leguminous crops; the siliceous clay-lands are the soils peculiarly adapted to forests; the siliceous are proper for plants which vegetate in winter, as rye, &c.; mould favors the vegetation of those pot-herbs which are cultivated for the stems, leaves, &c. As regards the facility or difficulty of working soils, those that are siliceous are easily dressed, as well as those which have an organic origin; whilst calcareous and clayey present great differences in this respect, according to the diversity of their composition. Finally, sandy and calcareous soils require frequent manuring, and this addition they decompose to the immediate profit of the plants, whilst clayey ones retain the manure, may have the process of manuring postponed to greater intervals, and receiving at the same time a larger quantity of manure. Diluvian soils admit of improvement with gypsum, and siliceous clays with marl; whilst lands rich in organic matters require the dung of animals to facilitate and promote the decomposition of the mould.

Thus, we find in the mineralogical characters we have examined in detail, whether physical or geological, certain relations with the agricultural characters. There are whole groups of soils whose natural characters answer to those agricultural characters, and reproduce properties which are common to them all. After having recognized and distinguished them, we must next recognise those of them which from their importance and generality will most naturally form the primary groups.

§ II. *Relative Value of Characters.*

For the appreciating of the relative value of the agricultural characters which we have enumerated, it is necessary to discover which amongst them is the most indispensable, and those whose absence would be most hurtful to agriculture; the degree of their importance and necessity will then indicate the relative subdivisions.

The appropriation of lands to the different kinds of cultivation seems to possess these qualities in the highest degree; and here, in fact, must begin every kind of agricultural improvement. It is only after having destined a particular soil to an appropriate culture, that we can begin to consider the labor and improvement it requires. These labors and improvements will be without an object and a bearing, if we are still ignorant of the plant to which they would be useful. And, moreover, this investigation of the appropriation of soils to particular cultures, is connected with the most natural classification, in a mineralogical point of view; it breaks the smallest number of affinities, and consequently renders the determination of soils more easy and more satisfactory.

The labor required for bringing the soil into good working condition, is also a matter of great importance; for if the appropriation of soils decides the phytological or botanical part of the question as to cultivation, this other consideration bears on the question of economy. It modifies the plan of regulating the soils which might be determined on from the first consideration taken by itself: it has also a very decided influence upon the choice of the means to be employed in overcoming the resistance upon the number and kind of animals, and upon the implements to be procured. But were this circumstance taken as the primary basis of the classification, we should then break all the natural affinities of soils; for all the mineralogical kinds are, in a greater or less degree, susceptible of tenacity. Besides, it is evident that this greater or less degree of facility in working soils, dissociated from their capability of producing the most useful plants, is a quality of very little value; that it is of no great moment, for example, that we can easily labor a dry sand, and a rich marl only with difficulty; and that, in short, in the examination of an estate, it is the character of the plants we inquire about, before we calculate the expense of their production.

As to improvements, and the necessary means of enriching vegetation, they are without doubt the sign and consummation of good farming; but their use is much less frequent than it ought to be: most lands are cultivated without their aid; and we cannot, therefore, consider an exception which, we trust, will soon cease to be one, in the light of a character so general as the preceding.

Upon the whole, therefore, we establish the subordination of the agricultural characters which ought to be considered in soils, in the following method:—1st, The appropriation of soil to plants; 2d, the tenacity of the ground; and 3d, the aptitude of the soil to receive certain kinds of manures or improvements.

§ III. *Primary Classification of Soils after their appropriation to particular cultures.*

The Cerealia are every where throughout Europe the basis of rural operations. They succeed more or less in all the soils which supply them with a firm support, and which at the same time allow the air to penetrate to their roots; ranging from sandy soils which do not contain less than 80-100 of sandy or rocky materials, to stiff clays, provided that the soils do not contain 2-100 of sea-salt, or any sulphate of iron. The soils or pure mould are also excluded from this kind of cultivation, from the defective cohesion of their elements, and their frequent change of volume. Allowing for these exceptions, there are three principal groups of soils. 1st, the saliferous; 2d, the sandy, which contain even as much as 8-10 of sand or of rock; and, 3d, organic soils, which contain ¼ of mould. This division, it should be remarked, agrees not only with the results of the mineralogical study of the soil, but also with its tenacity; and hence it is perfectly natural.

There remains, moreover, a great number of soils in which wheat thrives, when they contain, besides, a sufficient quantity of organic matter; but they are not all equally favorable. For its successful cultivation, those which contain only silex and clay must have lime added, a principle without which they will scarcely yield any return. As soon as this is supplied, their product immediately increases in a remarkable manner, to the extent of a fourth, a third, and even a half. The vegetation of the Cerealia, therefore, indicates a grouping which subdivides lands into soils containing carbonates (of lime or of magnesia, the latter supplying the place of the former), and into silico-argillaceous, or clayey soils, which do not contain carbonate of lime or of magnesia. Hence the agricultural principle is, in its turn, in agreement with the principle drawn from improvements, and no longer with that of tenacity; for in these two classes of lands, we find that, according to the proportion of the mineral principles which they contain the soils possess a different degree of tenacity.

Other kinds of culture confirm this view. Fruit trees thrive admirably in siliceous and clayey lands, and these are generally the soils of forests; leguminous plants prefer soils in which there is a carbonate, and then they appear naturally; and it is only in the same circumstances that dye-plants afford vivid colours.

We have already remarked, that we cannot avail ourselves of the characters which are drawn from the tenacity of the soil, without destroying the groups which we had previously formed. We can, however, reserve them for the formation of secondary groups, which will subdivide the primary classes. It will be the same thing with those which are derived from the property which gypsum possesses of rendering certain soils eminently productive of vegetables; but we have seen that it is the geological position of soils, more than their composition, which has hitherto contribted to designate them. But each of our groups contains earths of different geological formations, so that we should run the risk of breaking them up if we were to introduce this consideration into the formation of our primary groups; and, upon the principle above insisted upon, this character will rank after the one derived from tenacity.

These principles being allowed, we now proceed to the exposition of the classification of soils, which they snpply.

FIRST DIVISION.—*Soils having a Mineral Basis.*

Character.—These soils do not lose a fourth of their weight upon heating them till they emit no more vapor.

FIRST CLASS.—*Saliferous Soils.*

Character.—Soils with a salt or styptic taste, containing at least 0.005 parts of hydrochlorate of soda, or sulphate of iron.

1*st, Saline Soils.*—Water digested with these soils, gives a precipitate with nitrate of silver.

2d, Vitriolic Soils.—Hydrocyanate of potass gives a white precipitate with the ferruginous salt which is contained in the water digested with this soil.

SECOND CLASS.—*Siliceous Soils.*

Characters.—Producing no effervescence with acids; affording by levigation at least 0.70 for their *premier lot.**

THIRD CLASS.—*Clays.*

Characters.—Not yielding effervescence with acids, and affording by levigation less than 0.70 of the first portion

FOURTH CLASS.—*Calcareous and Magnesian Soils.*

Characters.—Producing effervescence with acids; lime, or magnesia, or both, are found in the solution.

FIRST SUB-ORDER.—*Chalks.*

Characters.—Leaving no residue after the action of the acid, or only leaving a siliceous residue less than 0.50.

SECOND SUB-ORDER.—*Sands.*

Character.—This soil contains at least 0.50 part of siliceous or calcareous sand, which does not escape from a sieve whose division or holes are the 0.02 of an English inch in diameter.

THIRD SUB-ORDER.—*Clays.*

Character.—This soil leaves a residue of 0.50 of clay after effervescence and levigation.

FOURTH SUB-ORDER.—*Marls.*

Character.—After the action of acid, a clay remains whose levigation does not remove more than 0.10 of free silcx.

First Section.—Calcareous Marls.

Character.—Having at least 0.50 of carbonate of lime or magnesia in their composition.

Second Section.—Argillaceous Marls.

Character.—Having at least 0.50 of clay.

FIFTH SUB-ORDER.—*Loams.*

Character.—After the action of acid, the residuum presents clay and free silica, which, by their levigation, give each more than 0.10 of the weight of the soil.

SECOND DIVISION.—*Soils with an Organic Base.*

Character.—Losing at least a fiftieth of their weight when they are heated till they do not emit more vapor.

FIRST CLASS.—*Fresh Mould.*

Character.—The water in which this mould is digested or boiled does not redden litmus paper.

SECOND CLASS.—*Acid Mould.*

Character.—The water in which this mould is digested or boiled reddens litmus paper.

In each of these classes, the *genera* are formed by the consideration of the tenacity of the soil, which is so very important an element in its characters.

The work concludes by laying down rules for the description of *species,* and with *examples* of all the methods of description. In reading these, we at once perceive how precise an idea of soils is conveyed in a manner that cannot be misunderstood by any agriculturist.—The possibility of transmitting these clear and pointed descriptions to a distance, follows as a matter of course; and we shall in this manner be freed from all that vagueness which has been so long a just cause of complaint.

"If I have succeeded (concludes the author) in what I have proposed in writing this book, the study of agricultural treatises will be greatly facilitated; the different methods which are followed in distant countries will no longer appear so marvellous, and will become more intelligible; we shall comprehend better the considerations which limit or extend the several cultures, and a necessary link being established between the science of agriculture and other natural sciences, it will become more intelligible to all, and will more readily profit by the progress of all the other branches of human knowledge."

Upon the Respiration of Plants.*

BY MESSRS. EDWARDS AND COLIN.

In the interesting science of vegetable physiology few or no facts are to be found more beautiful than those connected with the respiration of plants. The same remark, however, can by no means be made concerning the theory which combines these facts, and undertakes to explain them. In fact, we have always experienced the greatest difficulty in admitting this theory, whether considered in relation to the respiration of the seed or of the leaves: and, in truth, scarcely any other phenomenon has been recognized in the respiration of the seed than the disengagement of carbonic acid. This is usually explained by the combination of the oxygen of the air with the carbon of the seed. According to this view, the seed is supposed to be affected only by the atmosphere; the influence of water in this vital act of plants is considered either as absolutely nothing, or is limited to that of preparation and promotion, and it is held in no way to contribute to the production of the gas which is disengaged. This, then, is the first difficulty respecting this theory of germination which presents itself; and those which occur in regard to the explanation of the respiration of the leaves are still more serious. During the night, it is said carbonic acid is disengaged, whilst during the day it is absorbed, and oxygen appears under the direct rays of the sun. Here, then, are the facts, and here the explanation which is afforded: the absorbed carbonic acid must be decomposed by the plant, which again must appropriate the carbon, and disengage the oxygen.

But this capability of decomposing carbonic acid is conferring upon the plant a power which it is very difficult to admit; and it is very seldom found in the mineral kingdom, where the very great simplicity of the composition of bodies increases their decomposing power, and where the much greater number of elements, scattered throughout the different compounds of this kingdom, renders it probable that we should discover some endowed with this property. Finally, water, according to this supposition, is of little or no use in this action, although it is absolutely required for plants, and we are perfectly ignorant of the part it plays. These are some of the considerations which have induced us to undertake the examination of this function in plants; to which we were also conducted by some facts brought under our notice in agricultural physiology, to which we shall solicit attention in the sequel.

Up to the present period, experiments upon the respiration of seeds have always been made in the air; or if made in water, the phenomena which occurred in the liquid have been limited to the explication of what took place in the air; the gas disengaged in the liquid has not been examined, and consequently its proportion has not been determined. What follows is an account of what we have done in relation to this point, and which has yielded very extraordinary results. Our operations were conducted on a great scale, that the effects of the experiments might be more distinctly brought out.

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* The "*premier lot*" comprehends the large particles which are deposited when the water in which the earth is dissolved, is strongly shaken.

* Read to the Academy of Sciences, Nov. 1838. From Annales des Sciences Naturelles, for December, 1838.

On this account, we selected for our operations a great ball-shaped bottle with a narrow neck, capable of containing six or eight pints of water. We filled this bottle, and introduced forty garden beans of a large size, without any fissure in the husk, or any other defect whatever. To this great bottle we adapted a bent tube, also filled with water, which finally was introduced into a receiver full of the same liquid.

By this arrangement, the beans were in contact only with water, and with the air which it contained, air which, under the circumstances, could not be removed; and this was one of those important circumstances which led to all the success of the experiments. The first phenomenon which presented itself was the disengagement of air-bubbles, which proceeded from the beans. These bubbles were at first very minute, insensibly they increased in size, and in the space of twenty-four hours they were very conspicuous.

This evolution of gas was itself a very extraordinary circumstance which had not previously been pointed out, and which scarcely seemed to agree with the received ideas upon germination; still less with the supposition that this disengagement proceeded from air contained in the beans; which idea soon became wholly improbable from the unceasing continuance of the disengagement of the gas, and to such an extent that it could not by possibility be attributed to this cause.

First of all, it is certain that the gas came from the beans themselves, for before we introduced them into the apparatus, we were careful to put them in water and shake them well, thereby detaching all the air which was attached to their surface. For a long time after they were plunged into the water of the bottle, no gas was seen to issue from their surface, and it made its appearance only by degrees. Besides, on other occasions when the beans were cut through, we have seen it proceed from the parenchymatous substance itself.—Many of the beans were actually made to float by the air-bubbles which adhered to them, and fell to the bottom so soon as the bubbles burst.

After a period, which was never less than four days, we put an end to the experiment. Our first care was to weigh the beans, that we might thereby determine the quantity of water which they had absorbed, and we invariably found that it exceeded their own weight. In reality, the mean weight of the beans employed was 1,540 grains (avoirdupois), and the moisture which swelled them amounted to about 1,848 grains.

The most essential point of all in this investigation was to certify that the beans were alive, and in a state of germination; for it is evident that it is a condition which must indispensably be established, that the disengagement of the gas which is effected in the water is the result of a natural and normal function.

When taken out of the liquid, some of the beans had a chink opposite to the point where the radical is situate; but there were only three or four in this condition.

If the beans were living, the function was normal; so we planted them, that we might have an apportunity of comparing them with the same number of other beans which had not been subjected to any experiment, and we had the pleasure to see them spring up quite as well as these. The best method, however, of conducting the experiment is to keep them in moistened paper between two plates. Next day, during summer, they had all completely germinated, and the radicals had projected some four or five lines.

As to the production of the gas, we shall observe that that which was disengaged, traversed the water, and passed through the tube into the receiver, was only the sign of the function; and nothing more than the overplus of that which was dissolved in the water at the moment it was formed; it must also have been in very small quantity. The proportion of air which had traversed the water without being dissolved by it, amounted to between 20 and 40 millilitres; but that which was dissolved in the water, and which was disengaged by boiling, was very considerable, and might well, as it did, surprise us.

The whole interest of the experiment here depends upon the quantity of the air naturally contained in the water, compared with that which had been produced by the seed. Accordingly, we made many experiments to ascertain the proportion of air contained in the water of the well which we used; and we found that the water in our bottles before the experiments, as the mean of our observations, contained 7.5 centilitres of air, and after the experiment 55.5 centilitres, in an experiment of five days' continuance. Hence, after subtracting the air naturally contained in the water, we find 47.7 centilitres of gas, produced solely by the action of the water and the beans. The result of another experiment, which lasted for six days, after making the same subtraction, was 50.5 centilitres of gas, produced above the quantity of air naturally dissolved in the water of the bottle. There was, therefore, disengaged by the sole action of the seeds and the water, after subtracting the air which the latter contained, more than half a pint of gas; a very remarkable effect, and which, when seen on so great a scale, leaves not the slightest doubt as to the action of water in the respiration of beans, abstraction being made for the air contained in the liquid.

Our next object was to ascertain what information analysis would give us respecting the nature of the gas supplied by the seeds. And first, there was an enormous proportion of carbonic acid. Of the 55 centilitres produced by the experiment of five days' continuance in summer, 48 were carbonic acid. 2dly, An infinitely small quantity, 2.5 millilitres was oxygen, and about 3.5 centilitres, which appeared to be nitrogen. In short, there was, 1st, an enormous quantity of carbonic acid; 2dly, scarcely any oxygen; and, 3dly, a quantity of gas, which, in the mean while, we shall regard as formed entirely of nitrogen, and which amounted to somewhat less than the quantity of air contained in the water.—On another occasion, we shall consider whether any other gas was present.

Whence, then, proceeded this enormous quantity of carbonic acid, in the production of which the air contained in the water must be counted for nothing? It is clear, that since the oxygen does not proceed from the air dissolved in the water, it must be derived from one of the elements of the water itself. The water, therefore, is decomposed; the oxygen, one of its elements, unites itself to the carbon of the seed, and forms the carbonic acid which disengages itself in whole or in part; a question into which we shall enter upon another opportunity.

It now remains to inquire what becomes of the hydrogen, the other element of the water? We suppose, for the moment, that there is no trace of it, as we have stated provisionally above; and since it is not disengaged, it must evidently be absorbed by the seed.

Hence, the results which follow from the experiments which we have detailed, from seeds placed in the conditions stated, are, 1st, that the water is decomposed; 2d, that the oxygen of the decomposed portion, unites with the carbon of the seed, and forms carbonic acid gas; 3d, that this carbonic acid disengages itself from the seed, in whole or in part; and 4thly, the other portion of the decomposed water, the hydrogen, is absorbed by the seed, in whole or in part. These are the four fundamental propositions regarding the respiration of seeds, to which we shall confine ourselves on the present occasion.

It is not a matter of very great moment to ascertain whether all the carbonic acid is completely disengaged. Nor is it of more consequence that we should know at present if all the hydrogen, rendered free by the decomposition of the water, is completely absorbed by the seed; subjects which, however, we shall discuss on another occasion. The great fundamental fact brought out by these researches is the decomposition of water, a fact quite foreign to the popular theory of the present day.

It also results from the facts which we have propounded, that respiration is not, as it has hitherto been considered, solely a function of excretion; but it at the same time exhibits, according as we have demonstrated, a fundamental fact concerning the nutrition and the development of the embryo by the absorption of hydrogen.

In addition to the respiration of seeds, a great variety of which we have examined, we have also investigated that of bulbs, twigs, leaves, and flowers, the results of which we hope to have the honor of presenting to the Academy. We may, however, remark, that the facts detailed in this memoir, regarding the respiration of the seed, form the basis of the respiration of other parts of the plant, as will be more clearly exhibited in the sequel, as well as the part which the air plays in this important function.—*Edinburgh New Philosophical Journal.*

Visit to the Farm of Elias Phinney, Esq. of Lexington, Mass.

[*From the New-England Farmer.*]

We have in the farm of this gentleman substantial proof of the efficacy of "book farming." He assured us that his interest in agriculture was first awakened by reading the N. E. Farmer. Having received a classical education, he has to be sure, the advantage of our farmers in general, for whom so little has been done by education—we were prepared, therefore, in viewing his premises, to witness something a little extra, from what may be seen on well cultivated farms in general: but we found that our expectations had not been raised sufficiently high: we were in fact delighted and astonished to be made acquainted with the wonderful improvements which have been effected on this place since he began to cultivate it, fourteen or fifteen years since.—It was then a poor worn out farm, covered with rocks, whortleberry bushes, and scrub oaks; while the lowlands were inaccessible quagmires and alder swamps of the most unpromising description—the whole farm, consisting of 160 acres, not affording more than 8 or 10 tons of hay, and all other crops in the same proportion—the fences out of repair—the fruit of an inferior quality, fit only for cider—and every thing upon the place at sixes and sevens, as the saying is. It does not seem hardly possible that so much could have been achieved in so short a time. It shows what can be done by untiring diligence directed by science. It is a a complete triumph of "book-farming" over the old course of husbandry, handed down from father to son. Mr. Phinney has had the boldness to strike out of the old path, and in some instances pursue a course of his own invention. His improvements may be divided as follows:

1st. In planting upon the green sward without disturbing the sod.

2.d In clearing and draining his waste swamps and quagmires, and converting them into the most productive grass and cornfields.

3d. In clearing his uplands of rocks and laying them into walls of the most durable and massive description subduing the bushes in the unproductive pastures, and bringing them into fertile fields.

4th. In his orchard of apple-trees, which for beauty, thrift and produce, can hardly be excelled.

5th. In his choice collection of fruits of every desirable variety.

6th. In his improved breed of swine.

7th. His barns and accommodations for cattle, swine, poultry, &c.

To which may be added, many other improvements of minor importance, but which add to the interest, beauty, and profit of the place.

The idea of planting upon the green sward without disturbing the sod, has been ridiculed by a writer in the N. E. Farmer, vol. 17, page 317, as being impracticable, especially in the potato crop. We saw an example of this operation, and one too of a most perfect kind, which we should suppose sufficient to convince the most sceptical. It was in a lot of three acres of potatoes. On the 20th of June, there was a heavy crop of grass upon the ground, in addition to which twenty loads of compost to the acre was spread on, and at that time turned over; after ploughing, it was rolled with a heavy roller, (an implement, by the way, which should be in the possession of every one who calls himself a farmer.) The potatoes were planted in drills—had been hoed but once—yet hardly a weed was to be seen, nor a spear of grass daring to show itself, and sufficient earth about the plants, with every prospect of an abundant harvest.—In the spring this ground will be in fine order to lay down again to grass, and that, too, without disturbing the sod; or, if advisable, planted with corn or any other crop.

Allowing the vegetable matter turned in equal to 20 loads of compost per acre, we have with that spread what is equivalent to 40 loads per acre. No wonder, then, that by following this process continually, he should be able to cut from 2½ to 3½ tons of hay per acre, which he actually does from his grass lands. He has another idea which we think important for a good crop of grass; that is, to sow an abundance of seed. His rule is 20lbs. of clover seed per acre, together with a liberal allowance of herd's grass and red top to boot. This would astonish most of our farmers, who can afford only from 4 to 10lbs. per acre.

We saw a field of six acres of corn, from which a crop of 80 bushels to the acre is estimated, and provided we have warm weather sufficient to ripen any corn, we should judge the estimate not too high; the cold weather a few days past is, however, against the corn crop. The variety of corn planted is called the Phinney—a fine long eared, twelve rowed variety, and earlier than the Dutton, to which it has some resemblance.

In another lot on his peat meadow, we saw a smaller field, on which the corn was more luxuriant and promising than on the one just named, and if that produces 80 bushels, we should not be surprised if this produced 100 bushels to the acre. Think of this, you that own unreclaimed peat meadows, and are longing for the fertile prairies of the west; before you sacrifice your farms and bid adieu to the institutions and hills of New-England, make an effort and bring them into subjection: it will prove an antidote to the western fever, or we are much mistaken.

We noticed a fine field of wheat of 8 acres, which the laborers were gathering into the granary. It appeared well filled out: the produce estimated at 20 bushels per acre: it was of the variety called the Black Sea, which we find succeeds best in the vicinity of Boston, and most generally cultivated. We were informed that about 30 acres were under the plough the present season. Besides Indian corn, potatoes and English grain, Mr. Phinney cultivates the root crop extensively. His ruta bagas, mangel wurtzels, sugar beets and carrots looked very promising, and will afford an abundance of food for his numerous family of swine and other stock.

In draining his low lands, Mr. Phinney first cuts off all springs from the surrounding hills, by a deep cut at the margin or outer edge of the piece, which is converted into a blind ditch: from this most important cut, the drains are made to the centre ditch. Where there is an abundance of stones, as in this case, all the drains may be filled and covered over, so that the operations of the plough, &c. may not be impeded. We were shown one piece over which it was dangerous for his cattle to pass, and in which they sometimes got mired, before he commenced the draining process; here his first essay on draining had been made, in which, through inexperience, he cut only the centre and cross drains, but with all he did, it would produce nothing but skunk's cabbage, hellebore, brakes, &c. and it seemed that all his labor had been lost, until he learned the importance of the ditch around the margin, which produced the desired effect, and now it ranks among his most productive grass lots, and a loaded team may be driven without difficulty over it.

We were pleased with his system of digging peat, of which he has ample an supply. Where peat is generally dug, the grounds are left in the roughest state, and present an unpleasant and unsightly appearance, and remain an unproductive waste: but it is his rule to have the top spit, a depth of ten inches or a foot, (the portion unfit for the fire,) thrown over and levelled as the work of digging proceeds: in this way it soon becomes covered with grass, which answers very well for stock hay.

One peculiar feature of this farm is the massive stone walls by which it is enclosed and divided. It would seem a Herculean task to build the wall that has been put up under the care of the intelligent proprietor. In the measurement of the length of wall upon the farm, we may safely say there are miles of it—we know not how much there may be—on this subject we are not informed—one piece of considerable length, is 10 or 11 feet thick, 7 feet high, and covered with grapes, which have been set out on the south side of it; a fine native variety found on the place. The vines were loaded with fruit, and bring by the quantity from 8 to 10 cents per pound; we should judge there might be a ton of them. All the other walls are double, from 5 to 10 feet thick and 5 to 6 feet high, and must have consumed an enormous quantity of stone. We noticed grapes upon many other portions of wall.

The orchard on this farm is equal if not superior to any we have seen. It contains from 400 to 500 trees, principally Baldwins, Russets, and Rhode-Island Greenings. It produced a very abundant crop last year, but this year there is scarcely an apple upon it. It was planted somewhere about 14 or 15 years since. The soil is generally a light rich loam, upon a gravelly, and in some places, a rocky foundation. The trees were taken from the nursery in autumn, and placed in trenches until the following spring. They were planted near the surface, and in many instances, upon the surface, without digging any holes, and the dirt placed upon the roots. The orchard is situated on a side-hill, having a south and southeast exposure. Many of the trees were severely injured by the hard winters of 1835 and '36, which caused the destruction of some of them. Their places have since been supplied with young trees. The mice injured some of the trees a number of years since, by gnawing the bark, so that in some cases the trees were completely girdled, and to all appearance lost. An ingenious method was devised to save them. Having prepared some large scions, five or six of them were inserted in each tree, below the wounds in the bark, and then connected with bark above by the common operation of side grafting; in this way the sap was conducted from the roots to the top, and the trees saved. We saw some of the trees thus operated upon: the scions had increased to the diameter of three or four inches, and had nearly come in contact with each other; we should doubt, however, whether the trees would be long-lived, as the old wood must be unsound, and an early decay must be the consequence. The trees appeared now as vigorous as any of their neighbors. The orchard has never been laid down to grass, but kept in constant cultivation. The trees are finely shaped, having been pruned with a skilful hand, and just high enough from the ground to work under without inconvenience: the trees are about two rods apart: in some places they nearly cover the ground. We do not remember how many barrels were gathered for the market last year, but the quantity was great. Besides this orchard, there is another that has been set out only two or three years, of 200 or 300 trees, all of which are sweet apples, designed expressly for the swine. All the refuse apples are fed to the hogs, and considered much more valuable for that use than for cider.

The farm is abundantly stocked with pears, plums, peaches, grapes, &c. There are more than 2,000 fruit trees of various sorts upon the place, and all have been reared and pruned by the hand of the proprietor himself.

One of the most pleasant sights is a trellis 30 rods in in length, covered with the Isabella grape, from which was gathered last year two tons of grapes, which found a ready sale in Boston market at 10 to 12 cents per pound. The crop was said not to be so heavy this year, but to us it appeared very great. There is also a small house where the more delicious foreign grapes are grown.

The plums had suffered severely from the curculio, and most of the trees had lost their fruit. There is a disease upon the currant bush, which we have noticed in many other places as well as on this. The bush loses its leaves prematurely, and the fruit becomes withered and worthless. We have in vain sought for the cause. Can any of our readers inform us, and prescribe a remedy? The vegetable garden is large and well stocked with every variety: what is not consumed in the family is marketed or fed to the swine.

Mr. Phinney has taken great pains to improve his breed of swine, and probable there are none superior in the state. As we have a promise from him of a description of his pigs and piggery for the N. E. Farmer, we shall not enlarge upon this subject. He prefers a cross of the Berkshire and Mackey to any other, and most of his pigs for slaughter are of this description. He has the full blooded Berkshire, Mackey and other breeds, and mixes to suit himself. We noticed a sow lately imported from England, called the Essex half black: the hinder part of the animal is jet black, and the forward half white. There are some good points about her, and she may prove a valuable acquisition to his stock: not having recovered from her sea voyage, she does not appear now as she will after a few weeks of good keeping. There is an old sow here, quite an object of curiosity, (we do not recollect the breed,) that weighs 900 lbs. a monstrous overgrown animal; she had been turned out of her pen to enjoy her liberty a little, which she did not, however, seem to appreciate much, as all the room she wanted appeared to be enough to turn round and lie down upon. She looks as though she might be the parent of a most numerous offspring, but we understood she was without issue, having apparently no inclination to form an intimacy with the other sex. The number of swine is about 140, the care of which employs one man constantly.

The barns and other buildings for the accommodation of stock, are convenient and comfortable, with sufficient room for the hay and grain produced on the farm.—About 100 tons of hay are cut annually, part of which is sold. For every ton of hay sold, one cord of manure is purchased. To improve the land and keep it in high tilth, it is necessary of course to manufacture a large amount of manure. This is first done by the hogs. The man who has the care of them is constantly employed at odd hours in furnishing them materials, such as meadow mud, peat, weeds, &c.: second, by sheep: in autumn 150 or 200 wethers are purchased from the droves, and fed through the winter: by March they are in good flesh and bring a high price, and pay well for their keeping; their yards being furnished with plenty of mud and litter, when mixed by their excrements makes a rich compost: third, by the other stock and the manure purchased, which is carefully mixed with twice the quantity of meadow manure. One cord of this composition is considered about equal to one cord of stable manure alone.

In making our observations upon this place, we feel as if it was not in our power to do it justice, as we spent but a few hours upon it. Every part of it shows, that by science, industry and skill, it has been rendered worthy of being ranked among the first of well cultivated farms in New-England, and its proprietor worthy of all praise for the laudable example he has set for the imitation of his agricultural brethren. J. B.

On Bones as a Manure for Turnips.

[*From the Farmers' Magazine.*]

Sir—Seeing in your excellent periodical, *The Farmers' Magazine*, several opinions respecting the efficacy of bones as a manure for turnip land, some stating its beneficial effects to have been astonishing; while others assert, and with equal truth, that from trials made by them, no benefit whatever has resulted from their use, it would seem very difficult to account for this difference of opinion, more especially when trials have been made by intelligent and practical farmers for several years. Those who found it beneficial, continued its use; while others, who, upon trial, experienced the reverse, gave it up as not answering their purpose, without further trials or further investigation as to the cause, why it is not beneficial to the crops on all soils. Now, if its salutary effects are as stated by its advocates, it must surely be worth inquiry, and ought to be investigated by scientific men, who would render a lasting benefit to the farming interest, by showing on what soils it could be used with advantage, and also those soils where its application would be nugatory. This would save many from a heedless expense and a consequent disappointment in the crop.

It appears, by an article in your number for June last, that an excellent lecture had been delivered, at the Woodbridge Literary Institution, by a Mr. Webster; in the course of which he alluded to the merits of bones as a manure, and briefly described a method whereby their adulteration might be detected; and this adultera tion may be done in various ways, and for very different purposes, and appears to me to be a main cause, though not entirely, why on some soils they succeed well, why on others partially, and why again on others a total failure.

As it is necessary, for the investigation of this subject, that the component parts of bones should be understood by every one interested in their use as a manure, I beg to submit, for the benefit of those of your readers who may have not seen a better, an extract from an analysis by that eminent chemist, Mr. Hatchett. He says—

"The component parts of bones are chiefly four, viz. the earthy salts, fat, gelatine, and cartilage.

"The earthy salts are three in number—

"1. Phosphate of lime.

"2. Carbonate of lime.

"3. Sulphate of lime.

"The proportion of fat seems to vary from one-sixth to one-fourth of the weight of the bone."

Annexed is also a table, calculated from experiments made from bones, both of the human species and also from various animals (by the same chemist) :—

100 parts contain of the	Gelatine.	Phosphate of Lime.	Carbonate of Lime.	Loss.	Total.
Human,.	23	63	2	2	100
Horse,..	9	67.5	1.25	22.25	100
Ox,....	3	93	2	2	100
Sheep,..	16	70	0.5	13.5	100
Swine,..	17	52	1	30	100
Calf,...	25	54	...	21	100
Elk,....	1.5	90	1	7.5	100

This it appears, that the bones of the Human species and of the calf afford the most gelatine, and those of the ox and horse the least except the elk.

The gelatine, the most beneficial portion to the land, is also an important ingredient in making portable soups, and also in the manufacture of glue; and there can be little doubt that, in most cases, the gelatine is, with the fat, extracted from the bones, by boiling or otherwise, before they are sent to the mills to be crushed the manure. The weight of the gelatine is about one sixteenth of the bone.

Thus the bones, after the gelatine and fat have been extracted, are divested of their most enriching properties, and little remains but lime, which on some soils will do good, but not to the degree it ought, and on others none at all; and, as Mr. Webster observes in his excellent lecture, that "the farmers can purchase that in great abundance, and at a much cheaper rate." He is also of opinion, "that for every cwt. of bones carted upon the land in an unadulterated state, you have one one-fourth hundred of flesh; and is not animal matter (he continues) the food of plants?" He also quotes, in corroboration of his argument, some experiments made by the late T. A. Knight, Esq. of Downton Castle, the eminent horticulturist, relative to watering plants with broth made from bones.

If we were to notice the great difference in the essential parts, by a reference to the annexed table, it might lead into an inquiry why the vast quantity of bones, imported from the continent a few years ago, were found so excellent in quality, and so stimulating in their effects.

Vast quantities of bones are collected in carts, from the butchers' shops in the metropolis, in their raw state, all the meat having been previously cut from them; these bones are taken to persons who, by roasting and boiling, extract from them every particle of gelatine and fat they contain; nothing then remains to benefit the land but the cartilage contained in the earthy salts. By the above process, a great quantity of nutritious food is extracted for the service of man, and other purposes connected with his comfort and advantage, and consequently to the general advantage of the public: and although there is nothing to regret that their essential parts are extracted for such valuable purposes, still we must not be surprised that bone manure is found, in many cases, deficient in its fertilizing effects upon the land, and often disappoints the sanguine expectation of the industrious cultivator. I remain, sir, yours, &c.

THOMAS JOY.

On Influenza in Sheep.

[*From the Veterinarian.*]

TO THE VETERINARY MEDICAL ASSOCIATION.

Gentlemen,—You having been pleased to elect me one of your corresponding members, renders it almost imperative that I should attempt some return for that distinguished honor. As an humble member of the veterinary profession, I am willing to contribute the little that I am able towards the advancement of our common science; and therefore I venture to lay before you a few observations on the disease to which sheep are liable in this locality, and which is often attended with considerable loss to the grazier.

The treatment of cattle and of sheep is a division of our art by many contemned. Such, perhaps, have not resided in districts that have called forth the energies of their minds; nor have they seen the ravages which disease often produces: had they, I feel assured, that the comments which from time to time are made, would be thought unworthy of scientific men, and especially of those to whom the health of our domesticated animals should have been, and even now is, in a great measure entrusted. There are many cogent reasons why instructions should be commenced in good earnest at our *alma mater* on this division of our art; but, as the full consideration of this would lead me into a field of argument I am not, at present, desirious of entering on, I will leave it, and pass to the more immediate object of my paper; craving, however, permission to say, that I am glad to see that reform has been commenced. I feel assured that steps will be taken to ensure its progress, and to perfect the system. Thus, I trust, speedily and for ever will be wiped away a stigma which has been long attached to the profession of a veterinary surgeon in country practice. These are not days in which we can retrograde; but we must continue the onward march which has been so nobly begun, and to which the association lends its powerful aid.

The malady to which I refer is INFLUENZA IN SHEEP; at least I call it by this name, because it bears so great a resemblance to that disease in the horse.

The situations in which I have found it most prevalent, are the marshes near the sea. The land there is very good, but much exposed; there being no hedges nor inclosures for many square miles. Cases are most abundant during the months of March and April, and especially when easterly winds prevail. It generally attacks young sheep, such as are called *lambs hogs*, and almost always those that are in the best condition, and of the largest size.

To prevent repetition, I will give you an account of a flock of 180 that I attended, in April 1838, for these presented the general features of the many, and may therefore be taken as a type of all the other flocks which were affected. They belonged to a wealthy grazier, Mr. G. Curbets, residing at Croft, near this place.

It was on the 19th of April that I was first desired to attend them. On my arrival, I found seven or eight dead. They were observed to be ill on the day previous to my seeing them. There were eight more that could not stand; and when lifted up, they had entirely lost all power of motion. On examining the remainder of the flock, I found some scarcely affected at all, while others were gradually going on in the same way as those that had died.

The first symptoms exhibited were, dulness of countenance, and a disinclination to join the rest of their companions, or to look out for food. They soon became more dull; a thin mucous discharge made its appearance from the nose and eyes, the tissues being highly injected; the ears drooped; a grating of the teeth was heard; and a staggering gait evinced in walking. As the disease advanced, all the above named symptoms became more manifest. The animals were able to walk at a slow pace, but if urged into a quicker one they would fall down on their knees, and then on their sides, throw their heads back, and grate their teeth as if in pain. After lying a few minutes they would get up again, although with difficulty; and their manner of walking in this stage of the disease very much resembled a horse laboring under inflamed laminæ. When the disease had been allowed to run on to this height the sheep often became affected with spontaneous diarrhœa, the fæces appearing to come away involuntarily. Those that did not purge, usually voided much mucus encoating the dung.

After this they quickly became worse: they would lie perfectly still, as far as the limbs were concerned, but they continued to grate their teeth, and a rattling noise was heard in the windpipe, accompanied by a frothy discharge from the mouth and nose, and an occasional cough. To this death succeeded in a few hours.

The post-mortem appearances were very unsatisfactory, as no particular part appeared to be more affected than another by the disease. On examining the windpipe the lining membrane was found to be slightly inflamed; the bronchi contained a frothy kind of fluid; the substance of the lungs was a little engorged, but this was not invariably the case; the lining membrane of the chest was also sometimes a little tinged, and most altered in character about the sternum and cartilages of the ribs; the heart appeared quite healthy, as did the abdominal viscera, except the peritoneal and mucous coats of the small intestines, which were now and then tinted with an inflammatory blush.

Generally speaking, if any part more than another could be said to have taken on active inflammation, it was the kidneys, these organs being not uncommonly found discoloured in their emulgent portion, but nothing like approaching mortification. The tubular part was also a little darker than natural, and easily broken down by the fingers; but the pelvis had not undergone any structural disorganization. The urine appeared to have been naturally secreted, and the coats of the bladder were healthy; but sometimes this viscus was distended more than is usually found. The brain presented no abnormal appearance. Such were the lesions observable on the examination of several of them.

The treatment I pursued with those which could not stand, was first to place them under a shed, with plenty of dry straw to lie upon. To those affected with diarrhœa, astringents were administered, such as catechu, chalk, &c. combining them with an aromatic tonic and the spiritus etheris nitrici: while to others that were constipated in the bowels I gave a gentle laxative, following it up with a vegetable tonic. This course of procedure appeared to be attended with benefit; for, out of the eight that could not stand, four recovered, and were able to provide for themselves in two or three days. After the exhibition of the medicine to the diseased, the remainder of the flock was removed into as sheltered a situation as could be found; or sheds were erected for them, with plenty of dry straw to lie upon. A liberal diet of oats and hay was allowed, while their general comfort was as much attended to as possible. To many that gave indications of the approach of an attack of the malady, a laxative and a tonic combined was given.

On April 21st, the sheep were not only looking better, but had very materially improved. The above-mentioned treatment was continued, with occasional variations, according to the circumstances of each case; and in five or six days they were all out of danger. I am happy to be enabled to say, that after this there were not more than two or three sheep out of the flock in which the prostration of strength became so great as to render them unable to stand; and I would add, that I never knew one case to recover without the aid of medicine, after the disease had existed so long as to produce this loss of power. I am, &c.

Vegetation—(*Concluded.*)

The sap ascends to the leaves, where it undergoes certain alterations, and is converted into the peculiar juices, which like the blood in animals, are afterwards employed in forming the various substances found in plants. Great part of the sap when arrived at the leaves, is thrown off by evaporation, by means of particular organs. What remains must be very different in its proportions from the sap. It is performed chiefly by the upper surfaces of leaves.

Leaves have also the property of absorbing carbonic acid gas from the atmosphere, and have been supposed to exhale much pure air. Hence they have been universally deemed highly useful, when planted near a house, but though useful as a source of shade, yet the following observations will shew that their benefit does not depend upon the supposed addition of pure air, derived from them, to the atmosphere.

The air of the atmosphere, according to the most celebrated chemists, is composed of twenty-two parts of oxigenous gas or air, and seventy-eight parts of azotic gas. There is a constant consumption of the oxigenous portion of this air, by the burning of combustible bodies; by the respiration of animals; by the fermentation and putrefaction of vegetable and animal substances; and by the calcination of metals. The oxigenous gas, decomposed by respiration and combustion only, in the city of London, is supposed to amount to the enormous quantity of five millions cubic feet an hour. (Nicholson's *Philosophical Journal*, vol. v. p. 184.)

The atmospheric air of Great Britain, France, of parts of Africa, and of America, has been examined by philosophers, and has been found to be exactly of the same degree of purity.

The oxigenous gas contained in it, is in the same proportion, at all times and in all places, in rainy or in dry weather, in depth of winter, and in the middle of summer, on the land and on the ocean, in the crowded city and remote village.

In consequence of a most valuable discovery, made by the illustrious Dr. Priestley, that growing vegetables under certain circumstances, exposed to the light of the sun, yield oxigenous gas: an opinion has been adopted, that they are the sources of the oxigenous part of common air.

This sentiment has been adopted by the chemists of all nations, but has been controverted by Dr. James Woodhouse, formerly professor of chemistry in the University of Pennsylvania. (Nicholson's *Philosophical Journal*, June, 1802.)

The Doctor reasons in the following manner.

1st. He says, whenever oxigenous gas has been obtained from vegetables, carbonic acid, (or fixed air,) has been present. Upon reviewing the experiments of Dr. Priestley, he finds that this circumstance has actually taken place. The Dr. exposed plants to the influence of light, in atmospheric air, in which spirit of wine, and wax and tallow candles, had burned out; to air which had been vitiated by the death or putrefaction of mice and fishes; and to air which had been frequently taken into his lungs; and found that the purity of the air, was in every instance restored. Priestley on Air, vol. iii. p. 247 to 347.

In all these cases carbonic acid, (which is composed of carbon and oxygen) was formed; the vegetable devoured its coal for food, by which means its oxygen escaped, in the form of pure air.

2dly. The seeds of Zea mayz (Indian corn,) of *apium petroselinum* or parsley, of *lactuca sativa* or lettuce, of *cucurbita citrullus* or the water-melon, of *phaseolus sativus* or beans, and of *raphanus sativus* or radishes, were planted in earth, and made to vegetate in atmospheric air, confined over water in vessels of white glass, and exposed to the action of solar light. This air, when examined at various times, was found to be reduced in purity, and when its oxigenous portion was completely absorbed the plants died. Its oxygen united to the coal of the cotyledons of the seeds, or to that of some animal or vegetable matter contained in the earth, in which they were planted, or to that of some decayed portion of the living leaves, and formed carbonic acid, quicker than the living plant could decompose it. To these experiments, we may add that the celebrated and accurate Scheele observed that beans growing in atmospheric air, always rendered it impure.

3dly. Young plants of *datura stramonium* or Jamestown weed, of *phytolacca decandra* or the poke, of Zea mayz or Indian corn, &c. growing in earth, were exposed to solar light in from forty to eighty ounce measures of atmospheric air, which was examined at various times, from one hour to thirty days after the plants had been placed in it. Carbonic acid gas was generally formed, and whenever this circumstance happened, the purity of the air was diminished.

When a plant in perfect health, growing in a soil which contains little vegetable or animal matter, is confined in atmospheric air, it will live a long time without producing any change in it. Many of the vegetables which were the subjects of these experiments, did not affect the air in five days; some diminished its purity in three hours, and others altered it in a most slow and gradual manner, causing little change in it, in 20 days.

4thly. Many of the same kind of vegetables were also confined in forty ounce measures of oxigenous gas, which had been well washed in lime water, and the purity of this air was very generally lessened, carbonic acid being formed.

5thly. A small handful of the healthy leaves of a variety of plants, containing no decayed parts, were exposed during four, six, and eight hours to the influence of the light of the sun, in atmospheric air confined by water, and its purity was found to be neither increased nor diminished.

6thly. The leaves of various vegetables gathered promiscuously, exposed in the same manner, generally diminished the purity of atmospheric air, several degrees.

7thly. A handful of the leaves of several hundred different plants, among which may be mentioned, those of the apple, pear, peach, poplar, fringe, and persimon trees, were separately exposed during several hours in glass vessels to solar light, in forty ounce measures of pump water, and from five to nineteen drachm measures of oxygen air were produced in each vessel. Upon analyzing the water, it was found to contain carbonic acid, with which it had been impregnated from a necessary, which stood within a yard of the pump.

8thly. The leaves of 13 different plants were separately exposed in the usual manner, in forty ounce measures of the water of the river Schuylkill, and about ten drachm measures of air were procured, the principal part of which was azotic gas, which was disengaged from the water. No carbonic acid could be detected in the water of this river.

There are three wooden bridges erected over the Schuylkill, which rest upon large wooden logs, upon which great quantities of a species of conferva grow, and which is covered by the water. Upon viewing this vegetable when the sun shone upon it, for several hours, at different times, for several years, no air could be seen to form upon it, or to rise through the water.

9thly. The leaves of the same vegetables were exposed to light, in the same manner, in the same river water, impregnated with four quarts of the water, saturated with carbonic acid, from the carbonate of lime and the sulphuric acid: and 77 drachm measures of oxigenous air of a very high degree of purity, were obtained.

10thly. No oxigenous air could be procured by exposing vegetable leaves in boiled, distilled, rain, or lime water; a proof that they do not decompose water.

11thly. Atmospheric air was impregnated with carbonic acid gas, and a handful of the leaves of nine different vegetables were separately exposed in it, to light, seven hours. The fixed air disappeared, and the atmospheric air was greatly increased in purity.

12thly. The limbs of trees covered with healthy leaves, and some vigorous evergreens growing in their natural soil, were confined from one day to a month in atmospheric air, over water, and exposed to light, and its purity was never found to be increased, but was generally considerably diminished.

These experiments incontestibly prove, that whenever oxygen gas has been obtained from vegetables, by exposing them to the influence of solar light, carbonic acid has been present, and that it is from the decomposition of this gas, that the pure air is obtained.

As it is acknowledged that the leaves of plants separate the oxygen from carbonic acid, it may be said, that the oxygenous portion of atmospheric air is supplied by the decomposition of gas, as it is always found in the atmosphere. The quantity of carbonic acid, accidentally diffused in atmospheric air, (for it is not of its component parts) is reckoned to be about one part in an hundred. It must however vary in different places. We would expect to find the most of it in cities, where it is formed by combustion, respiration, fermentation and putrefaction. If one measure of the air of any great city, be passed up over lime-water, in an eudiometer, no carbonate of lime will be formed; so that the quantity of carbonate acid in this air, must be extremely small. As this gas is also seized upon by alkalies, earths and metals, and absorbed by water, the proportion of it in the atmosphere, may be less than one part in ten thousand.

When we consider likewise that the oxygen is never separated from the carbonic acid by leaves, but when they are exposed in contact with it to the light of the sun, and that every perforation made in a living leaf, however minute, by an insect, causes the part to decay, and absorb oxygen by day and by night; and that in the autumn, in some countries, all leaves fall on the ground, ferment and putrify, and thus diminish the purity of common air, and that the petals and fruit of vegetables have the same effect, we must pronounce, that the oxygenous portion of atmospheric air cannot be supplied by vegetation.—*Domestic Encyclopedia.*

Bees.

[*From the New-England Farmer.*]

Mr. Colman.—We wonder every body does not keep bees, such active beings as they are and so liberal in dispensing "the sweets of life." Yet we are glad they do not, for if they did, even though they had a "small beginning," they would at length become so numerous that sad consequences might result. This we have found to be the case to our cost, for in the spring of 1833, we established a colony, which, as there were none about us, did very well, and our success excited others to embark in the same enterprise, so that in two years they were "as thick as bees" through the neighborhood and town. The consequence was, all the bee pasture in the community was overstocked, and the long, severe winter which followed put an end to all our anticipated sweets, inasmuch as that there was scarcely a hive remaining in the circle of our acquaintance, whose inhabitants could be numbered among the living. We might have saved ours in a way which we shall speak of soon, but they had a usual supply of honey and we did not expect an unusual winter.

Last spring, we obtained a hive and began again.—Maugre the cold wet May and June, we have obtained three swarms from it, the hives of two of which are very heavy and the third in quite a winterable condition. Our first swarm came off about the middle of May, and lit on a current bush, consequently we had no trouble in hiving it, but the second which came off only a few days later, displayed an obstinacy worthy of the human species, for they lit on the body of a beautiful maple on one side of our yard, just at the place where the lower branches put out. We tried almost as many devices to get them off as the "old man" did to drive "the rude boy" from his apple tree and with no better success; we jarred the tree, but we could not jar them off; we tried to brush them down, but to this they objected; we confined a hive to the tree, and wound a cloth around it and them, hoping to lure them to a domicil in this way, but they had no more ambition to climb, than propensity to descend. We however secured them where they were in this way, for that day and the coming night, which brought the elements to our aid in the form of a "hoarse north easter" cold with wind and tolerably charged with rain, which two qualities united so benumbed the physical faculties of our truant friends, that we could dispose of them as we pleased; we accordingly with all care took them down and placed those which possessed animation in the hive, while the remainder we protected from the storm, and on the first sunny day laid them out *to dry*. Most of them revived and joined their family, but their tranquility was of short duration, for in consequence of their exposure, a dysentery attacked some of the community, and those in health, instead of remaining to protect the weak and heal the sick saw fit to decamp, and after enjoying a healthful sailing excursion in the air they went to the hive in which the first swarm had been put. Their stay there was not very tedious, for in a week or ten days and instead of aspiring to the trunk of a choice shade, at ten feet from the ground, their "meek and lowly spirits," led them to cluster on a raspberry bush but a few inches from the surface, from which they were taken and put in a condition satisfactory to themselves, as their quietude and thrift fully attest.

Our last swarm came off in June, and notwithstanding the old adage that "a swarm in June is not worth a spoon," we should refuse an offer of two spoons for this, and more unless they were very nice and very heavy. True, the quantity of honey which they have gathered is not very great, but with our way of managing such hives we think amply sufficient for their supply. We propose burying them, through the winter, a practice which we have adopted in two successive years, and had we continued it the third, our old colony instead of coming to an untimely end, would probably have been in existence now through its descendants.

My method of burying bees is as follows. The operation is performed the last of November. The pit in which they are to be placed is dug considerably larger than the hives, in every respect. On the bottom of the pit two sticks, say of scantling four inches square, are placed that a cavity may be left into which the water if there is any may settle and run off without injury to the bees. On these blocks I lay my floor board, which should be *sound* and full an inch thick, if more no matter.—The top of the hive should be covered with a two inch plank, or if more convenient, a piece of wide thick slab with the rounding side up, so that if the frost comes out, and heavy rains fall, it may serve as a roof to carry the water from over the hive and turn it into the pit below. Straw is then placed as compactly as may be around the hive and the earth thrown on so as to form a cone above it, which again operates as a roof to turn the water as it falls. With regard to the depth of burying we can only say, that in our former experiments, we never sunk the top of the hive below the surface.—Whether it would be well to do so we cannot say. Some when burying their bees, drive down a stake near the hive as they say to admit the air, but we do not see why a stake drove down with the earth compactly placed around it, can form an air hole more than the earth itself. And if it could, we do not see the necessity of it, for the object of burying bees, is to put them as much as may be in a state of dormancy through the winter, by which their stock of provisions is lengthened out, to secure them from sudden and often fatal changes from heat and cold and from storm and sunshine.

In selecting a place for burying, it is important that a *dry* one should be chosen; and *we* prefer one that is cold to a warm one; and could we regulate the condition of the earth around them, we would freeze it the night after their burial, and *keep it frozen* until time for their exhumation in the spring.

We in both instances of our former burying, took them up some of the last days of March, and all the dead we found from the four hives thus kept would not half fill a person's hand, and on exposure to the sun and atmosphere the living were as bright and lively as though they had known no winter, and they gave swarms earlier and more frequently than did the hives that were not buried the ensuing summer.

We have thus far kept only the old fashioned square hives, but intend during the coming winter to have some manufactured after the Griffith and perhaps other plans. We shall do so, not that we have any particular objection to the square hive, but in order to profit by improvements in the article; and to do this we wish to give each variety a trial.

Our hives have uniformly been made of pine boards, and put together in the closest manner possible, after which we have spread a salve made of beeswax, tallow and rosin over the joints within and without. This wax gives the hive an odor very pleasant to the bee, in consequence of their wax being a part of its composition. It also closes the small apertures which are most always to be found in bee-hives against the invasion of the miller, one of the most formidable enemies to bee culture; and where the hives stand out, as they often do, it prevents the storm from beating through openings, which if no preventives be employed, are always increasing in size. Any sweet wood is undoubtedly good for hives, but economy and durability should be consulted in their manufacture as well as every thing else. Hence the cheapest material that can be used, with the approbation (we can do nothing without this) of those who are to inhabit them, should be. Basswood is cheap and sweet, and we know not why a basswood hive, kept sheltered, would not last for ages. To secure its durability it may be planed on the outside and painted, and we know not why the industrious bees would not enjoy a neat white house, and are not as worthy of such a one as many *biped drones* who inhabit them. We think the practice of placing boxes on the hives for obtaining honey a good one, especially when the swarm is thrifty. After the proper season of swarming time is passed, the box may be placed on the hive and prevent future swarms from coming out; and in this way the increase of bees may be saved in the old hive, where there will be honey enough for them, and new swarms come off *earlier* the next season, while as much honey may be obtained from the box as the late swarm would collect, without the sacrifice of their lives. The honey thus obtained is of the purest quality. The aperture in the top of the hive through which they pass to the box should be closed when the box is removed, and remain so until it is replaced the next summer.

Bee pasture. The man who turns his herds or his flocks upon their own resources for a subsistence, can expect but little profit from them, unless they become highway robbers, (and then the partaker is *worse* than the thief) and enter his neighbor's fields and spoil his crops. Though we have no idea that a community of bees can be restrained by fences, pokes or fetters, yet we do think that their rambling propensities may be checked. The facilities of their labor increase their enterprise, and the *endearments* of their *home* made still *more* dear by—we should have said cultivating flowers for their benefit, but this would sound *weak* to the ears of some *strong minds*, so to such we say *allowing* them to grow.

But the ladies admire flowers—so do *gentlemen*, therefore we have no hesitancy in recommending their culture, especially when so many objects of utility demand it, as in the present case. The mignionette is a beautiful little flower, and when once sown will keep itself in, if the ground is kept clean. It continues blossoming very late, its fragrance perfumes the atmosphere agreeably, to a great distance, and bees are as fond of it as we are of honey. The raspberry and bramble flowers are favorites with them, and we never heard a person say that they did not like their fruit, so *they* should be set plentifully in the garden and *cultivated*, that they may, *at home*, produce an abundance of flowers for the bees and fruit for man. The strawberry too, that we unitedly love so well, should always be found growing for our mutual benefit in our common gardens. The poppy, though somewhat calculated to lull the drowsy faculty of man to repose, possesses not the least lethargic quality to them, but in the reverse arouses their faculties. Catnip not in mints or juleps, but in blossom, they much admire. We too have tested the efficacy of its healing qualities through strong portions of its tea.

Yours truly, W. B.

Mount Osceola, Oct. 4, 1839.

[*From the (Va.) Farmers' Register.*]

Carelessness in Saving Silk-Worms' Eggs.

Stafford, Aug. 5th, 1839.

To the Editor of the Farmers' Register.—I am highly gratified that you have given the agricultural community a caution about silk-worm eggs. At least two-thirds of the failures in rearing silk-worms in this country may with propriety be attributed to bad eggs. Many persons raise silk-worms for the *sole* purpose of speculating on the eggs, and are probably not aware of the necessity of careful management to procure good eggs. Prevailing thoughtlessness on this subject, which I know exists extensively, if not checked, will throw serious obstacles in the way of this important culture, which I firmly believe is destined to repopulate the poor land districts in Virginia and Maryland. I will add a caution which may be of service to the inexperinced. If the cocoons intended for seed are thrown into a heap, and permitted to remain for several hours, when the weather is warm, the eggs produced will generally be worthless. I know this to be the fact from dear-bought experience.

"When silk-worms are to be raised, the eggs to be procured from the cocoons, must be thought of before anything else. Now-a-days when the cocoons are collected, it is the custom to keep them altogether upon the frames. Some persons not having time to reel all their silk, butterflies are seen to go out and lay eggs almost immediately. The accumulation of cocoons produce a kind of fermentation, and the heat causes the butterflies to hatch before the proper period. This premature development has never any good results, for the butterflies are sick; and from thence it comes that the silk-worms produced from their eggs, are affected by diseases from the moment of their hatching.

"The cocoons for reproduction ought to be separated, *and put in a well aired chamber*, and spread upon very clean mats, *a layer of the thickness of a single cocoon only.*" (*Chinese Treatise, published by P. Force, p.* 150.)

I have about 40,000 silk-worms of seven varieties.—They are remarkably healthly, and a large portion of them spinning in handsome style. Respectfully yours,

LAYTON Y. ATKINS.

P. S. There is no advantage to be derived from a forced and premature development of the silk-worm in any of its stages. The nearer the time of spinning to the natural period of its life, as stated by Dandolo, the better. The *precocious* and the *tardy* are always feeble, and eggs should never be saved from them. I have made nine rearings of the "two-crop" white, and of the cocoons formed between the 25th and 30th days it has required from 700 to 800 to weigh a pound, and so of the last which spin; but of cocoons formed from the 30th to the 35th day, 350 to 400 to make a pound. Depend upon it modern writers on silk-culture are promulgating a pernicious error on this point; and before the learned *silk-worm* doctors publish any more *infallible* prescriptions, I advise them to put on their spectacles and bring their remedies to bear on four or five cases.

If a *forced* and premature development is so important, what reason or sense would there be in the following passage from the Chinese Treatise:

"The moths which come out the first day are called *grass moths.* The last of all are called *mogno*, (that is to say, the last butterflies.) *Neither* of these ought *to be kept.*"

Mark the care of this people about procuring eggs. Cocoons are first selected, and when the butterflies come out, the *first* and the *last* are rejected. Let the people of the United States make numerous and careful experiments. We *beardless* boys of Virginia at least, do not mean to open wide our mouths and swallow nostrums as an unfledged bird does its food. L. Y. A.

To keep Sweet Potatoes.

[*From the Farmers' Register.*]

Some time last fall, as well as I now recollect, one of your Virginia correspondents asked for information upon the subject of keeping sweet potatoes through the winter; and perhaps the writer was desirous to obtain Virginia practice; but if our Georgia plan should not be altogether applicable to your region, (I know of no reason why it should not be,) your correspondent may derive some useful hints therefrom; and though I give our plan too late for any practical use the present season, it will, if at all, be of service the coming one. There are various modes adopted in Georgia for saving potatoes, but as the one I practise, in common with many others, has always been so successful, I shall describe that only. As soon as the frost slightly affects the potatoe vines in the fall, (about the middle of October here,) I begin to make preparations for digging; and by the time the vines become thoroughly killed, I am prepared for the harvest. I select an elevated piece of ground, and throwing up circular mounds or hills, twelve or fifteen inches above the common surface, the diameter of which should be about ten feet, to contain sixty bushels of potatoes. The situation and the elevation of the hills are objects of importance, to prevent the possibility of the potatoes getting wet. In order to make the potatoes lie on the hill the better, the edges should be some somewhat elevated by drawing the earth from the centre, giving it slightly the appearance of a bowl. Common pine heart boards are now placed on the earth, radiating from the centre to the circumference of the hill; and on these a layer one foot thick, of dry pine leaves. The hill being now ready to receive the potatoes, I select dry, mild weather, and commence digging in the morning, and stop time enough in the afternoon to haul up all dug during the day; for if left out at night, the frost, if any, would injure them. If possible, the hills should be filled and completed the same day, but if not, the potatoes should be well covered with straw to protect them at night, and uncovered next morning. When the pile becomes two or three feet high, place a pole horizontally across, of sufficient length to pass entirely through the sill. A better ventilator would be an oblong box four or five inches square, with several auger holes in it. The potatoes may now be put on till the pile is about five feet high, and left in a conical form. Next, procure dry pine leaves and lay them all over the potatoes, at least six inches thick. Pine heart boards like those used at the bottom of the potatoes, are now placed over the straw, and a covering of earth six or eight inches thick, is put over the whole and patted smooth with a spade. A small aperture should be left at the top of the hill, to assist in ventilation; or to be neater, a short oblong box may be inserted down to the potatoes, and the earth drawn nicely up to it. If a pole is used as the horizontal ventilator, the earth should be removed from below it, where it projects from the hill. All the apertures should be left open, for a few days after the operation is finished, and then only closed during severe weather, with a handful of pine leaves. Shelters should be erected over the hills to exclude the rain entirely. I consider it important to perform the whole business in dry weather. P. C. H.

Soiling Cattle.

Soiling is the feeding of cattle either in the barn or yard, through the summer, with new mown grass or roots.

The following are some of the advantages of soiling cattle over depasturing them:

"1. A spot of ground which, when pastured upon, will yield sufficient food for only two head, will abundantly maintain five head of cattle in one stable, if the vegetables be mowed in proper time, and given to the cattle in proper order.

"2. The stall feeding yields at least three times the quantity of manure from the same number of cattle; for the best and most efficacious manure is produced in the stable, and carried to the fields at the most proper period of its fermentation; whereas, when spread upon meadows or ploughed fields, as it is too common, and exhausted by the air and sun, its power is entirely wasted.

"3. The cattle used to stall feeding will yield a much greater quantity of milk, and increase faster in weight, when fattening, than when they go to the field.

"4. They are less subject to accident—do not suffer so much heat, flies and insects—on the contrary, if every thing be properly managed, they will remain in a state of constant health and vigor."—*Von Thaer.*

To Destroy Weevils in Granaries.

[*From the London Farmers' Magazime.*]

Sir—Seeing in your paper an inquiry respecting the destruction of weevils, I send a copy of a paragraph which has been cut out of some publication. It is as follows:—

"Accident has discovered to a French farmer a very simple mode of destroying weevils in corn warehouses; happening to lay in the corner of a granary in which there was a quantity of corn, some sheep skins with the fleece on, he was not a little surprised to find them, a few days after, covered with dead weevils. He repeated the experiments several times, and always with the same success. At last he ordered his corn to be stirred up, and not a single weevil remained in it."

I remain, sir, yours,
A CONSTANT READER.

Young Men's Department.

Chemical Catechism—Chapter IX.

[*From Parkes' Chemical Catechism.*]

OF SIMPLE COMBUSTIBLES—*continued.*

What is the origin of PHOSPHORUS?

Phosphorus is a peculiar substance, both of animal(1) and mineral origin. It was formerly obtained by a very tedious and disgusting process; but is now generally procured by the decomposition of the phosphoric acid, which is found in animal bones.(2)

What is the nature(3) *of phosphorus?*

Phosphorus is a solid inflammable(4) substance, which burns at a very low temperature, when in contact with oxygen gas or atmospheric air; and, when thus saturated with oxygen, it forms a peculiar acid.(5) It may be easily cut by the knife, and melts at 90° of Fahrenheit. Its specific gravity is nearly twice that of water.

What compounds are formed by means of phosphorus?

Phosphorus may be combined with oxygen, hydrogen, chlorine,(6) sulphur, or with most of the metals,(7) and also with some earths.(8)

What is the nature of these compounds?

Phosphorus forms with oxygen, according to the proportion of the latter, either oxide of phosphorus, or phosphorous acid, except it be saturated with oxygen, and then phosphoric acid; with hydrogen, phosphuretted hydrogen; with sulphur, phosphuret of sulphur, and sulphuret of phosphorus; with the metals, metallic phosphurets; and with some of the earths, earthy phosphurets.

What is the origin of CARBON?

Pure carbon is found only in the diamond; but it may be procured in the state of charcoal, by burning a piece of wood closely covered with sand, or any other convenient material, in a crucible, so as to preserve it from the action of the atmosphere.

What compounds are formed by means of carbon?

Carbon is capable of forming various combinations: it unites with oxygen, hydrogen, nitrogen,(9) sulphur or phosphorus, and with iron.

What is the nature of these compounds?

Carbon, with various doses of oxygen,(10) forms carbonic oxide, or carbonic acid; with hydrogen and caloric, carburetted hydrogen gas; with nitrogen and caloric, carburetted nitrogen gas; with sulphur, sulphuret of carbon; with phosphorus, phosphuretted carbon; and with iron, plumbago, or carburet of iron.

Some of these compounds having been already examined, it will now be expedient to consider the other states and combinations of carbon; therefore, what is charcoal?

Charcoal, which is the combination with which we are the most familiar, is the coaly residuum of any vegetable substance that has been burnt in close vessels.(11)

What are the characters and appearances of charcoal?

Charcoal is generally black, sonorous, and brittle; very light, and destitute of smell.(12)

What are the properties of charcoal?

Charcoal is a powerful antiseptic;(13) when ignited, it has great affinity for oxygen;(14) is unalterable and indestructible by age;(15) is a non-conductor of electricity, and a bad conductor of heat; and if air and moisture be excluded, is not affected by the most intense fire.

To what uses is charcoal applied?

In the preparation of gunpowder, charcoal is a most important ingredient; it is also employed in purifying rancid oils, and abstracting the color from sirups and many other valuable preparations; for decomposing the sulphuric salts, which it effects by absorbing the oxygen of their sulphuric acid and liberating the sulphur; and for so many other purposes, by the chemist and the manufacturer (16), that it would be impossible to enumerate them.

Is charcoal a simple, or a compound substance?

Common charcoal is a compound substance: it is an *oxide* of carbon, or the woody fibre partially oxidized; it also contains hydrogen, and a portion of fixed alkaline salt and some earth, but these are rather adventitious than essential ingredients. (17)

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(1) The real origin of phosphorus is very obscure: some have supposed it to be a product of the process of animalization, and several curious facts might be adduced to strengthen this opinion.

(2) Phosphorus was accidentally discovered at Hamburg, in 1669, by an alchemist of the name of Brandt, in his search after gold; and two years afterwards, one Kraft brought a small piece of this substance to London, on purpose to show it to the king and queen of England. Mr. Boyle afterwards discovered the process, which he described in the *Philosophical Transactions* for 1680, and in a little book which he published in the same year, entitled *The Aerial Noctiluca.* Mr. Boyle instructed Mr. Godfrey Hankwitz of London how to procure it from urine, so that he was the first who made it for sale in England; and he continued to supply all Europe with it for many years. I have in my possession a scarce portrait, by Vertue, of this chemist in the midst of his laboratory, surrounded by his chemical apparatus; the form of which shows that even at that time they had the means of accurate analysis, if they had had a rational theory to direct them. From a Latin inscription, it appears that he had this print engraved to present to his customers on his taking leave of them, when about to enter upon his travels abroad to sell phosphorus.

The discovery of phosphorus proves that valuable discoveries may be made even by men who have no means of appreciating their nature. Stahl maintained that it was the *marine salt* contained in urine, which yielded phosphorus.

(3) Phosphorus, when taken internally, is poisonous. It is related in the *Annales de Chimie,* that a great number of domestic fowls and turkeys were poisoned, merely by drinking the water in which some newly made phosphorus had been washed. Though poisonous, it has been given in *small* quantities by some French physicians, in malignant fevers, to stop the progress of gangrene, in which it succeeded beyond all hope. (Nicholson's *Journal of Philosophy and Chemistry,* vol. iii. page 85.)

(4) If a piece of phosphorus be placed on the surface of water, a little below the heat of boiling, it will immediately inflame. This is one characteristic of phosphorus, and distinguishes it from all others substances. It melts at the temperature of 90°, and takes fire at about 148°.

(5) Phosphorus is used in forming phosphoric acid, in various chemical experiments, and in making phosphoric match bottles. These bottles may be prepared by mixing one part of flour of sulphur with eight of phosphorus. When used to procure light, a very minute quantity is taken out of the bottle on the point of a match. and rubbed upon cork or wood, which produces an immediate flame.

Phosphorus should always be handled with great care, lest any part of it get under the finger nails, a small portion of which might occasion great inconvenience.

(6) Sir Humphry Davy has formed two compounds with phosphorus and chlorine; the one is a white powder, composed of about one of phosphorus, and 6.8 of chlorine by weight, and which he calls *phosphorana;* the other is a fluid as clear as water, and its specific gravity is 1.450: he calls it *phosphorane.*

(7) Phosphorus will combine with all the metals except gold and zinc. It unites with iron, and forms that kind of iron called *cold-short.* Iron of such property acquired this name on account of its being very brittle when cold, though malleable when heated. Such iron may, however, be made good and fit for most purposes, by heating it with carbonate of lime. (*Annales de Chimie,* tome xlii. page 832.)

(8) Several species of animals have the property of emitting light. The light of the glow-worm is well known, but the *Pyrosoma atlanticum* has not been described by naturalists. M. Peron, on his voyage from Europe to the Isle of France, observed this animal between three and four degrees north latitude. Its phosphorescent quality, (as it has been called,) so truly prodigious, renders it one of the most beautiful of all known zoophites, and its organization ranks it amongst the most singular. The darkness was intense when it was first discovered; the wind blew with violence, and the progress of the vessel was rapid. All at once there appeared at some distance, as it were a vast sheet of phosphorus floating on the waves; and it occupied a great space before the vessel. The vessel having passed through this inflamed part of the sea, the crew discovered that this prodigious light was entirely occasioned by an immense number of small animals, which swam at different depths, and appeared to assume various forms. Those which were deepest looked like great red-hot cannon balls; whilst those on the surface resembled cylinders of red-hot iron. Some of them were soon caught, and were found to vary in size from three to seven inches. All the exterior surface of the animal was bristled with thick oblong tubercles, shining like so many diamonds; and these seemed to be the principal seat of its wonderful powers of emitting light. In the inside also there appeared a multitude of little oblong narrow glands, which possessed the same virtue in a high degree. The colour of these animals, when in repose, is an opal yellow mixed with green; but on the slight movement of those spontaneous contractions which it exercises, or those which the observer can at pleasure cause by the least irritation, the animal inflames, and becomes instantly like red-hot iron, and of a most brilliant brightness. As it loses its phosphorescence, (if this property be phosphorescent,) it passes through a number of tints successively, which are extremely agreeable, light, and varied; such as red, aurora, orange, green, and azure blue: this last shade is particularly lively and pure. A further account of this curious creature may be seen in one of the early volumes of the *Journal de Physique.*

(9) The compound formed by the union of carbon and nitrogen, is known by the name of prussic gas. It was discovered by Gay Lussac, and by him called *cyanogen.* It is obtained from prussiate of mercury by distillation. It is a permanent gas, very inflammable, and nearly twice as heavy as atmospheric air. It affects the nostrils violently when inhaled by them.

(10) Messrs. Allen and Pepys have lately shown that charcoal ought not to be considered as an *oxide of carbon;* for that, when well prepared, it requires as much oxygen for its combustion as the diamond; and that diamond, and all pure carbonaceous substances, differ generally from each other only in the state of aggregation of their particles. (See *Philosophical Transactions* for 1807, part ii. page 267.)

(11) Charcoal, for common purposes, is made by a less expensive process. The wood is disposed in heaps regularly arranged, and covered with earth, so as to prevent the access of any more air than is absolutely necessary to support the fire, which is kept up until all the water and oil are driven off; after which the fire is extinguished, by shutting up all the air-holes. A more economical method is first to collect the pyroligneous acid from the wood, by dry distillation in large iron cylinders; and then the residuum in the cylinder will be charcoal of the best quality. By this process, His Majesty's gunpowder works have for some time past been supplied with charcoal.

(12) Charcoal is so porous that it may be seen through with a microscope; and, however large the piece, it may be readily blown through.

(13) "All sorts of glass vessels and other utensils may be purified from long retained smells of every kind, in the easiest and most perfect manner, by well rinsing them out with charcoal powder, after the grosser impurities have been scoured off with sand and potash. Putrid water is immediately deprived of its offensive smell by charcoal." (See Crell's *Journal,* vol. ii. page 170.)

Meat which is only a little tainted with putridity, may at once be made sweet by charcoal; and if common raw spirits be agitated with charcoal, they will be deprived of their bad flavour. A gentlemen in the spirit trade, however, informs me that spirits treated in this way are very apt to resume the old flavour, if kept in the cask only a few months.

(14) Charcoal, from its affinity with oxygen, will decompose the sulphuric and nitric acids. It decomposes the latter with great rapidity. If the charcoal be dry and finely powdered, and the acid strong, and allowed to run down the inner side of the vessel to mix with the charcoal, it will burn rapidly, giving out a beautiful flame, and throwing up the powder so as to resemble a brilliant fire-work.

(15) "The beams of the theatre at Herculaneum were converted into charcoal by the lava which overflowed that city; and during the lapse of seventeen hundred years, the charcoal has remained as entire as if it had been formed but yesterday, and it will probably continue so to the end of the world. The incorruptibily of charcoal was known in tho most ancient times; the famous temple at Ephesus was built upon wooden piles, which had been charred on the outside to preserve them." (See Watson's *Chemical Essays,* vol. iii. page 48.)

"It is said that there still exists charcoal made of corn in the days of Cæsar, which is in so complete a state that the wheat may be distinguished from the rye." (Willich.)

"About forty years ago, a quantity of oak stakes were found in the bed of the Thames, in the very spot where Tacitus says that the Britons fixed a vast number of such stakes, to prevent the passage of Julius Cæsar and his army. They were *charred* to a considerable depth, retained their form completely, and were firm at the heart." (Dr. Robinson's *Introduction to Black's Lectures.*) The ancients wrote with levigated charcoal, the most indestructible substance we know of; and accordingly, the writings found in Herculaneum are still a perfect black. (Ib. vol. ii. page 480.)

Casks charred in the the inside are now used to preserve water in sea voyages; and such casks are found to preserve toe water uncorrupted. (Dr. Black's *Chemical Lectures,* vol. ii. page (285.

(16.) Charcoal is used by mathematical instrument-makers and engravers to polish their brass and copper plates. Plates of horn and lantern leaves are polished with it. It is also much used by artists in tracing the outlines of drawings.

(17.) Messrs. Allen and Pepys have lately determined by experiment that charcoal properly prepared contains no sensible quantity of hydrogen, but that it absorbs moisture if exposed to the air only a few hours, which renders the result of the analysis uncertain.

*Moneys received between the 20th of Sept. and 24th October, in sums of $5 and over. The total receipts are included from post-offices marked with an asterisk.**

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PRICE CURRENT.

ARTICLES.	New-York, Oct. 21.	Boston. Oct. 19.	Philadelphia. Oct. 17.	Baltimore. Oct. 21.
Beans, white, per bushel,......	2 12— 2 25	1 62— 2 25	1 75— 1 87	1 80— 1 90
Beef, per cwt..................	....	7 00— 8 50	7 00— 9 00	7 25— 7 75
Bacon, western, per lb.........	0 12— 0 13	0 12— 0 13	7 50— 8 00	7 50— 0 12
Butter, fresh, per lb..........	0 18— 0 20	0 20— 0 23	0 14— 0 16	0 15— 0 20
Cheese, per lb.................	0 08— 0 10	0 10— 0 12	0 10— 0 11	0 10— 0 17
Cotton, best per lb............	0 10— 0 14	0 11— 0 16	0 13— 0 16	0 14— 0 15
Flour, best, per barrel, ...	6 00— 6 75	6 50— 6 87	6 50— 6 25	6 00— 6 25
GRAIN—Wheat, per bushel,....	1 32— 1 33	1 28— 1 33	1 25— 1 30	1 20— 1 32
Rye, per bushel,......	0 76— 0 85	0 88— 0 90	0 70— 0 83	0 70— 0 73
Oats, per bushel,......	0 38— 0 43	0 45— 0 37	0 34— 0 40	0 33— 0 34
Corn, per bushel, ...	0 78— 0 80	0 76— 0 86	0 68— 0 75	0 72— 0 73
Hams, pork, per lb............	0 10— 0 13	0 10— 0 11	0 09— 0 11	0 08—13 50
Pork, in hog, per cwt..........	....	6 50— 7 50	7 00— 8 00	9 00— 9 50
SEEDS—Red Clover, per bushel,	....	8 00—12 00	....	12 00—13 00
Timothy, per bushel,..	....	2 00— 2 75	....	2 00— 2 50
WOOL—Saxony, fleece, per lb..	0 50— 0 55	0 58— 0 62	0 55— 0 60	....
Merino, per lb........	0 45— 0 50	0 55— 0 60	0 50— 0 55	....
¼ and common, per lb..	0 30— 0 38	0 45— 0 48	0 37— 0 50	....
Sheep, per head,....	2 00— 5 50	1 25— 3 25	2 50— 3 60	1 50— 3 25
Cows and Calves, each, ...	28 00—30 00	30 00—60 00	23 00—33 00	....

MORUS MULTICAULIS AND OTHER MULBERRIES, &c.—The subseriber is now ready to receive orders to any reasonable amount, for trees of the Morus Multicaulis, or cuttings of the same. The trees are genuine, all being raised by the subscriber, either at his nursery here, or at his *Southern establishment at Portsmouth, in Lower Virginia.* Also, the Elata, Broussa, Canton and Moretti or Alpine, &c.

The collection of Fruits is of the most celebrated kinds. The catalogue of *Fruit and Ornamental Trees and Shrubs, Roses and Herbaceous Plants, for* 1839, is ready, and will be sent to all who apply. In that catalogue, the very best kinds of fruits, so far as proved, are particularly designated by a *star*. All orders will be promptly attended to: and trees, when so ordered, are securely packed for safe transportation.

Nonantum Hill, Newton, Mass. 7th October, 1839.
t jan. WILLIAM KENRICK.

FARM & COUNTRY RESIDENCE. FOR SALE, a very desirable Farm and family residence, most conveniently located, in a dry, airy and healthy situation, eight miles from Baltimore, half a mile from the Philadelphia turnpike, (one of the best roads in Maryland,) and the same from the post-office at Rossville, and Depot on the rail-road from Baltimore to Philadelphia, at Stemmer's Run. It contains 90 acres, of which about 30 are in wood, and the remainder partly in clover and timothy and natural meadow, and partly arable land, easy of cultivation, and kind for the production of all farm produce, fruits, vines and vegetables. The improvements consist of a new and excellent two story frame house, comprising a spacious hall and two parlours with folding doors, on the ground floor, and six good bed-rooms above, and large dry cellar under the whole. Also, a comfortable log-house, with cellar underneath, and buildings adjoining suitable for kitchen and servants' quarters, and a spacious Barn, Stable, &c. detached; a well with pump and springs of good water, and a fine young thriving apple orchard of 250 grafted trees, of the best kinds, some of which are now in bearing, and a few Peach, Pear, Plum and other fruit trees; the whole together forming a most eligible property, rarely to be met with. Possession may be had as soon as required, and for price (which will be low,) and other particulars, apply personally or by letter, (post-paid,) to Dr. C. STREATER, Rossville, Baltimore county, Maryland. nov.1t

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POUDRETTE and URATE—AMENDED DIRECTIONS FOR THEIR USE—(For previous directions, see Cultivator, vol. vi. No. 3, p. 60.) Poudrette *is not* dissolved in water, before being used as is Urate, but is to be used in a dry state, or by mixing it with dry soil in hills or drills, or sown in broadcast on the land, as you would lime or ashes. Experiments in this country, thus far, have proved the following methods as the most advisable in its application.

For Corn—After the furrows have been struck, sprinkle in the place where the hill is to be, before planting, a handful of Poudrette, equal to about a gill, then deposite the corn, (*double that quantity of Poudrette has destroyed corn*, and burned it up,) then cover up the corn and press the earth down over it with the foot or hoe.

For Potatoes—The same quantity, namely, a handful or gill may be used very advantageously; and it has so happened, that when the quantity was increased nearly double, no injury resulted, but rather improved the potatoes, a large handful, however, is sufficient.

Compost—It is worse than useless to attempt to make compost by mixing Urate or Poudrette with any thing but dry soil: if mixed with other manures, they operate on the other manures until those manures are consumed, before they are beneficial to plants; and in some instances it may be, that the result of the Urate and Poudrette in the *first* year of their *first* application, will not be as satisfactory to the farmer as he will think he had a right to expect: this arises from the fact that the land contains a considerable quantity of some former manure, upon which the Urate and Poudrette will first act: at the very next season, however, the farmer will find a crop far superior to his expectation, provided he will put no new manure of any description to the land lately manured with urate or poudrette. This, however, must be further explained by saying, that it applies to manure placed or dunged in the hill, or where the land is in a high state of cultivation, from having been highly manured in broadcast, which would give the poudrette an opportunity of feeding upon or consuming it. Experience has proved, this year, that where there was a moderate application of lime or barnyard manure applied to the land in broadcast, it did not appear to affect the influence of the poudrette on the crop.

The quantity of poudrette must vary from 15 to 35 bushels per acre, according to the quality of the land, and the crop cultivated; less than 15 bushels to the acre may not be very satisfactory, and more than 35 is useless. On Long-Island, the following has been adopted by a practical farmer with success, viz:—For wheat, 40 bushels of poudrette per acre; rye 25 bushels; oats 20 bushels; buckwheat 15 bushels; Indian corn one gill in the hill.

Urate and Poudrette are light substances, and liable to be blown off the ground by high winds, if sowed on the surface when the ground is not damp; therefore, it is considered best to sow the grain and harrow the land once, and then sow the manure in broadcast and cross harrow the land the 2d time.

The difference of the season, between spring and autumn, and the state of the atmosphere, are to be considered before using either urate or poudrette; damp weather is always to be preferred. Neither of them contain any seed of weeds of any description. An application of 35 bushels to the acre of urate or poudrette once in every three years is sufficient.

Urate and poudrette may be sent to any part of the country in barrels or bags—barrels are to be preferred when it is liable to get wet. Orders may be given, post-paid, directed to "*The New-York Urate and Poudrette Company,*" box No. 1211, post-office, New-York.

The urate and poudrette made by this company, is not confined to distribution among its stockholders only, and therefore farmers and gardeners may expect a supply in the order in which their application is made, without any condition of becoming a stockholder, or advancing any more money than may be sufficient to purchase what they need.

Price of the Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c. 1t.

DURHAM AND DEVONSHIRE CATTLE and SAXONY SHEEP, for sale by the subscriber.

1. The Bull *Memnon*, ftom the herd of F. Rotch, Esq. of Butternuts, N. Y. Pedigree No. 2,297, English Herd Book.

2. A four years old full blood Cow, a beautiful specimen of the Devonshire and Durham cross, with her calf, a heifer, six months old, by Memnon.

3. A bull calf, two and a half months old, by Memnon, dam Experiment.

4. From 70 to 80 Ewes, 40 to 50 Lambs, and 30 Rams, from my flock of full blood Electoral Saxon Sheep, selected by myself from the purest race in Saxony. H. D. GROVE,
oct.1t Buskirk's Bridge P. O. Wash. co. N. Y.

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicester's flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 28, 1839.
Sept–tf JAMES A. HAMILTON.

SOUTH-DOWN BUCKS.—Two two year old very superior South Down Bucks, clothed with fine wool and long enough for combing, were imported last April, direct from England, from the flock of the late John Ellman, Esq. of Glynde, near Lewes, Sussex, and are for sale at one hundred dollars each, or to be let for the season at fifty dollars each, by the personal friend of the breeder.

OBADIAH ELLIOT.
Elizabethtown, N. J. Aug. 20, 1839. s3t

☞ The Genesee Farmer and Farmers' Cabinet, will give the above two insertions, and send bill to advertiser.

BERKSHIRE PIGS.—The subscribers are ready to receive orders for their fall litters of Berkshire Pigs.—Several of their sows will come in from the 25th of August to the 5th of September. Orders for the south can be sent to New-York every day in the week, (Sundays excepted,) and reshipped by a faithful person, without charge, except for freight to, or cartage in, New-York. Orders or letters of inquiry, *post-paid*, will receive immediate attention.
sept–2t. H. & J. CARPENTER, Norwich, Con.

IMPORTED CATTLE—BERKSHIRE PIGS.—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.: great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,
sept–3t. Bergen co. N. J. 5 miles from N. Y.

FOR SALE—The subscriber wishing to close up his business, offers for sale the valuable Iron and Lumber Establishment, formerly owned and occupied by Penfield & Taft, situated on Putts creek, six miles from Lake Champlain, in Crown Point, Essex co. N. Y. The premises in question consist of a valuable water power, with a fall of more than 100 feet within sixty rods; on which there is now in operation a Grist-Mill with three run of stones, propelled by an overshot wheel; two Saw-Mills, one with overshot wheel and double gear, all nearly new and in good order; a Forge with two fires; and a machine shop for pounding and separating ore. The water for propelling these works is held in reserve by four ponds or reservoirs on the premises; the upper one being about 2½ miles in length, forming an ample reservoir for the whole works below, and affording sufficient water in itself for driving a forge with four fires and a rolling mill.

Adjoining the works are **600** acres of land, one-fourth of which is under good cultivation; on which are five dwelling-houses, convenient barns and out-houses, a store, blacksmith shop, and buildings convenient for other purposes.

There is also **1,000** acres of fine timbered land lying two or three miles from the above described works. Also, about five miles distant are **800** acres fine timbered land, on which are two Saw-Mills, and one of the richest, most extensive and valuable beds of iron ore yet found in the U. States.

Also, **1,900** acres of land in the towns of Schroon and West Moriah, Essex co. the greater part of which is covered with pine timber; 100 acres of which is under good culture, and on which is a good saw-mill, blacksmith shop, several dwelling-houses, barns and out-houses.

Also, one-half of a farm of 130 acres, situate on Lake Champlain, near the mouth of Putts creek, 2-3ds of it under good improvement; on which there is a large and convenient wharf.

On examining the above described premises, they will be found to combine unparalleled advantages for prosecuting an extensive business in the manufacture of lumber and iron, and for the salc of ore.

Such parts or parcels of the premises as are necessary for prosecuting the manufacture of iron and the sale of ore, will be disposed of separately from, or in connexion with, the lumbering establishment, as may suit the purchaser.

For the terms of sale, and all further particulars, inquire of the subscriber on the premises. ALLEN PENFIELD.

ROHAN POTATOES.—Orders received for Rohan Potatoes, at $5 per Barrel, to be forwarded, as may be directed, without delay, by J. BUEL. tf

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ROHAN POTATOES.—The subscriber is now prepared to furnish the above very valuable root for transportation, at $5 pr. bbl. until the 1st Nov. delivered at Albany. Persons living at a distance, will find it to their interest to forward their orders early, so they will reach their destination before cold weather sets in. Orders enclosing five dollars, (postage paid) or more, will meet with immediate attention.

CALEB N. BEMENT.
Three-Hills Farm, Albany, Oct. 1st, 1839.–3t

MULBERRY TREES.—25,000 Multicaulis, Alpine and Expansa Mulberry trees, and a few thousand Silk Worms Eggs, for sale by S. E. GIBBS & SON,
West end of Long-Island.
Address them at Brooklyn. October, 1839. 3t.

MORUS MULTICAULIS.—25,000 trees for sale, either in quantities or all together, and to be delivered at any time that may best suit the purchaser. They are from imported cuttings, of the genuine Morus Multicaulis, were planted in May last, and are of the most vigorous growth, measuring from three to five feet in heighth, with large collateral branches. Purchasers are invited to call and see them, at the residence of Gen. Morgan Lewis, Staatsburgh, Dutchess county, state of New-York, where the owner lives, as he thinks they will not suffer by a comparison, with any in the United States. Staatsburgh, Dutchess co. Sept. 11, 1839. [oct. 4t] MATURIN LIVINGSTON.

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

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ALBANY NURSERY.—This establishment now offers perhaps the best collection of Pears now in the country; [seo the June number of the Cultivator.] Also, Apples, Peaches, Plums, Ornamental Trees, Green-House Plants, &c. &c. A catalogue will soon be printed, and forwarded to order. Address J. BUEL & Co. post-paid. tf

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THE SUBSCRIBER has located in Albany, where he is manufacturing his machines for thrashing and cleaning grain. He may be found at **53** North-Market-st. or at his machine shop on Patroon's Creek, near the Manor House. Sept. 2, 1839. [oct. 3t] JOHN A. PITTS.

ALBANY SEED STORE, GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholcsale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.
Sept–tf WILLIAM THORBURN.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 189 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.
No. 403½ South-Market-st. (up stairs,) and No. 8 Liberty-st.,
ALBANY, N. Y.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

Vol. VI. NO. 5, WASHINGTON-ST. ALBANY, N. Y. NOVEMBER 20, 1839. No. 11.

Conducted by J. BUEL, of Albany.

TERMS.—One Dollar per annum, to be paid in advance. Subscriptions to commence with a volume.

Special Agents.—Lewis Hill & Co. Richmond, Va.; Bell & Entwistle, Alexandria, D. C.; Gideon B. Smith, Baltimore, Md.; Judah Dobson, bookseller, D. Landreith, and M. S. Powell, seedsmen, Philadelphia; Israel Post, bookseller, 88 Bowery, Alex. Smith, seedsman, P. Wakeman, office of the American Institute, Broadway, New-York; Hovey & Co. Merchants' Row, Boston; Alex. Walsh, Lansingburgh, and Wm. Thorburn, Albany, gratuitous agents; John Thorburn, seedsman and general agent, St. Louis, Mo. E. Valentine, Johnson's Springs, Va. See No. 12, vol. v.

The Cultivator is subject to common newspaper postage.

☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

To our Patrons.

Being of opinion that the general wish of the public is that the Cultivator should be continued, and through the instrumentality of the friends of the paper, we would with great pleasure and satisfaction state, that arrangements have been made by which we hope to not only extend its circulation and usefulness, but to have it continued in the same *form* and at the same *price* as formerly. Arrangements having been made with Mr. Tucker, the present able editor of the Genesee Farmer, to discontinue his paper at Rochester and have it consolidated with the Cultivator under the same title at Albany, cannot fail to give to this paper a more wide and extensive circulation among subscribers, but will add greatly to its correspondents and contributors, thereby enhancing the value of the paper as a standard agricultural work of reference, and (we hope) giving general satisfaction both to the patrons of the Cultivator and Genesee Farmer.

Under these considerations we would refer our readers, more particularly our agents, to the prospectus of the union of the two papers, which will be found on our last page.

☞ We would inform our subscribers that the last or next number of this paper, with the index, &c. will not be issued till about the first of January.

Acknowledgments.

☞ We acknowledge the receipt of the second series of the School District Library, from the publishers *Messrs. Harpers & Brothers*, 82 Cliff street, New-York. Their advertisement, with the names of the selection of books contained in the series, will be found on our last page, to which we would respectfully request the attention and perusal of our readers.

The price of the first and second series which are already published, is twenty dollars each, including a case.

We also acknowledge the receipt of a Native Mulberry leaf from H. Wells, Esq. of Oxford, Ohio, measuring six inches across and nine inches in length, as large as any of the Morus Multicaulus we have seen. Mr. W. says he probably could have obtained one larger had he selected it before the frost destroyed them. He also mentions several varieties, which he says grow larger in his garden than the multicaulus. He does not give, however, any specific name for them.

Comparison of the Temperature of October 1838, and October 1839,

Deduced from observations made at the Albany Academy.

	Oct. 1838.	Oct. 1839.
Temperature of 1st half month	52.87	52.83
Temperature of 2d half month,	42.46	50.04
Temperature of the month, ..	47.66	51.43
Highest degree, ...	75.	74.
Lowest degree, ...	23.	21.
Monthly range, ...	52.	53.
No. clear days, ...	15	20
No. cloudy days, ...	16	11
No. of days rain fell, ...	11	5
No. of days snow fell, ...	2	
Rain gauge, inches, ...	3.32	1.35
Winds—North, (days,)	2½	6
Northeast, ...	2	4½
East, ...		2
Southeast, ...	1	1½
South, ...	11	12
Southwest, ...	3½	2½
West, ...	2½	
Northwest, ...	8½	2½

Large Calf.

A calf of the improved Durham breed, has been raised by Mr. Winant Younghans, of West Sandlake, Rensselaer Co. which, although but five months old, weighs 554 lbs.

Constitution of the New-York State Agricultural Society.

The style of this society shall be "The New-York State Agricultural Society;" its objects shall be to improve the condition of agriculture, horticulture and the household arts.

Section 1. The society shall consist of such citizens of the state as shall signify in writing their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter not less than two dollars, and also of honorary and corresponding members.

The presidents of county agricultural societies, or a delegate from each, shall ex-officio be members of this society.

Sec. 2. The officers of the society shall consist of a president, four vice-presidents, a recording secretary, a corresponding secretary, a treasurer, an executive committee, to consist of the officers above named and three other members, of whom three shall constitute a quorum, and a general committee, the members of which shall be located in the several counties, and be equal to the representatives in the house of assembly.

The payment of fifty dollars or more, shall constitute a member for life, and shall exempt the donor from annual contributions.

Sec. 3. The recording secretary shall keep the minutes of the society.

The corresponding secretary shall carry on a correspondence with other societies, with individuals, and with the general committee, in furtherance of the objects of the society.

The treasurer shall keep the funds of the society, and disburse them on the order of the president or a vice-president, countersigned by the recording secretary; and shall make a report of the receipts and expenditures at the annual meeting in February.

The executive committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c. which may be transmitted to the society; and shall also have the charge of all communications, designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange and publish the same in such manner and form as they shall deem best calculated to promote the objects of the society.

The general committee are charged with the interests of the society in the counties in which they shall respectively reside, and will constitute a medium of communication between the executive committee and the remote members of the society.

Sec. 4. There shall be an annual meeting of the society on the Thursday following the second Tuesday of February at the capitol in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot. Extra meetings may be convoked by the executive committee. Fifteen members shall be a quorum for the transaction of business.

Sec. 5. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

Address of Judge Buel,

Before the New-Jersey State Agricultural Society, held at Princeton, on the 10th of August, 1839.

Gentlemen:—The short notice I had of your meeting, and of your wish that I should address you on this occasion, together with my previous engagements, have prevented my being able to give you any thing more than a brief and imperfect sketch of what it would be my wish to state more in detail, and in a less imperfect form.

The earth every where abounds with the elements of human happiness and comfort. To man has been consigned, by a beneficent Providence, the capacity and duty of cultivating the soil, and of rendering these elements subservient to our wants and our highest enjoyments. And it has been wisely ordained, that our temporal reward shall be in a measure proportioned to the fidelity with which we perform our high duties to ourselves, our fellow-men, and our Creator. The cultivation of the earth was the primitive employment of man, when

> "Adam delv'd, and Eve spun."

It is still the great business among all civilized nations, and particularly so in our country. It ever must remain so, as it is alike necessary to our wants, our happiness, and our existence, as an independent people. All other arts and employments which distinguish civilized life, have grown out of agriculture. They are necessarily dependent upon it for support and existence. If agriculture were to cease, or to withhold her contributions, all other arts, and trades, and professions, would fail, the face of the earth would again become a wilderness, and man a savage.

A cursory survey of the present condition of the globe, will serve to satisfy us, that nations are enlightened and prosperous, and, I wish I could add, free, in proportion to the improved or neglected state of their agriculture; and that the other arts of useful industry prosper or decline, as this parent art is productive or unproductive. Spain, Italy, Asia Minor, and Egypt, have, in turn, been the granaries, in a measure, of the civilized world.—While their agriculture flourished, commerce and the arts flourished among them, and they were prosperous and powerful. But as the agriculture of these countries declined, or was destroyed by the inroads of hostile armies, by the arbitrary sway of despotic power, or the corrupting influence of commercial cupidity and extravagance, the physical and moral energies of these nations were broken down, and they became impotent and servile. Some of their once fairest portions have been made desert by the violence of man; commerce and the arts have fled to countries where agriculture flourished, and their population has degenerated into a miserable set of poor, ignorant, enslaved human beings, objects of pity and christian benevolence.

The intellectual and moral condition of a people, of a district, or even of a neighborhood, may also be pretty correctly judged of from the condition of its agriculture. For if the people are intelligent and wise, this intelligence will soon manifest itself in the improved condition of the soil—for knowledge is more efficient than animal power in the labors of the farm; in comfortable and neat buildings, and in chaste and extensive rural embellishments. If they are wise, they will find in rural labor their natural theatre of action, and the sure means of improving their circumstances, and of multiplying around them the pleasures and enjoyments of life. Where the mental and physical powers are so happily combined and employed upon objects so useful to themselves and to society, as those embraced by agricultural labor, there is but little inducement—little temptation—to immoral habits. But, on the contrary, where agricultural prosperity is most manifest, we are sure to find in the inhabitants a strong disposition to maintain a healthful state of morals, and to preserve in full vigor all the relative and social virtues which constitute the main ingredients in our cup of happiness. An improved state of agriculture not only promotes intellectual and moral improvement, but it tends to lessen the evils of pauperism and crime. These are generally the fruits of indolent habits, of body or of mind, which agriculture neither encourages nor permits. Although our population are five-sixths farmers, they constitute a lean minority both in our poor-houses and prisons. While they attend to the duties of their station, they are not likely either to rob or to beg to procure bread. Scotland has but few paupers, and Flanders less.

I need not remind this enlightened assembly of the important bearing which the condition of our agriculture, and of our agriculturists, has, and ever must have, upon our political destinies. The farmers of our country will be the last class to be corrupted by the bribes and blandishments of power—the last class to part with republican habits—to degenerate, under the baleful and enervating influences of extravagance, dissipation and fashion. The higher the condition of agricultural improvement, the greater will be the intelligence and independence of the agriculturist, and the stronger his inclination and his influence in perpetuating the virtues of our revolutionary fathers, and in maintaining in their purity, the institutions which they established, and in defending them by force, if need be, from foreign and domestic foes. Cherish, then, this interest, above all others. Enlighten it, encourage it, honor and reward it—for it is the palladium of your freedom.

Whether, therefore, we regard agriculture as a *necessary* branch of industry, indispensable to our wants; as a *natural* employment, adapted to the development and useful employment of our physical and mental powers; or in its influence upon the moral, social and political aspect of society, we find in it abundant claims to our highest regards, and warmest support.

If we look back in history to the first settlement of this country, we shall recognize, upon our Atlantic border, a rich and fertile soil, bountiful in the returns which it annually made to agricultural labor, and a contented and thriving population. If we look at the same country now, what is its aspect? Or, rather, what *was* its aspect forty years ago, before the spirit of improved husbandry visited our shores—before science had descended to enlighten the husbandmen in the principles of his business, and before the example of a better system of husbandry had begun to change our practice.—Millions of our once fertile acres had been worn out by reckless management, and thrown into old fields and commons, as unworthy, any longer, of culture; and tens of thousands of other acres, possessing equal, and in most cases, greater natural fertility, had been permitted to lie uncultivated and waste, for want of draining or embanking, a nuisance to the public eye, and the prolific source of disease and death. The farmers were growing poor—were degraded by ignorance and apathy—were seeking for more lucrative employments, or flying to the west, in search of new and unexhausted soils. No cultivated grasses, no alternation of crops, no economy in manures, no thorough draining, and but poor attention to farm stock, our lands were going down, down, down, in fertility, till many of them no longer paid for their culture. The character of the agriculturist sunk in a corresponding degree. Men shunned it as an unprofitable, irksome, and servile employment; and every young aspirant to fame and fortune sought to gratify his ambition at the bar, the counter, or even in the humble employments of life, rather than in the business of farming,

Let us now cast our eyes to the parallel history of agriculture on the old continent, and see what changes have taken place there, while our own soil was being deteriorated and exhausted of its fertility. I will cite for illustration, the husbandry of Great Britain, and of Flanders, though if I should carry the comparison into the German States, Holland, &c. the contrast might be equally remarkable and mortifying.

Great Britain has doubled, and her Scottish territory trebled, the products of their agriculture. The agricultural products of Great Britain now annually exceed, in amount, those of 1775, according to President Humphreys, three hundred and fifty millions of dollars; and yet, in the opinion of her most intelligent men, the British soil is capable of being made to double its present products.

Of Flemish husbandry, I will enter somewhat more into detail; because, in climate, in soil, and in the general make of the country, Flanders bears a close resemblance to the southern part of New-Jersey. The climate of Flanders is very similar to this; the surface of the country is flat, and was naturally wet and cold; the soil generally sandy and poor, except upon the streams coming from the interior, and at their embrouchere into the ocean. And yet, with all these natural disadvantages, there is probably no country in Europe richer in the products of the soil, owing principally to her excellent system of husbandry; and no where, apparently, is the condition of the agricultural population better—and the country more exempt from pauperism and crime, than in Flanders. Every acre, it is said, is made to maintain an inhabitant. This high state of improvement, it is true, has been the work of ages. But the sooner a work of improvement is begun, the sooner it will be completed, and the sooner it will return a profit on the outlay. The difficulties to be overcome in Flanders were great. In some cases, in order to lay the land dry, it was cut into small divisions, which were surrounded by deep trenches, to receive and conduct off the waters, and the surface graded so as to slope from the centres to the borders. In other cases seeds of larch were sown upon very poor grounds, to produce, by a process of years, a vegetable mould, from the falling foliage, sufficient to nourish a crop; and when this was obtained, the trees were cut down, and the soil subjected to careful tillage. These extraordinary cases are not stated for imitation, but to show the persevering labors of that industrious people.

The characteristics which distingush Flemish husbandry, and which have rendered it so uncommonly productive and profitable, are: a thorough draining of the land; a perfect pulverization of the soil, by frequent and deep ploughings, or by trenching; the subjecting the lands to alternate husbandry; the extensive culture of clover, of root-crops, and of tares, for soiling and winter feeding their cattle; the careful extirpation of all weeds; a remarkable attention to the saving, and a judicious application, of manures, particularly of liquid manures; a constant occupation of the ground with crops or herbage; and a judicious rotation, differing in almost every district, on account of the difference in soil, and adapted and settled, after long experience, such as is best suited to the local market—as will best repay the farmer's cost and toil by an abundant return—best cultivate the soil for a succeeding crop—best enrich it for the purpose of increasing fertility, and most effectually prevent, by judicious alternation, that natural disgust which even good soils manifest to reiterated crops of the same description; the small size of farms, and the keeping them in constant crop, no man attempting to manage more than he can manage well; the cutting of the forage, and grinding the grain, for farm stock, thereby greatly lessening this heavy item of expenditure; and, finally, the farmers giving their undivided attention to their farms, and their industrious frugal habits of living—no lumbering, no fishing, no speculation, no hankering after office.

I will take the liberty of making a brief comparison here, of the products of Flemish and Scotch husbandry, on the one hand, and of American husbandry on the other, in some of the staple productions of both continents, as the former were rated twenty, and the latter forty years ago.

The Rev. Mr. Radcliffe, who was sent to Flanders for the purpose of studying its husbandry, stated the average product of its soil to be—in wheat, 32 bushels; rye, 32¼ do; oats, 52 do; potatoes, 350 do, per acre.

Sir John Sinclair, whose reputation and veracity are well known, in his Code of Agriculture, states the average product of Scotch agriculture in good soils, as follows: wheat, 32 to 40 bushels, barley, 42 to 50 do; oats, 52 to 64; turnips, 30 tons; clover, three tons; and potatoes, from 8 to 10 tons; or, allowing 60 lbs. to the bushel, from 266 to 333 bushels.

Mr. Strickland, an eminent British farmer who resided some time in Maryland, and who travelled much in the United States, 40 or 50 years ago, in a communication to the British Board of Agriculture, stated our average wheat crop at 12 bushels the acre, except in the county of Dutchess, in New-York, where he allowed it to amount to 16 bushels the acre.

Gen. Washington, in 1790, in a letter to Sir John Sinclair, computed the average crop in Pennsylvania, which he then considered the best cultivated state, as follows:—wheat, 15 bushels; rye, 20; oats, 30; Indian corn, 25; potatoes 75.

It will readily be perceived from these estimates, that our acreable products were not half as great as those of Flanders or Scotland; or, in other words, that a day's labor on the farm did not effect half the benefit here that it did there. Was this owing to any natural infertility in our soil? Certainly not. Nature had been equally bountiful to both continents. But we *had* abused and wasted her bounties, while they had preserved and improved them. Our decrease grew out of a bad system of farming; their increase resulted from a more rational and improved system. The disparity arose from the science which guided labor in one case, and the want of it in the other—to that science which is still courting our acquaintance, and which we must become familiar with and apply, if we would profit largely from those privileges which God has bestowed alike upon us all.

But the sombre picture of our agriculture has undergone material changes for the better within the last forty years. In many districts, and on particular farms, the fertility of the soil has been renovated; draining has been commenced; manures have been better economised and applied, and new materials of fertility discovered and employed; root culture has obtained a footing; artificial grasses have been cultivated; our herds and flocks have been better selected, and better fed; new labor-saving implements have been brought into use; the alternating system has been adopted to a considerable extent; and last, though not least, the principles of agricultural science have been more extensively diffused, better understood, and more generally applied, and a knowledge of the improvements and better practices in farming promulgated through the instrumentality of our agricultural periodicals. Wherever these innovations upon ancient practice have been made, a corresponding benefit to the cultivator, and to the neighborhood, has been palpaple; lands have been enhanced in value; the husbandmen has increased his wealth, and advanced in respectability and usefulness, and every department of business has felt and acknowledged the vivifying influence of the happy change.

I have seen large tracts of land, in the valley of the Hudson, originally fertile, so worn out by bad husbandry, as to be thrown into old fields and commons, and thought unworthy of culture.

I have seen many of these same lands, in a period of thirty years, again restored, by good husbandry, to their natural fertility, and selling, for farming purposes, at one hundred, and one hundred and twenty dollars an acre.

It is to accelerate these improvements in the cultivation of our soil, that agricultural associations have been formed, and are forming, in every part of our country; and where they have been conducted with spirit, and with a view to public improvement, they have been eminently useful. It is to co-operate in these praiseworthy efforts, that the Association, which I have now the honor to address, has been established. It CAN do much in the good cause— it WILL do much in dispelling the clouds of prejudice and ignorance, which still overshadow our agricultural operations, and in diffusing light and knowledge and laudable emulation—if its members will persevere in the philanthropic determination, which I trust has brought them together—of rendering a substantial service to others, as well as to themselves.

Let us, for a few moments, descend to particulars. I think I have seen, on my passage, at various times, through New-Jersey, much land under culture, that does not give, what may be termed, half a crop, and which can hardly yield a nett profit, above the expense of ordinary labor and charges; but which might be made to yield, under the Flemish, or Scotch, or improved American system of management, a handsome income to the proprietors. Let us suppose that it would require an outlay of fifty dollars an acre, in draining and manuring, to bring thousands into a highly productive state, as productive as are now the soils in the land of promise—upon the borders or in the valley of the Mississippi—and I believe this is a very liberal allowance for the outlay—the interest of this sum would be three dollars an acre per annum. To offset against this three dollars a year, the proprietor or cultivator would probably receive an additional ten or fifteen bushels of wheat, an increase of his corn crop of twenty or thirty bushels the acre, and of other crops in proportion. A difference of ten or fifteen dollars a year, or even of five dollars, in the acreable profits of a farm, will, in a few years, make a wonderful difference in the condition of the good and bad farmer. The labor upon a good soil is no greater than that required upon a bad soil; while the pleasure of working the former, admits of no comparison with the disgust which one feels in working the latter. Does any one fail to see, in this estimate, the palpable benefits which would result from the limiting our capital and labor to the acres that we can cultivate well?

I could give many individual illustrations of the fact that I am now assuming, viz: that capital and labor may be more profitably expended in cultivating a few acres well, than in cultivating many acres badly. I will mention but a few; for no gentlemen present can have failed to notice the vast disparity in profits between well and ill cultivated farms.

A farm of 400 acres, naturally excellent wheat land, in the vicinity of Geneva, N. Y. had become so exhausted by the *skinning system*, that the owner thought he obtained a good price when he sold it at $10 the acre, or for $4000. The purchaser happened to be an intelligent Scotch farmer. With lime, sheep, and manure, and Scotch management, in ten years he so raised the value of these lands, that he was offered $100 the acre, or $40,000 for the farm. He declined the offer, declaring that it gave him a nett income, over the charges and expenses of his family, of $4000, or ten dollars an acre, equivalent to the interest of $150 an acre. And Mr. Robinson, the present proprietor, considers his improvements as but well begun.

A Mr. Harris, near Poughkeepsie, lately gave a statement of the farm produce actually sold from his farm in one year, which, after deducting the moneys laid out for labor, &c. left him an annual income of more than 17 dollars an acre on every acre of his farm. His farm, forty years ago, would not have brought over $25 an acre. It would now sell for $125 an acre.

The sandy lands of Kinderhook plains, which, in my recollection, sold from three to seven dollars an acre, now sell at 60 or 70 dollars an acre, in a state of modern improvement.

Mr. Merritt, of Dutchess, purchased 64 acres of land, which then maintained one yoke of oxen, two cows, and one pair of horses. It now maintains two pair of horses, one yoke of oxen, four cows, twenty hogs, and two hundred sheep.

Mr. Hawkins, of the Shakers Society at New-Lebanon, a few years since bought of the now President of the United States, the half of a farm of 240 acres, the whole of which then cut but twenty-five tons of hay.—By manuring and good management, he is now enabled to cut on this half 120 tons of hay, and to keep in tillage some acres more than is appropriated to arable crops on the other half.

Cases have been cited, by highly respectable authorities, of instances in Pennsylvania, Delaware, and Maryland, of lands, once poor, being made to yield an income equal to the interest of 200, 300, and even 500 dollars per acre. I feel warranted in saying, from what I have seen and heard, that every tolerable good acre of land, lying contiguous to navigable waters, to market and manure, may be made to give an income of fourteen dollars—thus giving to the land an intrinsic value of $200 per acre.

If a man has five hundred dollars, which he wishes to expend upon a dwelling for his family, would he be wise or prudent in exhausting his means upon the *frame* and *covering* of a *large* building, or upon the *frame, finish* and *furniture* of a snug neat dwelling, which should afford room enough and be infinitely more comfortable than the big house, even were it finished and furnished to his mind? No one will hesitate to say, that the five hundred dollars ought to be expended upon the comfortable, in preference to the large house. Apply this principle to agriculture. A farmer had better expend his five hundred dollars in bringing a *small* piece of land into high and profitable culture, than to waste it upon a *large farm*, which he does not, or cannot, cultivate well, and which netts him mere nominal profits. Capital and labor are the true sources of wealth. If concentrated, they produce, in agriculture, as in every other business, a more potent effect than when they are divided, and spread over a broad field of operations. It is not the number of men that constitutue the efficiency of an army; but the intelligence and skill of its leader, and the subordination and discipline of the corps. It is not the extent of lands that determines the farmer's profits, but the intelligence and skill of the master, and the high state of culture to which he brings them. The profits on fifty acres, well managed, are often greater than the profits of hundreds of acres badly managed.

The farm I occupy was naturally as poor, and as forbidding in appearance, as the poor lands of New-Jersey. It was considered a barren sand; and I became the butt of ridicule to some of my acquaintance, for attempting to bring it under profitable culture. It was a lean sand, abounding in springs, swamps, and low wet grounds.—In twenty years, however, it has assumed quite a different appearance. It is now worth $200 an acre for farming purposes; that is, it netts me more than the interest of $200 per acre. My average acreable product in corn is 80 bushels; in grass, nearly or quite 3 tons; in potatoes, in favourable seasons, 300 bushels; and my other crops are in proportion. And these crops are grown at less expense, for culture, than they can be on lands that are more stiff, and naturally more fertile. These improvements, it is true, have required a considerable outlay of capital, in draining, clearing, manuring, and in some portions to the extent, probably, of $50 the acre. Without the outlay, these reclaimed lands were valueless; with it, they are highly productive, and give me a liberal per cent on the money expended; and I have no doubt I could readily sell for cost and charges. I beg to be pardoned for this allusion to my own farming. I make it merely in confirmation of the fact, that sandy, wet lands, can be profitably reclaimed and cultivated, on this, as well as on the old continent.

Money is the sinew of agricultural improvement, as well as of war—with this difference, that agriculture is the parent of plenty, and war the cause of misery and want. Capital no where makes a more sure, and not often a more liberal return, in the end, than when judiciously applied to agricultural improvement. It is like the seed we commit to the earth. If there is no seed there can be no crop. If there is no outlay, there can be no return. And when there is not both seed and outlay, the product must be small indeed.

It remains for me, gentlemen, to suggest some of the means which present, for giving efficiency to your efforts, to improve the agriculture of your State, and, with it, the moral and intellectual condition of its population; for I consider the culture of the soil and the culture of the mind reciprocally acting upon and benefitting each other. The mind must be enlightened before the soil can be greatly improved; while the improvement of the soil will afford the best facilities for improving the mind, and the strongest inducements for the formation of moral habits.

I have said that the members of this Society *can* do much towards effecting these great objects of improvement; and they can do so both in their associate and individual capacities—if they will persevere in their intention to do a *public* good. And this, after all, to a greater extent than is generally imagined, is the best way to promote, if not one's individual gain, at least his personal happiness. There is a pleasure in the consciousness of having contributed to the prosperity of those around us—of having fulfilled, if only in part, this great duty of life: which neither wealth nor distinction, without it, can ever impart. A man who is surrounded by idleness and poverty, and by their usual concomitant, vice, be his business what it may, has, to say the least, but a bad set of customers, and enjoys but few of the pleasures of social intercourse; but, if surrounded by an intelligent, industrious, thriving, agricultural, population, he derives a profit, directly or indirectly, and a pleasure, from them all; and if he has been particularly instrumental in producing or maintaining this happy state of society, I don't know what higher pleasure he can expect or desire in his social relations of life.

The members of this Society may do a public good in either or all of the following ways:—

1. *By the stimuli of personal example*—of doing themselves what they would commend in others—in the family, on the farm, and in society. Mere theory is but speculation. In agriculture, it involves expense and uncertainty. But theory, confirmed and illustrated by practice, if it has merits, is a treasure, which all who see can appreciate, and which few who do see, will fail to profit by. A good farmer, therefore, is a help, and a wholesome stimulus, to all around him.

2. *By the stimuli of competition*, to be excited by the hope of distinction and reward. Competition in agriculture calls into exercise our best powers; which, when once successfully put into action, seldom flag, or fail to lead to the best results. Improvements are progressive; and where we have made one improvement, we have learnt an important lesson, viz: that we can improve. This fact once impressed upon our minds, both ambition and interest impel us forward. Had we not been stimulated by competition, to make the first effort, we should never have made a second, or a third, and should have believed, as thousands now do, that because we were brought up on a farm, there is nothing further for us to learn. Revolutions in agricultural improvements, as is said in political matters, never go backwards.—The great object is to give the first impulse. This the hope of distinction and reward are admirably calculated to effect.

3. *By the diffusion of agricultural knowledge.* There is no intelligent farmer, who will fail to profit by the better practices of his neighbours. Agricultural journals extend his neighbourhood, in this respect, over the Union, and, in truth, over Great Britain also. Every important improvement, and successful practice in husbandry, will be found recorded in these journals; and although they may contain much speculative matter, there is always enough that is useful, sound, and available, to at least thrice compensate him for the price of his subscription. And those, too, who profit from the communications of others, will find pleasure in communicating whatever may occur in their own practice which is likely to benefit the public, and also in promoting the circulation of agricultural journals among their neighbours and friends.

4. *By endeavoring to introduce the study of the principles of agriculture into our common schools.* Youth is the season to sow the seeds of useful knowledge—to instil principles which shall govern in maturer years.—And where these principles are timely and properly taught and inculcated, there is but little doubt they will expand into usefulness. Education gives the impress to manhood. It makes the professed Christian, Mahometan, or Pagan; it makes lawyers, doctors, or farmers; it makes the idler, the vagabond, the libertine, or the prudent, moral, industrious citizen. As the twig is bent, so will the tree incline. Every effort that is made to diffuse agricultural science, will tend to render its pursuits more lucrative, more honorable, and desirable, and to benefit society in a corresponding degree. We want professional schools of agriculture, but, till we have them, common schools may be made a tolerable substitute for teaching the elementary principles of the art.

And lastly, *by procuring for agriculture the patronage of the legislature.* If there is one business more important to the prosperity of the state than another, it is agriculture. If there is one interest that can be more benefitted by legislative patronage than another, or whose interests it would seem the bounden duty of the legislative councils to foster and promote, than another, it is agriculture. This branch of labor gives employment to a great majority of your population; it supplies the necessaries of life, and is the good source of public and private wealth and happiness. But government alone, be it ever so minded, can do but little to advance agricultural improvement, without the active co-operation of the people. We must put our own shoulders to the wheels before we call upon Hercules for help. And it is matter of history, highly creditable to the learned professions, as they are denominated, that they have always been among the most active and efficient in promoting agricultural improvement, from the circumstance perhaps, of their better appreciating its public advantages: and, also, that they go to work without the prejudice and conceits, which are apt to hang, like the nightmare, about those who have been farmer bred, and which prevents their going ahead in improvement. The founder of the Highland Society, of which I shall speak further, was a lawyer, by the name of McDonald. Most of the agricultural works which have issued from the British press, and which have eminently contributed to advance that nation, as well as ourselves, in agricultural improvement, have been written by clergymen, physicians, and lawyers, who were practically engaged in the business of farming. And in our own country, the greatest stimulants to improvement, and some of the best practical lessons in husbandry, have been given by men of enlarged views, and liberal minds, who have been brought up to other pursuits, but who have taken up farming, as a source of pleasure, or of profit, at a maturer period of life. Enlist, therefore, by all means, men of all classes, and particularly those of enterprise, wealth and influence, in your laudable undertaking.

For your encouragement and example, gentlemen, in the work you have resolved upon, I beg to direct your attention, for a few moments, in conclusion to what I have to offer to Scotland, and to her agricultural society; to Scotland as she *was*, and to Scotland as she *is*, in her agriculture; and to the small beginning of her society, to the measures it has pursued, and to the splendid and happy results that have crowned its labors.

And first, to show what Scottish husbandry *was*, I will quote from the Edinburgh Quarterly Agricultural Journal, the best periodical of the kind, perhaps, now, or ever published.

"To say what was the state of agriculture in Scotland, at the date of the formation of the Highland Society," says this journal, "would, to treat of it minutely, require greater scope than the limits of a periodical would admit. * * * But, to take one sweep over hill and dale, over corn field and meadow, we may at once pronounce the agriculture of Scotland, at that period, to have been wretched—execrably bad in all its localities! —Hardly any wheat was attempted to be grown; oats, full of thistles, was the standard crops, and this was repeated on the greater part of the arable land, while it would produce twice the seed thrown into it; turnips, as part of the rotation of crops, were unknown, few potatoes were raised, and no grass seeds or clover were sown. The whole manure of the farm being put on a little bit of the best ground, near the farmstead, where they grew some barley of the coarse sort, termed 'bere,' wherewith to make bannocks, or small beer, or peradventure, if the farm lay at the foot of the Grampians, to brew a portion of 'Mountain-dew.' Since the writer can recollect, a great part of the summer was employed in the now fertile shire of Fife, in pulling thistles out of the oats, and in bringing them home for the horses, or mowing the rushes or other aquatic plants, that grew on the bogs, around the homestead. Such *was* the state of Scotland, with but little appearance of amendment, up to 1792."

In 1815, the scene had greatly changed. In the low country, "beautiful fields of wheat were to be seen—drilled green crops, and clean fallows every where abounded,—the bogs had disappeared,—the thistles no longer existed. Soon after this the farmer could grow turnips to any extent, and the bare fallow was exploded. The Deanston system of draining, and deep ploughing were introduced; 'wet lands were made dry, poor weeping clays were converted into turnip soil,' whole parishes were transformed from the unsightly marshes, into beautiful and rich wheat-fields; and where the plough could scarcely be driven for slush and water, were to be seen heavy crops per acre, and heavy weight per bushel." Scotch agriculture has since been progressively improving, until, as I have before stated, its average products probably double those of this country.

Secondly, of the Highland Society, its origin, its operations, and its present extent, and means of usefulness.

"In 1784," says our authority, "a few gentlemen, full of zeal for their country, and it may be a little love of society, formed themselves into a hole and corner club, in a coffee house, called the Exchange, situated in the court of that name, near the 'market cross of Edinburgh.' Here, in the enjoyment of agreeable conversation, and perhaps a good supper, did those worthies talk over plans for the amelioration of the Highlands, and from this nucleus arose the now widely extended and powerful Highland Society," whose members now number twenty-three hundred, and whose, premiums, for the current year, exceed seventeen thousand dollars.

"In the days of its youth and feebleness, the Highland Society, sent the leaven of turnip husbandry into all the glens and straths of the north, by offers of small prizes to certain Highland parishes, and the same may be said as to the growth of clover and the finer grasses. As it advanced in strength, as to numbers and cash, attention was turned to premiums for stock; then came offers of reward to men of science to discover better implements and machines, to diminish friction, and consequently draught, such as in the threshing mill and other parts of agricultural machinery, Still advancing in the scale of intellect and of science, premiums were offered for essays to bring to light the facts connected with chemistry and natural philosophy; and, under the auspices of the society, was set up the Quarterly Journal of Agriculture, a work which has been the vehicle of conveying so much useful information to the agriculturist, that, we humbly venture to say, it ought to appear on the table and book-shelf of every farmer's parlor. After this, the great stock shows were resolved upon, as another link between the society and the practical farmer, at the same time throwing aside all paltry feeling, and making them open to stock upon both sides of the Tweed (English as well as Scotch.) Nor has the society forgotten the beauty of the country as the premiums offered in regard to planting trees, and the such like subjects testify; and to sum up all, it may be said, the Highland Society has been a '*point de appui*,' a rallying point to which the agriculturist of Scotland, might look, and a fostering mother to all who, although strong in talent, were too weak in interest, to make it public."

May the spirit and wisdom which have animated, and guided the Highland Society of Scotland, animate and guide this institution; and may your success and usefulness be as brilliant, as wide spreading, and substantial, as have been theirs.

I have thus endeavored, gentlemen, to show the practicability and importance of improving your agriculture, and have suggested some of the means by which this society may efficiently co-operate in the great work of improvement. The work is a noble one, worthy the philanthropist and the patriot. Its objects are the good of our country, and the happiness of man. And though you may not reach the goal of your wishes, your labors will not be lost. The seed which you sow will produce its tens and its twenty fold, though you may not live to gather the harvest. The work of improvement which you begun, will progress, and be fraught with blessings to your children and your state. And you may be sure of a liberal reward for your exertions, at least in the conscious pride, which every good man feels, in having faithfully performed a high duty to society.

CORRESPONDENCE.

The Tariff—Balance of Trade.

Sing-Sing, September 23, 1839.

Friend Buel—It appears to me that there are a great many vague notions entertained in the world respecting the effects of a protecting tariff, as it is called, and the balance of trade. A great many specious arguments are made use of, to show how easily we might, by legislative enactments, grow rich; although the way, to my mind, has never been very clearly defined. My views of the subject are the result of reasoning on general principles. I assume, in the first place, that the only real increase in the wealth of a nations consists in those improvements which go to increase production, or which are of permanent utility, such as the improvement of the soil in agriculture, the improvement of machinrey in mechanics, the construction of canals and rail-roads to facilitate the exchange of property, or the erection of buildings of good materials where there has been none before. These are the principal means of increasing the wealth of a nation, and I think they are most available where trade is left unfettered. I think all must admit that the greatest desideratum is, that we may enjoy the greatest amount of the good things of this world for a given amount of labor; but it does not follow that, that enjoyment must alone consist in eating, drinking, and wearing yearly the amount of a year's labor. On the contrary, it consists in part in the making of such improvements as I have mentioned, which is as it were enjoyment put at interest, that it may be increased at some future day. Now the question is, under what system will we advance fastest in national wealth? Some say let us have a high tariff, and manufacture all that we can for ourselves; that will enable us to make our exports more valuable than our imports, and the balance in our favor will be that much added to our national wealth. Well, unless we get the balance in some shape, we should be the losers: If we take it in goods, we gain nothing, *as most people think*, for then there would be no balance; if we take it in specie, it will not add to our real enjoyment so long as we keep it, and not until we exchange it with other countries for something we can eat, drink, wear, or use in some other way, and that leaves us where we begun, Here some one more keen-sighted than his fellows may interpose and say, let us take the balance in specie, and apply it to the construction of works of internal improvement, instead of borrowing foreign capital. I answer, if we do, that puts the money in circulation, and this nation's portion of the currency of the world is limited by the laws of trade; consequently it would flow out as fast as it flowed in: That would make our exports and imports of specie balance each other, and the result would be precisely the same as though we imported no specie and exported none; and that which we have supposed to be applied to works of internal improvement, had been borrowed out of money already in circulation. Therefore the idea of getting rich by exporting more than we import, is altogether preposterous, unless we can get foreigners to pay us interest on the balance; but we have more cause to borrow than lend.

All classes are to be fed, clothed and provided for;

but it does not follow that the whole time of a whole people is to be employed for that purpose. Tariff or no tariff, a part of our time can be and is spared, in which to make improvements; but, if we can exchange the produce of forty days' labor in agriculture, for as much of foreign goods as we would have to give forty-five days' labor for to domestic manufacturers, we save the one-ninth part of our time for other purposes; or what would amount to the same thing, the one-ninth part of the people might be engaged *all* the time in making improvements, which would be adding capital to the nation. The true policy with nations, as with individuals, is to sell where they can get the best price, and buy where they can buy cheapest. I believe it to be an error of opinion, that for the want of a higher tariff, excessive importations are made: I attribute it to an unstable currency. Our measure of value is too much like what a measure of length or quantity would be, if made of India rubber: it is altered too easily at will. If prices are artificially inflated, excessive importations will naturally be made from countries where prices are lower. Domestic manufacturers, in such cases, cannot compete with the foreign; and it is said to be for the want of a higher tariff. A higher tariff laid when excessive importations are making, would no doubt check them for a season; but let it be considered that under a tariff system the country can bear more currency than if there was no tariff, because a tariff for a limited time protects money from exportation, by keeping out foreign goods which would create a demand for it; and the amount of currency may and will be increased, until prices are so high that we can import foreign goods over the tariff, pay the duties, and still have a profit. A tariff, then, after a limited time, is no protection at all, unless we go on increasing it ad infinitum, which would never do. It would be a protection, if, under its operation, prices did not rise. If it *was* a protection, it would still be bad policy. Government should undertake to effect nothing more than to *start* manufactures into existence, where the condition of the country will warrant their continuance, without taxing the people to support them; and that, in my opinion, can be effected in no way so well as by offering a direct bounty, such as now with propriety might be given for a limited time for the production of silk.

Many people think, that without a tariff, foreigners would sell to us of their wares, and might not be willing to take our produce in exchange. If they did give us something for nothing, we should certainly make more out of them without a tariff than with; if they drew specie, it would not last always; if they refused to trade with us, they would lose most, and it would be the most efficient tariff the American System men could ask for. In the natural course of things, a nation's exports will be equal to its imports, and vice versa; and it is right that it should be so. If this nation's exports are less than its imports, it is for two reasons: One is because of the emigration to this country, which brings wealth in its train to the amount of many millions annually. Another great cause of our importing more than we export of late, may be found in the fact that the States and corporations are loaning money in Europe by the millions, for banking purposes and works of internal improvement. These loans, I believe, generally come to this country in the shape of foreign goods, the avails of which are paid here to the borrowers. For that portion of our imports we export nothing but a mortgage on posterity; and it gives to the country a seeming prosperity, similar to what a man evinces when he is sporting on borrowed money, and like to what some inebriates feel when they are *pretty considerably well corned;* and I fear that with some States, the languor of depression will come in the shape of feeling in the pockets for *direct* taxes to pay the interest. If the loans came to this country in gold and silver, it would inflate prices by putting it in circulation—that is certain: If they came in goods, prices may be raised to the same pitch by an increase of currency, without turning the exchanges against us, and the banks have not been slow in filling up the vacuum. The consequence of the States borrowing so much foreign capital in a short time, has been an increase in the cost of their improvements; because producers are fewer, provisions higher, and labor scarce and dear. It would no doubt have been cheaper for them to have constructed their works more gradually, and to have raised their money at home, even though they had been obliged to pay over seven per cent interest. By borrowing a portion of the money already in circulation, the prices of provisions and labor would have remained nearly stationary, instead of rising to the enormous height which they have of late years, in an expenditure of thirty millions of dollars a year: More than one-fourth the amount need not have been out of circulation at any one time, and we should have had the satisfaction of owing it to our own citizens instead of foreigners, besides preserving us from those habits of extravagance invariably engendered by an artificial inflation of prices; which habits must be changed, I am thinking, before we pay off both principal and interest.

It may seem strange and paradoxical that the States borrowing too much money in England of late should be the cause of the present scarcity of money here, when the natural tendency is to make it more plentiful. If we may credit late English papers, much of the proceeds of the sales of American stocks has of late been shipped to the Continent, to pay the debts due by American merchants there. The specie was drawn from the Bank of England, until the managers found it necessary to curtail discounts to such a degree as to compel English merchants to call on their American debtors for *real money,* in payment for a portion of the goods imported under the presumption that they would be paid for by increased sales of States stocks. It is also said that English warehouses are full of goods designed for the American market, which will be sent here and sold for what they will fetch, to the great injury of American manufacturers.

You will perceive that I consider the tariff a deceptive thing; getting rich by the balance of trade, an illusion; and borrowing so much money in Europe, very impolitic and unstatesmanlike, to say the least of it. It is not high prices at home that makes a nation rich; but it is the facility with which men and communities of men can exchange the products of their labor for articles which they stand in need of, under a scale of steady prices which admit of calculation and foresight in business.

With great respect, I remain your friend,

JESSE RYDER.

Best Season for Destroying Bushes.

Greene Co. Va. July 15th, 1839.

J. Buel, Esq.—Sir,—In the last number of the Cultivator, I see, by you, an answer to a query of the most effectual time to cut bushes, sprouts, timber, &c. to kill them, and whether or not the moon has any influence as to time. You seem to think that the moon has; consequently recommend the old moon in August, from popular opinion and your own experience. And you give farther as a reason, that at that time there is less sap in circulation than in the other summer months; and farther, the intense heat of the season tends to destroy vitality. As to the heat, that is a good reason, and I would add dryness of the season generally in August, for I have frequently observed large trees in the forest, and bushes and sprouts aronnd stumps in arable land die at that time. But the reason given on account of there being less sap, might be carried farther, and say the winter months, when there was neither sap in the body nor root of the tree apparently, would be the most effectual time to kill them. And as to the moon, ten years experience in farming, from the result of the most inquisitive inquiry, upon what is called the best signs in the moon for sowing, planting, &c. and having made experiments in every instance in farming, has conclusively satisfied me that the farmer has no farther use for the moon than to give him light. If there is any influence in the moon upon sowing, planting, &c. it is not uniform, for upon a certain sign in the moon some years a crop may succeed well, and upon the same sign in other years prove a failure. I will mention a circumstance which, perhaps, has crossed your observation, of two learned men, (their names do not occur to me,) one in England and the other in France, making, by agreement, at the same time, observations upon the influence of the moon on vegetation, and the result of their experiments proved differently. Upon my farm I found a great many locust, and being anxious to exterminate the most of them, I was told, for the most effectual way, to skin them in the old of the moon in August. To one thicket, at that time, I done so; but to my disappointment sprouts put up as thick as if they had been cut down in winter or spring, but they did not grow as vigorously, which I ascribed to heat, dryness, and the short time they had to grow in. I was then told to skin as soon as the bark would slip, (which is in May,) which I have since done, and where duly observed I have never had a single sprout to put up, and the trees would tumble down in a short time.

Sir, the disposition this deserves you are the judge of.

Your ob't serv't, T. G. G.

P. S. The crop of wheat in this section I do not think an average one, but better than has been for several years, though but little sown. Oats and grass very heavy. Clover, last spring's sowing, failed, owing to the drought in the spring. Corn very promising at this time. G.

On Dwelling Houses.

New-Preston, Litchfield Co. Ct. Oct. 7, 1839.

J. Buel—In your valuable paper the Cultivator, in one of its numbers last spring, I think, a writer set forth the dampness and consequent unpleasant and unhealthy nature of dwelling houses constructed in the country of stone, to be such that no wise or judicious person ought to think of building the walls of a dwelling house with that material. I think a fair and full experiment, such as myself and others have had in this vicinity, is worthy to be contrasted with the above denunciation of what I consider the best building material in very many parts of our country.

In the summer of 1831, I erected a stone dwelling house on moist land, having water running from the cellar at all times in wet seasons. I can say I think, with entire truth, that my house, in all parts and respects, is as dry as any other house, in its cupboards, closets and rooms, except one small lodging chamber, and this may not have shared in the general protection. When the wash-boards were nailed in their places, I purposed to have them completely filled with mortar; and in all places exposed to be made the gangway of rats, the mortar was well filled with flat stones. This has had but little effect in stopping mice, but I think the effect has been good in keeping off rats. My house is furred with one and a quarter inch stuff, and lathed throughout; and this, stopping the damp air from passing into my rooms and behind the walls, makes my house dry and pleasant. In all changes and sudden thaws, my house is as pleasant as any constructed with wood in the country. Eight years residence in my house has never led me to regret that I built of stone; and wherever the great materials are near at hand, stone, sand and lime, I would say, use them in preference to brick or wood; but be careful in all your buildings to stop the damp air from passing from the cellar behind the walls, or in any other way into the rooms. Framed houses have sills and timbers on which the floors and wash-boards are mostly placed, entirely excluding the cellar air, which may be the great reason why they are more dry than stone or brick. My house is 61 feet by 30–31 feet, the kitchen and wash-room having a recess in front of 6 feet. By close calculation, my house cost $150 more than wood, being two stories high and ten feet between joints. I transported my pine lumber forty miles. Respectfully yours,

SAMUEL AVERILL.

Berkshire Hogs.

Black Locust Grove, Mo. Sept. 21, 1839.

Hon. J. Buel—Dear Sir—Will you request your neighbor, C. N. Bement, to inform us, what is the general or common color of full bred Berkshire pigs. We have some in this country, brought from Ohio, which are black, claiming to be full blood; some, said to come from New-York, which are white, said to be full blood; the owner of which says there are no genuine Berkshires that are black. Both kinds that are here are good hogs; the white ones have heavy ears, the black ones small ears. Now, our desire is not to be imposed on as to the blood; if we have the genuine Berkshire, we wish to know it; if not, we want them. An answer is requested. Respectfully yours,

A. H. F. PAYNE.

In compliance with the above request, I have extracted from the "Complete Grazier," describing them as they were exhibited in 1807, by the late Sir William Curtis, at the cattle show of Lord Somerville, where they attracted universal admiration.

"They were of the Berkshire breed; the specific characters of which are a reddish color, with brown or black spots; sides very broad; body thick, close, and well formed; short legs; the head well placed, and the ears large, and generally standing forward, sometimes pendant over their eyes. Another distinctive mark of this breed is, that the best are without bristles; their hair is long and curly; and from the rough appearance, seems to indicate coarse skin and flesh; but, in fact, both are fine, and the bacon is of very superior quality. The hogs arrive at a very large size, and have been reared even to the weight of 113 stone, (904lbs.)"

From "Loudon's Encyclopædia of Agriculture," published in 1831, I extract the following description of the Berkshire pigs at *that time.*

"The Berkshire breed is distinguished by being in general, of a tawney, white or reddish color; spotted with black; large ears, hanging over the eyes; thick, close, and well made in the body; legs short; small in the bone; having a disposition to fatten quickly; and when well fed, the flesh is fine. Berkshire has long been famous for its breed of swine, which, as it now stands, is in the third class, in point of size, excellent in all respects, but particularly as a cross for heavy, slow-feeding sorts. It has extended itself from the district from which it takes its name over most parts of the island; is the sort mostly fattened at the distilleries; feeds to a great weight; is good for either pork or bacon; and is supposed by many as the most hardy, both in respect to their nature and the food on which they are fed."

The Berkshire pigs, imported by S. Hawes, Esq. in 1832, of which I came in possession in 1835, differ, in some respects, from either of the foregoing descriptions; and they are the ones from which have originated pretty much all the Berkshires now generally introduced in almost every section of this continent. The color is invariably black with white spots on the body; feet sometimes tipt with white; and some white on the face and nose. Short and smooth coats; fine skinned; some of them have smaller heads and ears than those described above; long, round and deep in the body; short in the leg; broad on the hips and loin; large and full in hind quarters; hams well let down; and light in the bone and offal. The sows are good breeders and nurses, producing two litters in the year, from eight to fifteen at a litter.

I never have seen one of the full bred Berkshires entirely black; in fact, I should look with a very suspicious eye on one without some white, let it come from where it would.

They may, with propriety, be termed "graziers," for they will feed and do well on grass alone. After the pigs are taken from the sows in the spring, I cause rings to be put in their noses, and turn them out to pasture, without any other food, until they litter again in the fall. This is not only a great saving of expense, but saves considerable time, which can be more profitably employed in the field.

I have now an imported Berkshire boar, from a different strain, with more bone and size, which I intend breeding to this fall, and hope to have a good supply of pigs for sale in the coming spring. He is lighter colored than the former importations; was one year old last June, and measures 5 feet and 6 inches from his nose to the root of his tail, and around his girth 4 feet and 4 inches, in ordinary condition. Very small head and ears; legs short and of sufficient size to sustain great weight when fattened. Yours respectfully,

CALEB N. BEMENT.

Three Hills Farm, Nov. 12th, 1839.

A Hint to the Publisher and Friends of the Cultivator.

Lake C. H. Ia. Oct. 20th, 1839.

Hon. J. Buel—Dear Sir—I have adopted a plan with the Prospectus of the seventh volume, that promises much usefulness. You offer agents from 10 to 25 per cent upon subscriptions obtained. All wrong—wrong to offer a greater premium for a large number than a small one. One may exert himself more in one place to obtain ten subscribers than another would in another place to obtain a hundred. But more than all, it is wrong to offer any per cent. What? am I to believe that the spirit of agricultural improvement is so low, that the friends of such a paper as the Cultivator are so much more beset with the love of money than the good cause that we are engaged in, that they must be paid for asking their neighbors to read and be enlightened? I will not believe it. And as for your "per cent," for one, I will have none of it. But I tell you what I will do, since you can afford to pay it, I will take it, and PAY THE POSTAGE ON THE VOLUME WITH IT. Thus, I endorsed upon the prospectus, as follows:

"TAKE NOTICE—As I charge NO COMMISSION, one dollar in advance will pay the subscription, *and the postage*, upon this volume of the Cultivator."

Are there not hundreds who are as willing as I am to help the good cause along, and "charge no commission?" I assume to answer in the affirmative. The "hint," then, that I would make to you is, that you should say to every person in whose hands a prospectus may come, whether they obtain a greater or less number of subscribers; to take enough out to pay the postage. And the "hint" that I wish to give the friends of the Cultivator is, to practice upon my "no commission" principle. Thousands will take the paper upon these terms, that would not take it and pay the postage, extra. Try it, I pray you; I am sure I cannot be mistaken. To every gratuitous agent who obtains such a number of subscribers that you can afford him a gratuitous paper, no doubt he will accept it with pleasure. But the grand object must not be lost sight of by the conductor and friends of the paper, that is, to increase the circulation as far as possible, and no better plan than the one I have adopted, I believe can be adopted.

I remain, as usual, your friend, &c.

SOLON ROBINSON.

Advertising.

Judge Warner has my thanks for his kindness in giving publicity to the preventive he has so successfully used for bloody murrain; I have used ashes for horses and hogs all my life, but not for cattle; I am now trying it, and will, God willing, try it effectually.

You have deprived me of an argument that I have hitherto used in favor of your valuable paper, in order to get subscribers; and that was, that it was indeed and in truth what it purported to be, not an advertising sheet, but devoted to the cultivation of the mind and soil. Now, sir, we wish to bind our numbers as a book of future reference, and we have no wish to bind a bundle of advertisements; besides, the advertisement of "A Splendid Country Seat in the Highlands, on the Hudson River," and such like, must be of little importance to a vast majority of your readers. I would not, sir, by any means be considered as marking out the course of the Cultivator or its able editor; but instead of one page of each number being nearly filled with advertisements, would it not be better for those wishing it to pay for a quarterly extra sheet, to be styled the "Cultivator Advertiser?" Indeed, it seems to me they might very well afford it, seeing that your valuable paper is read in nearly all the States and Territories of the Union, and in the British Provinces of North America.

The above is, sir, submitted to the consideration of your superior judgment, and hope it will be received in the same spirit that it is written, and from the sole motive of benefitting mankind in general, and your readers in particular, by the perusal of "many valuable essays from other periodicals," instead of such advertisements as the above. Yours most respectfully,

AUGUSTUS H. F. PAYNE.

Black Locust Grove, Sept. 21, 1839.

We would inform our correspondent, that in order to remedy the evil complained of above, in our next volume we intend to dispense with advertisements, and probably print a semi-annual or quarterly advertising sheet, which may be done with as our subscribers think proper, providing sufficient encouragement is given to warrant us in so doing.—*Cond.*

On Hay Making.

Clinton College, 17th Sept. 1839.

Hon. J. Buel—Dear Sir—In the August number of the inestimable Cultivator for the present year, p. 121, I see a revolving horserake recommended by Mr. Dexter. Of the advantages of this rake I am not informed, such improvements in the implements of husbandry not having yet reached this western country; but if my view be correct, of the best and most economical mode of making hay, we have, perhaps, no need of a rake of any kind. I therefore write for information, and am willing at the same time to benefit others as far as I can. I shall detail briefly my plan, with the hope that if any of your numerous readers have a better, they will favor me and the public with theirs, through the Cultivator. I have travelled some, and read a little, for agricultural information, and have practised, as circumstances would allow, upon those plans which my opportunities have taught me are the best. Hay making has been, with me, a subject of close attention: and my plan, as taught me in Kentucky and elsewhere, and confirmed by experience, is this: As fast as the grass is cut, (when there is no dew or moisture on it,) as many hands follow the scythes, as can keep close up to the scythes, in *shocking* or cocking *the hay in its perfectly green state.* If the sun does not shine on or wilt the hay at all, so much the better, and for that reason it must be shocked as fast as it is cut. The shocks are made about six feet high and six feet wide at the base, and tapering like a cone to the top, and then dragged down with the fork to make them turn rain. All this can be speedily done with the hay fork, one hand being able to gather and shock three acres, or six tons, per day. The rake spoken of may do better than this, but I doubt it, and should like for Mr. Dexter, or some one else, to specify the amount a hand can rake and shock per day with that instrument.

As you remark, I never spread the hay, but proceed to shock after the scythe as fast as it is cut, by following along the swath, and with a fork, *rolling* the hay till I get as much as I can raise on the fork, when I pitch it on the shock. Thus I continue to carry as many swaths to a row of shocks as will complete them. I always roll *towards* the shocks to save walking with the hay, which is laborious. This plan of collecting the hay will be more approved, when you understand *an improvement I have made in the mode of cutting hay.* I do not mow with the scythe, as is common, but I *cradle the hay,* (as will be explained,) which throws all the grass into swaths double as large as those made in the usual way, and hence the hay is already collected into sorts of winrows by the cradle, so that the rake is not needed.

For cutting hay, make a cradle with two fingers only. Let the one nearest the scythe be 7 inches shorter than the blade, and so arranged as to let its point nearly touch the blade; let the second finger be 7 inches shorter than the former, and arranged so that its point may come in one inch of touching the first finger, and you are now ready for business. In cradling, *do not mow, but give the usual stroke of cradling grain,* only take care to set your cradle in no further than you can carry out with ease. In cradling grain close to the ground, you have to squat a little in making the stroke, proceed the same way in grass, and you shave it to the ground.

I know that the farmers of the old states, who have made hay all their lives, will laugh at this plan, and particularly at the idea of a Tennessean proposing to *show them* something new in cutting hay. They will argue, that a cradle will be too heavy, and that it will tangle, and cannot work in dense hay. Let them try it. The denser the grass the less you must cut at a stroke, and your cradle will go easily through, thick and thin. But the great advantages of *the improvement* remain to be told. They are no less than three. 1st. In this way you cut twice as much in a swath as in the common way of mowing, and then the grass is *all* collected into a winrow as you proceed, and not left scattered as the scythe would do it. Thus the labor of raking is saved, and less of the hay is left on the ground at the end of the process. Besides, the cradle cuts it perfectly clean under the swath, which few hands will do with the mowing scythe.

2d. The process is less laborious than mowing. No man who ever cradled hay would mow, if you gave him his choice as to the mode of cutting.

3d. *A hand can cut double* as much in the day as he can do with the mowing scythe. If a hand can mow one acre per day, he will cradle two acres of the same grass with less labor.

I have tried this plan but one season, having cradled about fifty acres of timothy alone, and of clover and timothy mixed. The cradle does so well in these kinds of grass, that I expect to have no use for mowing scythes hereafter in making hay, unless the plan should fail in herdsgrass or redtop. I have not tried it in that grass, as I have grazed my herdsgrass this year, instead of cutting it for hay. I wish my brother farmers to try this plan effectually, with a strong cradle blade, and let me hear from them next summer, in the Cultivator.

But to return to the process of curing hay. Having shocked as before described, (I mean timothy or herdsgrass,) I let it remain for six days, when I run my hand to the centre of each shock; if I find them still cool, I do not disturb them, but if any are warm, I put the left hand on the top of the shock, while the right is thrust to the centre, and turn the upper half down to the ground, so carefully as not to disturb its form, and leave it inverted. In an hour or two, the whole is cool, and I then take hold in the same manner and place it back on the shock as it was before. Not more than one shock in twenty will ever get warm at all, (most of them curing fine and green without heating,) and none will need turning down more than once. In this way, your hay has three signal advantages over that made by spreading and curing in the sun. 1st. It costs not more than half the labor of spreading and shocking repeatedly till dry. 2d. You run no risk of getting any injured or lost by rain. 3d. You get more hay both by weight and measure, and the quality of it is far better than can be made in the sunshine and open air, both of which dissipate much of the nutritious virtue of the hay. Yes, much more of the virtue of most of the products of the farm is lost by exposure to the air, than is generally believed. You have to be particular to cut and shock when there is no dew or rain on the grass, (for if wet it will heat)—examine it once in six days—and be sure to let it be well cured before you stack it, and you cannot fail to make the best of hay, *in any season,* without injury or loss.

When I make clover hay, I follow the foregoing plan in all respects, till it is shocked. Then I haul and stack it perfectly green, in large stacks, taking care to *salt* and *tramp it well* while stacking. I use about as much salt as the cattle would require while eating the hay, say 50 lbs to a stack 16 feet high and 14 feet at the base. In five or six days the stack becomes hot and smokes profusely, but in two or three weeks it will have "gone through the sweat," and be found perfectly dry and sweet. The less wilted before stacked, the less it heats and the better the hay it makes. By this process the hay is of a dark green color, and all kinds of stock will eat it greedily and thrive upon it. It shrinks but little in curing and looses no leaves, and is in all respects better for cattle, horses or sheep, than clover cured in the open air.

Respectfully,

FRANCIS H. GORDON.

P. S. In your March number, page 13, Mr. Brewer recommends Robert Rittenhouse & Co.'s Patent Clover machine. From his letter, I admire Mr. B. as a farmer, and should be glad to learn from him or yourself,

1st. What amount of seed the machine will clean per day?

2d. Is it worked by horse or human power?

3d. How many hands are required to attend it?

4th. Does it get all the seed out of the chaff?

5th. What is its weight? how large or what space does it occupy?

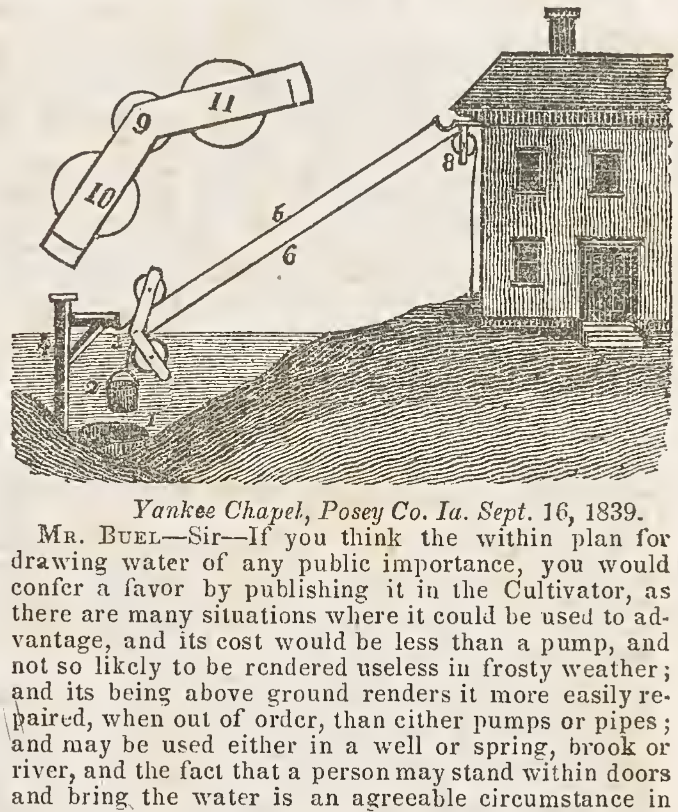
6th. Can a common farmer keep it in order, or does it require a workman?

7th. Can one be had in Philadelphia, Baltimore or New-York city, and to whom should I apply.

Last year I made one hundred bushels of clover seed, but the process of tramping with horses is so tedious and so disagreeable, that I feel discouraged, and should be pleased to learn a better plan; I therefore shall be happy to learn the particulars of this machine.

Plan for Drawing Water.

[Fig. No. 45.]



Yankee Chapel, Posey Co. Ia. Sept. 16, 1839.

Mr. Buel—Sir—If you think the within plan for drawing water of any public importance, you would confer a favor by publishing it in the Cultivator, as there are many situations where it could be used to advantage, and its cost would be less than a pump, and not so likely to be rendered useless in frosty weather; and its being above ground renders it more easily repaired, when out of order, than either pumps or pipes; and may be used either in a well or spring, brook or river, and the fact that a person may stand within doors and bring the water is an agreeable circumstance in stormy weather. The above plan was suggested to me by an intelligent Frenchman, who informed me that he saw it in use in Naples. The figure 1 denotes the well or water; 2 the bucket; 3 the sheth block, which should be of cast iron, with 3 sheths or wheels in it; those at the ends, marked 10 and 11, should be 2½ or 3 inches diameter; the one in the centre, marked 9, about 2 inches diameter; 4 is a post, which should be very firm, and an arm in it, to which a strong wire is made fast, and so arranged as to be tightened or strained by a screw in the arm of the post; the wire, marked 5, is made fast at the other end immediately over the spot where the water is to be brought; No. 6 is a cord made fast at one end to the bucket, passed through the block and over the wheel No. 10, and then over a wheel in a block No. 8, which block is made fast near the point where the bucket is to stop; then the end or fall of the cord may be put to a windlass or drawn by hand; the wheel No. 11 runs on top of the wire, and that marked 9 runs under the wire; there should be a small notch directly over the spot where the bucket is to stop, into which the wheel No. 11 drops, and renders it stationary, while the bucket descends; and a spring or lever is brought to act on the wheel No. 11, by pulling a cord for the purpose of raising it out of the notch, when it is desired to have the bucket return to the well or water, which it will immediately do the moment the wheel No. 11 is lifted out of the notch, when it will continue to descend until it comes in contact with a projection at the end of the wire, over the well, when it becomes stationary, and the cord gently passes over the wheel No. 10, and lets the bucket fill; then upon drawing the cord until the bucket comes up and in contact with the lower end of the block, all begins to ascend the wire to the desired spot; the block should be bent as shown by figure 7, as the wheels will work much better than if it was straight; and the surface of the wheels should be fluted or hollow, so as to cause them to run more truly on the wire, and under the wire and cord.

Also I send you a sample of grass, from the meadow of Mr. John B. Wallace of this place, which I think should be cultivated more generally, as it is a very hardy grass, and is nearly all leaf, the stem, on which the seed is formed, being so short as seldom to be cut by the scythe when mowing, and which produces more hay, and of a better quality, than any I ever saw. This grass is indigenous to this country; its merits, however, have not been fairly tested, though so far appearances are favorable. The fact of its having no straw I consider to be of importance, as the hay would be much finer, and I think more nutritious than where a large portion of the mass is stem or straw. Mr. W. is only engaged in experimenting on it as yet, though I shall feel much disappointed if it does not do better than any other grass now cultivated for hay. This spire which I send you I took no pains in selecting, though it measured 4 feet 8 inches. Yours, &c.

MICHAEL W. ROWE.

The Mad Itch.

Washington Co. Ia. October 21st, 1839.

Dear Sir—There is a complaint raging to some extent among the cattle in this country, called the "Mad Itch," which appears to be incurable, and if you or any of your numerous subscribers could give information how to cure it, you would confer a great benefit to the public.

Not having seen any account of it in the Cultivator, I will describe it as near as I can. It takes the cattle with an itching on the nose or around the horns; they then commence rubbing and throwing their heads and frothing at the mouth, and in about twenty-four hours they are dead. If you or any of your subscribers know any cure or preventive, I want it published in the Cultivator. HERVEY DEMY.

To Cure the Fowls in Cattle—Rohan Potatoes.

Priceville, Wayne co. Pa.

Take corrosive sublimate, pound and dissolve it in spirits, water will answer, pare and cleanse the part well between the claws, or where affected, apply the mixture one or twice is a certain cure; I have never known it fail in twenty years's experience.

From one potato which Mr. Rains purchased of you for me last fall, I raised four bushels; they were planted four feet apart each way, one eye in a hill, thirty-two hills—not much manure was used. I am now selling them, the large ones, for twenty-five cents each. Profit enough to pay my subscription for the Cultivator since its commencement. JACOB W. WELSH,

Manchester.

Double and Single Flowers.

Manlius, Oct. 25th, 1839.

"We invite, on all occasions, liberal criticism. It is the collision of flint and steel that elicits light."—*Con. Cul.*

J. Buel—Dear Sir—You will observe, at page 123 of the present vol. of the Cultivator, in answer to questions propounded by Phineas Pratt, speaking of deteriorating plants, flowers and seeds, "Hence florists destroy *single* and *imperfect* flowers, lest they should fecundate and *destroy* the seed of double flowers." I believe, sir, botanists never select double flowers for analysis *because they* are imperfect. Their stamins become changed to petals, and frequently the pistils too by cultivation; their natural character is often destroyed: it is, therefore, difficult to determine by analyzing a double flower how many stamins or pistils belong to it in its natural state; consequently no true class and order can be given, although the beauty of flowers may be increased by cultivation. Yet their relative beauty, as subservient to scientific illustration, is certainly destroyed by the labor of the florist. Flowers in their natural state, unassisted by cultivation, are usually single, and are considered perfect by botanists. They should not, therefore, be *destroyed*, or set down as *imperfect*, *because* they are single. Yours, &c. respectfully.

FARMER C.

The Tree Corn.

Manlius, Oct. 25th, 1839.

J. Buel—Sir—Having of late, in different prints, observed many harsh epithets used against Grant Thorburn and his "*tree hill corn*," I take the liberty of stating a few facts in relation thereto. Last spring a friend of mine gave me 30 grains of the celebrated tree hill corn purchased at Thorburn's at 25 cents per ear. I gave away 3 grains and 2 did not vegetate; which left me 25 grains to grow. These I planted on the 13th of May, in my garden; they grew to the height of from 8 to 10 feet each. It was hoed three times. On the 2d of Oct. I harvested, of sound corn, 62 ears, with some 10 and some 12 rows each; 2 ears were 10 inches in length; 5 others of 9 inches; 12 others of 8 inches; and the remainder were from 5 to 7 inches in length. Perhaps I should have come at the product more exactly had I shelled and weighed it; but as it is, enough is set forth to prove it a great yield, and the shrewd old Scott should not be ycleped the worst of beings by the good people of this country, even if he has sold them corn at 25 cents the ear. "Look before you leap, and never cry for broken bones."

FARMER C.

P. S. From 5 Rohans, of middle size, I raised over three bushels; they did not get quite ripe; they were planted 22d of May, and dug 3d of Oct.

On Propagating the Peach.

Kipton, (Vt.) Sept. 30, 1839.

Hon. Jesse Buel—Dear Sir—In the Cultivator for Oct. 1838, page 133, I observe the following directions are given for raising peach trees: "The stones may be buried in the ground during the winter, and those which are not cracked by the frost may be broken before they are planted."

I pursued this method for several years, and not having been very successful, I began to suspect that, instead of aiding nature in her simple operations, by the application of frost, I had counteracted her efforts, and concluded to try the application of heat and moisture, instead of frost. Accordingly, I took a quantity of peach, cherry and plum stones, with a number of walnuts and butternuts, or, in the language of the south and west, hickory nuts, and white walnuts, wrapped them in a cloth, that I might more conveniently take them out of the ground in the spring, and buried them in a loose muck under a fence, where they were covered with a snow-drift during the winter. When I took them out in the spring the sprouts had perforated the cloth in all directions. When I opened the cloth I found the stones, as well as the walnuts and butternuts, all opened, and the young plants disengaged from them, which I placed in the ground, and they all grew. This was about forty years ago, since which I have always pursued the same method, omitting the cloth; and have generally found the stones opened in the spring; always, I have believed, when they were put in the ground before they had become dry, and were kept sufficiently warm during the winter; and those which were not opened in the spring being planted generally came up.

That either frost or the hammer is necessary to open peach stones and cause them to vegetate, is certainly an error; but since frost will not prevent, but only retard vegetation in this case, the correction of the error may not be of sufficient importance to find a place in the Cultivator; of this you will judge.

Since I have a small space left, I will fill it with a few remarks in relation to raising potatoes from the seed. I believe that the seeds are generally taken from the balls in the fall, dried and planted in the spring; but I have found that if the balls are buried in the cellar when they are taken from the vines, and the seeds planted in the spring, they will come up sooner, and the potatoes will be larger in the fall.

DANIEL CHIPMAN.

Query.

Near Rockingham, 22d Sept. 1839.

J. Buel,—Sir,—A few days ago six of my cattle were taken down with a disease caused by eating too much green corn, having broken through a very bad sod fence. Yesterday three more were taken in the same way. I could find no remedy for such a disease in any of the cattle books, and was totally at a loss what to do. An ox of a neighhor was taken down at the same time; he gave him about a half a gallon of soft soap and lard.—His ox died. Fortunately I had no soap, and could give no such dose. Some of mine I bled in the mouth, for others I did nothing. They are all getting better but one, which I shall probably lose.

The object of this letter is to learn from you, or some of your correspondents, what remedy should be applied in such a case. I do not mean a quack remedy, soft soap for instance, but some remedy based on medical principles. I should have added, that my cattle were taken with a violent purging, attended with extreme debility, and a dullness amounting in some to utter insensibility. Yours, truly, JAS. GRANT.

Doing Good to Others.

Chatham, 2d Oct. 1839.

Jesse Buel, Esq.—Dear Sir—"Recollect you have it in your power to do a great deal of good!" This was your last and benevolent expression on parting from you a few weeks since.

It has been my rule, occasionally, when I observed worthy and energetic overseers, to subscribe for some agricultural work and send them by way of encouragement, and it has not only been the means of exciting their energies still further, but inclines them to habits of reading, and its results are gratifying to me, and beneficial to them. So also, I have subscribed for some young and industrious farmers, without letting them know from whence it came, and have invariably found it to result in good, not only to them but to a circle immediately around them; in a few years after beets and ruta baga is a part of their crops, liming and manuring indispensable; and thus your Cultivator becomes the necessary adjunct, and I find it circulating in neighborhoods where otherwise it would not have found its way probably for years. And thus I try to fulfil your excellent admonition, although in a small way, doing some good to you and the cause of agriculture, (to which we are both enthusiastically devoted,) and more, perhaps, to others. How many are there, among the great and the wealthy, that might do likewise; be the means of disseminating the true science of agriculture, and of advancing the noble cause of agricultural education throughout our land, and never feel the loss of a few paltry dollars. N. P. C.

A skillful agriculture will constitute one of the mightiest bulwarks of which civil liberty can boast.

EXTRACTS.

The Life of the Husbandman.

"I am a true laborer. I can earn that I eat, get what I wear, owe no man hate, envy no man's happiness; glad of other men's good, content with my farm, and the greatest of my pride is to see my ewes graze and my lambs suck."—Shakspeare.

We have come to the conclusion, that nature's truest nobleman is the man who earns his bread by the sweat of his face, upon his own bought and paid for plantation. An independent Farmer may stand upon his house-top, and say to himself as Selkirk did:

"I am monarch of all I survey
My right there is none to dispute;
From the centre all round to the sea,
I am lord of the fowl and the brute."

He is truly a monarch—with a landed title more secure than that of feudal Lord or Baron,—more easily protected and preserved, not by deeds of valor, and through the shedding of blood, but by the lawful labor of the hands. His house is his castle, his acres are his dominions. His gardens are his parks, his grass plats his lawns, and his forests his groves. His cattle, sheep and poultry are subjects, and he becomes, at pleasure, either the executioner or the multiplier of such subjects. Tell us if the King upon his throne has more power worth possessing. His happiness we know is less, as he increases his toils, cares and sorrows in proportion as the cultivator of the soil diminishes his.

In the spring time he sows, in the autumn he reaps. Providence has assured him that spring time and harvest shall not fail, and he has the assurance of the Giver of every good and perfect gift, that as he sows so shall he reap. His grounds are watered in the season of drought, with the rains and dews of Heaven, and in the damp season the sun shines to cheer, invigorate, and give promise to his labors. The severer tasks of the summer are succeeded by the lighter labors of the winter. As we have said in the words of Will Shakspeare, he "earns that he eats, and gets what he wears," and his philosophy is that of the shepherd who said that "good pastures make fat sheep." He may say truly, and with an honest pride—

"I eat my own lamb,
My chickens and ham,
I shear my own fleece and I wear it."

What could a man want more; and how can a farmer, capable of enjoying life, possessed of his farm house, his farm, and his necessary implements of husbandry, ever sigh for a residence within the enclosures of a city, —choosing bricks and mortar, for the elbow room of a spacious farm house, the smoke and dust of the town for the village, the three or four story brick house for the granary or the haycock,—the purest air of heaven for the atmosphere of a thousand smokey houses, and ten thousand unwholesome breaths? How could a farmer make such a choice as this? We would pause for a reply, did we not know that the only answer which could be devised, after a long study, would be the unsatisfactory one, that something better was anticipated only,—for it would be a miracle almost, for a man to find himself happier or in better circumstances after a a change of residence from the country to the city.—No,—no. The true Elysium,—the real Paradise on earth, is the country,—the green, fruitful, beautiful country. The city for the taskmaster and his hard-working servant; but the country for the man who wishes for health and leisure,—contentment and a long life.

The ancient Romans, venerated the plough, and in the earliest, purest time of the republic, the greatest praise which could be given to an illustrious character, was a judicious and industrious husbandman.—*Portland Advertiser.*

The American Farmer.

The following beautiful description of our most worthy and happy class of citizens, is from the address of the Hon. Mr. Rowan of Kentucky, to the citizens of Louisville. If any one would inquire why farmers are more worthy than any other class, this description will answer the question. They follow that profession which is most essential to the public good, and which is the foundation and support of all other useful employments; and the situation of farmers leads them to a higher state of moral worth than any other class will attain—*Yankee Farmer.*

"Who is there among us that beholds the condition of our farmers, and does not exult in the consciousness that he is an American citizen, and pant to superadd the character of a farmer? The house of the farmer is the abode of the virtuous. It is a school in which lessons of practical wisdom are taught. It is a temple in which the precepts of our holy religion are inculcated. It is the castle of sovereignty, for it is owned by its occupant and he is a freeman. It is the residence of peace, order, harmony, and happiness. Patriotism and piety unite in consecrating the place, and in suffusing every countenance with their unction. Indeed, what condition in life is so likely to produce that patriotism which will stand the country in stead upon emergencies, or that piety which will afford solace in extremity, as that of the farmer? He occupies a constant, intimate, and sensible relationship with Heaven. His mind is subdued with a love of order, by constantly beholding that which prevails around him. The regular successions of the seasons, of day and night, and of seed-time and harvest, admonish him to the observance of regularity and order in all his conduct. He perceives that the sun and moon perform their circuits without loitering on the way; and learns from them that industry is required at his hands. He looks to Heaven through its rains and dews, for the reward of his labors in the abundance of his crops.—He makes the sacred volume of revelation the man of his council, and the source of his consolation. He unites with his wife and children in tones of supplication and strains of praise around the family altar on the morning and evening of each day. He acknowledges no sovereign but Heaven and the people; he bows with appropriate reverence to the will of each, and exults in the freedom of his own, for his homage is a free-will offering claimed at his hand by the convictions of his reason. His affections are conducted by his judgment and not by his fears, in his devotions. Matron chastity, and infantile innocence sweeten and religion hallows the atmosphere of his home, and render it irresistibly attractive. He loves his country because the farm and the domicil of which he is the proprietor, and with which his affections are identified, are a part of that country. His patriotism is an essential part of his conscious identity. Connected by his affections with the soil, and by his piety with heaven, it partakes of the stability of the former, and the purity of the latter. It inspires him with holy enthusiasm in the cause of his country, when its honor or its safety is concerned. It is electric, and strikes every contiguous bosom till it pervades the community."

How to Preserve Tomatoes for Winter.

Among other improvements in Horticulture, I have been gratified to observe the increased cultivation of the tomato. Believing this to be a most healthy vegetable, I send you an account of the manner in which, universally in Asia Minor, they are preserved for use during the winter.

Cut the tomatoes in two when quite ripe, and sprinkle considerable fine salt on them over night. Next day pass them through a cullender, moistening them with a little water; set the part thus strained through to dry in the sun, in shallow dishes, in depth half an inch or an inch; and when hardened to something more than the consistence of a jelly, put it away in covered jars, without any other preparation, for daily use. Should it show any signs of injuring, add more salt, and expose the jar again to the sun. This, it is presumed, will seldom be necessary—a specimen of what was prepared for my family more than twenty months ago, is still in a fine state of preservation.

A table spoonful of this tomato jelly is enough to impart a relish to a dish of *pilaf*, that is, rice cooked with meat or butter, or soup, for a large family.

Rohan Potatoes.

The last of May, 1838, I received from my friend, the Hon. J. Buel, of Albany, one Rohan potato, which yielded 50 lbs. The last of April, 1839, I planted 48 lbs. of seed and from it on the last of September last, I harvested 4,204 lbs. which measured 74 bushels—many of the tubers weighed over 3 lbs. each—and 20 of the largest filled a bushel basket.

Elmira, Oct. 8, 1839. HERVEY LUCE.

Breeding Swine.

From the Franklin Farmer.

We feel very much indebted to the writer for the following excellent communication on a subject of the greatest importance. The rearing of swine is a department of rural economy in which there is room for the greatest improvement, and we think our Kentucky breeders will find much useful information and many valuable hints in the communication below.

Buffalo, N. Y. August 31st, 1839.

To the Editor of the Franklin Farmer;

Sir—Agreeable to the intimations in my last, I now come to the rules adopted by the most successful breeders of Berkshires in this vicinity: your readers will excuse my particularity in stating them, for the reasons that the article of pork, as before asserted, is the most important item of western agricultural production, and that I am writing to those who are not *above* their business, but who take the same pride and pleasure in raising a fine race of hogs, as they would in that of blooded horses or Durham cattle.

A boar should never be permitted to be used till seven months old at least, and it would be much better that he were allowed to run till nine months. But if commencing at seven months, he should cover sparingly, say not more than fifteen or twenty sows till a year old, and these as distant apart as possible—one or two only in a single week. From this time till he has attained pretty full vigor, which I should place at about eighteen months age, he may be used a little more freely. His spring seasons might then vary from twenty-five to thirty sows, and his fall nearly double this number. In the meanwhile he should be kept with care. A strong door may open from his pen into another, to which the sow is introduced, the boar is then let in and allowed one coitus only, immediately after which he must be turned back, and the sow taken away. It has generally been noted that one covering produces a greater number and stronger offspring than two or three, and that an *ad libitum* service, is alike pernicious to all parties.

The best food for the boar during the season, is boiled or soaked corn, with plenty of pure fresh water, and for a variety some swill from the house with meal in it (oat is the best) and a raw or boiled vegetable root or two; and as an antidote of disease, and to give tone to the appetite, and assist digestion, a table spoonful or so of sulphur is occasionally put in his food. Salt is also placed where he can get at it when he pleases, and charcoal or small chunks of rotten wood, together with a handful of crushed bones, if convenient, is thrown. He must be kept up alone in his stye under close cover with a plank floor and plenty of dry litter, the sleeping apartment communicating with a good yard to exercise and root and wallow in, and a strong post placed upright near the centre for him to rub against.

During the interim between the spring and fall seasons, it would be greatly conducive to the health, vigor and longevity of the boar, if he could have a run in a cool grass pasture, with clear sweet water passing throughout, and take lighter food than when in service, but yet sufficiently nutritious to keep him in fair store order. A good animal thus treated, may last ten to twelve years and get excellent stock first to last. But great care must be taken that he be not *overworked;* this is deemed very essential. It is the great fault of us Americans, that when we have obtained a male that has any way distinguished itself, instead of husbanding its resources, we use it too much, and this is one great reason why the stock of such animals so often disappoints the public. I understand that particular English breeders, limit their best horses and bulls to about thirty females, and often as low as twenty or five and twenty. What their usage is for boars I do not know, but I suspect that it would be less than here allowed. It will be admitted however that individual males, may serve well a greater number than limited above, but my principle is, not to work them up to their full capacity; if error must be committed, it is better that it be on the safe side.

Unless a sow were very coarse, and the object was to fine her, I would not allow her to breed till eighteen months old, and if something extra was desired, she ought not to come in under two years. There is then no check in growth, and the first litter is usually as good as any subsequent one. She ought to be taken up and occupy a place alone, either in a pasture or a pen similar to that described for the boar, one month previous to farrowing, her condition kept good, and strictly watched when expected to bring forth. As soon as dropped, see that the pigs are cleaned and take the teat, and the dam rid of the placenta and that carried off and buried. The watching should continue a day or two longer, till the pigs get a little strong and lively, as the sows of this breed are so heavy as to endanger their being lain or trod upon and killed. One pig more saved than leaving the sow to herself, amply repays all this extra attention. Although objections are made to giving food immediately after farrowing, I can see no reason in them; the poor animal is faint and dry, and requires nourishment, and my rule is to feed it swill in a moderate quantity a little more than blood warm as soon as it will get up and eat it. This is gradually thickened the next day, and by the time the pigs are a week old, the dam is allowed to eat all it will without cloying. A mixture of oat and pea or Indian meal, of one part of either the latter to three parts of the former, is highly recommended for nursing, together with an equal quantity of steamed vegetables. As soon as the pigs will eat, a small open door should be placed in the pen under which they could run and be separate from the sows, a trough set in, and milk, with a light mixture of oat meal poured out for them. This greatly relieves the sow, and adds much to the growth of the pigs, they wean then, without scouring, losing condition in the least, or being checked in their growth. It is generally thought that pigs do as well to be weaned at six weeks old, as later, as the little milk each then gets, is obtained by more or less quarrelling, and adds a distaste to their other food, besides it is a great consideration to get them off the sow as soon as possible. Eight or ten great pigs tugging at her breast for two or three months is hard to be borne, and frequently very pernicious to her teats. In weaning, all but one should be taken off, put the dam on short allowance, and in two days take the remaining pig away, allowing it at first, to draw the breast twice a day, and then diminish till once in two or three days during a week, then turn the sow out to grass and leave off entirely, and commence gradually putting her into condition again. The Berkshires are great milkers, and must be well attended to at weaning time, or their breasts will fill, become caked and swollen, and finally ulcerate and be the cause sometimes of the death of the sow.

Two litters are allowed per annum, and a preference for farrowing in this climate, is given to the months of April and September. Farther south later and earlier will answer. A pig when first dropped is a very tender animal, and if the weather be too cold it will perish; the dam also is likely to become ravenous and devour her offspring, or refuse to nurse it. Sows are better to be always separate, but with the owner of a large herd, this is inconvenient, and adds greatly to the expense of keeping them. One must do as well as he can in this particular, but when nearly of a size and tolerably peaceable, four may be kept together in a pen, and a dozen or so in a pasture. The breed greatly decides on this point. For instance, I could keep a hundred Chinese together without quarrelling or accidents, they are so good natured and quiet; but then again, they huddle too close, and so want as much separating as others. These being smaller and of quicker maturity than the Berkshires, the sows may come in at a year old, and when full grown, great care must be taken about overfeeding and keeping them too confined. The bellies of this stock are now nearly dragging on the ground, though they have had no other food since the forepart of May, than what they have found in a poor grass pasture. Those I have sold west, get so fat on shack by November as to be hardly able to waddle, and make the nicest of pork without further feeding. In England they are called par excellence, the "gentlemen's hog," and though their pork inclines rather too much to fat, still it is so sweet and delicate, that it is more generally preferred by those who can afford it. The crosses of these with the Berkshires are in a great repute at the Smithfield market, and I will add that what little has been thus made here, takes the preference. The hams well boiled, and eaten cold, seem absolutely to dissolve in the mouth without mastication. The average weight of my improved Chinese, may be at eighteen months old, from two hundred to two hundred and fifty pounds. Occasionally they will go older to three hundred and even four hundred pounds, but this is very rare. Though small, they have proved to the other races of hogs, what the Arabians have to horses, the foundation of all improvement.

The reader will have surmised from my observations on breeding, at least some of the causes why the Berkshires with you have not come up to the full sizes so often stated by the eastern breeder, that they arrive at, but lest he may not yet thoroughly understand the demerits of the case, in justice to both seller and purchaser, I shall proceed to briefly state them. Suppose then that we start with a pair of Berkshires from unexceptionable stock, the produce may deteriorate in size either from too great affinity in blood of the parents, breeding too young, too old, or too much. Keeping too fat, (which by the way is not often the case) too poor, or too confined—from diseases known and unknown, from runts that will occasionally be dropped, from scantiness and impropriety of food to the pig, and occasionally, over which no one has control, and that check its growth from sufferings through the inattention of the transporters to its place of destination, and finally from a general deterioration in nature. Really good animals that are every way right, are rare, very rare indeed, and when at last obtained, cannot be too highly cherished. That there may be an increased effort to produce them throughout the United States, is the ardent desire of

Your obedient servant, A. B. ALLEN.

We received the following in the same package which brought the foregoing. In reference to the hardiness of Durham cattle, since the publication of our article alluded to below, a number of breeders have furnished us with facts going to prove that this breed is equal to the native cattle in vigor and hardiness of constitution.—We should be glad to have their experience on the subject written out for publication; and it would be well if some breeder would treat the subject with reference to the physiology as well as the habits of the animals. In point of animal conformation, we never have entertained a doubt that the Durhams would be better able to endure hardships than the scrubs; and our opinions as to the superior hardiness of the latter are founded on the fear that the tenderness with which the former are usually (and very properly) treated, might tend to establish a habit in them, unfavorable to their hardiness. Let us hear from old breeders on this subject. We shall be able, we think, to settle the question for ourselves the ensuing winter.

"I was just folding up the inclosed missile to send you, when the Franklin Farmer of the 17th inst. was brought down home from the post office. I notice your just and candid remarks on hogs and cattle. You mention *deep, muddy* roads, but will gather from the contents of my last letter that I had dry ones only in prospect for the Berkshires. I was not aware that you drove in mud. The greater weight of the Berkshires in soft roads would tell against them, still I do not think the Longshanks would have much the advantage over those only a year old or so; above this age I think they would decidedly, though here with yourself, I would prefer to have a trial instead of an *opinion*—coarse bones, however, do not constitute superior strength or endurance. The same diameter of bone of a race horse, as it is more compact, finer grained, and less porous than that of the cart horse, must consequently be stronger, for instance, something like ivory compared with bone. It is said that the Berkshires possess this superiority. But there must be something aside from bone to constitute strength, and endurance—such as as ligament, muscle, &c.

"I most heartily wish that your proposition of giving premiums could be acted on at fairs. This ought to be the animal's test, the best and most meat, or the quickest and most work at the least cost—then show should never enter into consideration, only as a desirable appendage, but I fear we all have too much of it in influencing our judgments.

"As to the hardiness of Durham cattle, I will relate what I know. You can easily surmise the rigor of our climate here in the latitude of 43 degrees—but my brother's cows wintered well on Grand Island the first year he had them, on hay alone, and without shelter, other than an open shed, for he had just begun his farming and had no barn. The bull, Leonidas, belonging to my father, the two winters he was three and four years old, stood at a stack of marsh hay, and no other food except what he had out of the horse dung heap—his shelter was the lee side of the stack, he never entered a stable or slept under cover to my knowledge during this time, and never seemed to care for sleet or snow. He had a bed high and dry of the same kind of hay that he ate. He did not grow much during these winters, but came out each time in good condition. The hardiest native animals that we have, on the same fare, would not have looked as well. I consider this bull an extraordinary hardy and thrifty animal. It is not the way, however, that Durhams ought to be kept, nor do I think many would bear it; but knowing how good the progenitors of Leonidas were, and as it was never intended to sell him, and size and show, therefore, were not particularly cared for in him, the experiment of thus wintering was begun and watched as it continued, to see that he did not suffer, for the purpose of satisfying ourselves that short horns may be bred hardily. This past winter, when he had attained five years age, we were engaged in drawing out very heavy white oak timber for ship plank, and had twelve of the most powerful yoke of cattle that we could find for this business. Leonidas was put into the team, his step was as quick as the freest, and some of the oxen girthed over seven feet, not one was a match for him at a pull. His girth is about 6½ feet. He is of moderate height and very compact, and when turned out at his ease taking on flesh like a China pig. I will add, that he did the same duty and on the same fare as the other cattle, and came out in the best condition.

"Mr. Rotch, of Otsego county, where the thermometer not unfrequently falls to 30 deg. below zero, tells me that his short horns will bear *any intensity of frost.*—As the winter season approaches, a short thick under coat of hair resembling fur comes out on them, which is shed as warm weather sets in; he thinks, however, that his stock does not stand the heat quite as well as the native breeds. Still there is no doubt in my mind that these same animals taken to Kentucky would do well, with the advantage of shade trees to shelter them from the rays of the sun during the hottest part of the summer days. It is well known that animals will accommodate themselves to climate. I have a short haired New-Foundland dog, and as active an animal in summer as any I know, he sheds and grows his under coat of hairy fur as the seasons warm and cool.

"The editorial remarks on the feed and treatment of Durham cattle that appeared in No. 39, vol. 2, p. 309, of the Franklin Farmer, as a general rule are admirably just, so far as my experience goes. Does any one suppose for a minute, that a superb short horn can attain its present size and condition, turned out to the blasts of a rude Canadian winter, with a half a ton of hay and what browse it can pick up for its only sustenance during seven months, or that they can support themselves on arid lands that would starve an ass, or among rocks so thick that a peaked nose sheep can hardly get his teeth to the grass? What the breeders of imported animals contend for is, not that they will support life and keep fat on a less amount of food than another, (China hogs excepted,) but that they will give a greater combination of meat and milk, and these of a better quality, and arrive sooner at maturity. It is thus for the interest of the breeder to feed generously, and if he is not prepared with rich pastures and cool groves in summer, and comfortable stables in winter, with plenty of good hay and some meal or roots, he had better let Durhams alone, or indeed any large improved animals. For one, I have no idea of blinking the stock question, and to conclude, I will say, dont pamper and stuff, but feed well and regularly, and make your animals comfortable in all weathers, as you would like to be yourself, or high prices, with the expectation to grow and sell high again, will have been paid in vain.

"Your remarks have unexpectedly led me into so many observations upon stock, that I shall now await some abler pen before touching paper again on this subject, for I fear I may already have exhausted the patience of your readers. Be so good as to make our compliments to western importers, and say that we should be greatly obliged when subsequent herds are brought this way, that they would send the names and pedigrees of the animals with them. From the first importation of the Ohio Company, to this last by your neighbors that passed here a week ago, we have scarce got a name or pedigree with this stock. This would have been a great satisfaction to many here, for then, in hearing of their sales, produce and doings hereafter, we should know what it was. We presume that no one engaged in these importations thought of this, or we should have been obligingly favored by a full sight of all these matters. If the young bull of this lot has not *size* enough to suit Kentucky, I shall pray for the resurrection of a Mastodon from the Big Bone Lick in shape of a Short Horn for you.

A. B. ALLEN.

Notices of Improved Farm Stock—No. 2.

Before leaving Otsego, I beg to be indulged in a few remarks that may be applicable to the southern tier of counties of Western New-York. Although the winters of this region may be considered long and somewhat severe; still I think it a country admirably adapted to the growing of middle sized stock. The pastures throughout the summer are sweet, nutritious, and enduring, and springs and rivulets abound in every field. These with the fresh, grateful air among the hills, even during the hottest part of the season, makes it peculiarly favorable for stock; and all animals during the pleasant weather, thrive well. I saw here several very promising fields of ruta baga, and was told by the cultivators, that they considered it a very certain and great crop with them. When clay does not too much abound in the soil, I should think this must be so; the stone keeping the ground moist and cold, which, with a proper friability, renders it just the land for turnips. Here, then, is ample nutriment for the winter to keep stock up to the work, placing the higher altitudes nearly on a par with the lower and more ameniable regions. I could not learn that the sugar beet was cultivated at all on my route. I presume, however, some must have tried it, and I should be pleased to know how they have succeeded. Those with whom I conversed, seemed to think it would not do at all; but why, I am yet to learn. I have cultivated it with great success on a hard clay soil, and in a climate little inferior in rigor, to that of the hill country, and I must say, I think it the most valuable root crop that can possibly be raised, and am of opinion that it will yet be the *great* crop of the Northern states. To say nothing of the prospect of its value for sugar, I think it, upon the whole, the very best root we have for general stock. My pigs would last winter leave warm cooked swill, and run to raw beets thrown to them on the frozen ground. I shall however, speak of this root and its comparative value, more fully after harvesting my present crop, and in the meanwhile, hope that with the introduction of good animals, will come that of well tilled fields of roots for their sustenance; hay alone, being hardly sufficient to keep them up to that full condition so agreable to behold.

But to proceed. The sun had but little the advantage of us, in climbing up the high hills from Cherry Valley, so that we had a pretty fair meeting upon their burnished tops, and such a glorious view of the wide valley of the Mohawk, seen spread out before us, as would amply remunerate a sluggard for a whole year of early rising. The waters were shrouded in a misty wreath as far as the eye could reach; beyond, rose hill upon hill, and between on either side, waved such fields of golden wheat, tall corn and green meadows, as would gladden the heart of any one to behold. It is an exceedingly rich valley, the Mohawk, possessing great capabilities, and well may it challenge the admiration of the traveller, not only for its fertility of soil, but ever varied roll of hill and dale, and gentle flowing streams.

We found some very good Leicester sheep, at Mr. John Wilkinson's of Esperance, and the prices he mentioned for them, I thought low—they seemed to be bred with care, and the manner in which they were handled in pasture, by a well trained shepherd dog of the Scotch breed, was quite gratifying. At the farm of Mr. Dunn, at Dunnsville, we saw Liecesters also, of the largest size. One buck among them, the farmer assured me, weighed 334 lbs. To the amateurs of large animals, and to every one desirous of increasing their sizes, I recommend these sheep, but will frankly add, that they are not to my fancy at all, and I would much sooner choose a breed of half their size, even if I were desirous of raising the greatest given quantity of mutton from the same number of acres, and same amount of food. These large animals are no workers in pasture, and must stand up to their knees in grass and clover during summer, and be highly fed on roots in the winter, or it is quite impossible to keep them up to the work—so says every intelligent breeder that I have conversed with upon the subject. Mr. Dunn, residing in Albany, I had not the pleasure of seeing, to learn his opinion, which, for ought I know, may be the antipodes to the above. He also has a superb herd of dairy cows of Mr. Bullock's breed of Short Horns. They are deep and rich milkers, and on good pastures, I should consider them very valuable and productive animals.

Leaving the turnpike about two miles this side of Albany, we moved round a beautiful park composed mostly of evergreens, at the gate of the Three Hills farm, belonging to Mr. C. N. Bement. This place is greatly improved since coming into his possession; a charming house with a nicely arranged and well stocked garden in front, neat fences, and young trees planted out and flourishing in rows, where before it was all barren and desolate, and other rural embellishments are in progress, that will soon make his home, as indeed it is now, a very agreeable one to occupy.

The crops here, were better than I expected to find them on so light a soil, the oats, if any thing were too rank in growth, the rye good and the mangel wurtzel the best I have seen this year. The ruta baga also, was very promising, though in common with other crops, where I had visited, the cold heavy rains had somewhat put them back. I much liked his yard, barn, and stable arrangements, and in building for myself should copy the piggery, merely doubling the width, and making two rows of pens with accompanying yards on each side of the gangway. I found here a very cheap and simple apparatus for raising water, in successful operation. A small stream runs through the farm, across which a dam is thrown that gives a fall of 3½ feet. An overshot wheel of 2 feet 8 inches in diameter, is here placed with a pump 1¾ inches bore, and 10 inches long, forces up from 12 to 1400 gallons per day to the height of 55 feet, and 42 rods distance to the mansion house, from whence it is carried, in lead pipes down to the stock yards, piggery and barns. The water works are protected by cheap covering, from the frosts of winter, and the supply during the most intense frosts, is always kept up, making a comfort and convenience in obtaining this necessary fluid, that highly commends itself to the attention of all who are desirous of bringing water to their houses and stock-yards.

Mr. B.'s Durhams, like every other breeder I have called upon, have become pretty well thinned in point of numbers; he has however, a few still for sale. Among these I would particularly notice his yearling bull Astoria, as being of good size, and of very perfect symmetry of form. I also took quite a fancy to a large three year old heifer, the name of which I do not recollect. But Durhams as I have before hinted, I do not think the proper stock on light soils, either at the North or South. There are exceptions, but as a grand rule, they must have a luxuriant pasture that produces a good thick bite in summer, with generous feed throughout the winter, or it is idle to think that they can be kept up to good flesh and great size. I believe Mr. B. for one, is becoming convinced of this, and has accordingly procured some Devons, an Ayreshire heifer, with more expected soon to arrive from abroad, and also a few good native cows. One of these last of handsome colour, limb and shape, unites extraordinary milking qualities. From the 19th of December to the 18th of January, she made 56 lbs. of well worked butter, which is nearly 2 lbs. per day, a great yield for the dead of winter. She is what I think Col. Jaques would class among his celebrated "cream pot" breed, without hesitation. I have ever been a great advocate for the improvement of our native breeds of all description of stock, and I am glad to see Mr. B. enter upon the subject so spiritedly. Massachusetts' able Agricultural Commissioner, Mr. Colman, has shown by his reports, that we are not deficient in first rate dairy cows. These have only to be carefully selected and crossed with Durham bulls of fine points, middling size, and of deep milking families, to soon ensure as valuable a breed of dairy cows, as could be imported at ten times their expense from abroad. In this way, the Ayreshires have been made, that have become second, now only to the Durhams. Could the attention of stock breeders be better employed than turning to this subject? It really seems to me the only way that our country can ever be filled up with good milking and fattening animals. A few years of such breeding, would assuredly do more for us than a century of importations.

I here saw a pair of young Herefords, imported in May—I am not much conversant with this breed, but if these be fair specimens, as I am assured they are, when full grown, they must be very large and noble animals. They have not the fineness of head or great angle from the hip bone back, and thickness of loin of the Short Horn; they have latterly however, generally beat them in weight, at 4 years old and above; and at the Smithfield cattle show last year, I am informed, took five out of the seven prizes. Under 4 years the Short Horns attain greater size and better flesh, maturing soonest, and are far before them as milkers. The Herefords are a dark red with a white or brockled face, white breast and bellies, and occasionally line backed. They are long bodied, straight limbed, and heavy in the most valuable points, thrifty, and of good constitutions. For power in the yoke, they probably excel all other breeds, and for fine and at the same time, heavy beef, I should think they would obtain great favor with the western grazier. Mr. B. is making several experiments of crossing with all these breeds, not only on the native stock, but somewhat with each other, and will doubtless take pleasure in giving the public full particulars of the result.

The stock of sheep is highly bred, and is of sufficient variety—Merino, South Down and Leicester. Of the pigs, I need say but little, inasmuch as they have a very numerous representation abroad, that are able to speak pretty well for themselves. A new boar, from Col. Williams' late importation, has been added within a short time to the piggery. He has good points, and promises when full grown, to be of great size. His color, however, and some other characteristics are different from the old stock. It was merely accidental Mr. Hawes bringing over animals with so much black in them, as those who have long resided in Berkshire Co. England, tell me that the original color of this race abounded quite as much in white as black spots. There are other points besides color, to distinguish this superb breed of hogs, for instance, their great thickness of ham and shoulder; long straight round barrel, their hair and pointed ears, these make them recognized at once to those who are at all conversable with Berkshire blood.

A. B. ALLEN.

China Tree Corn.

Albany, Oct. 31, 1839.

Mr. J. Buel—Dear Sir—You will confer a particular favor by inserting the enclosed communication of Mr. Roberts, in the next number of the Cultivator. If ever in my power, I will be happy to reciprocate the favor.

Yours very respectfully,

W. THORBURN.

[*From the Baltimore American Farmer of October* 9.]

China Tree Corn.—There are few subjects on which such opposite opinions have been formed and expressed, as there have been in regard to this corn. Whilst in some places it is denounced as a humbug and a cheat, in others it is declared to be a valuable and prolific variety, and is considered worthy the attention of the farmer. We have heretofore published communications highly favorable to it from Mr. Sangston and Dr. Muse, and we present a second one this week from the pen of Ed. P. Roberts, Esq. who has felt it due to Mr. Thorburn to give this second testimony in his favor. We frequently hear of disappointments in the result of planting seeds, which in many cases are produced no doubt from unsuitable location, or other similar circumstances, but there is as little doubt, are as often from the want of genuineness in the seed. As we are anxious to do justice to every one, we most cheerfully give place to the communication of Mr. R.

THE CHINESE TREE CORN.

J. S. Skinner, Esq.—Dear Sir—In publishing my note on the subject of the Chinese Tree Corn, of the 31st of July last, you appended a note from a correspondent of Fairfax county Virginia, who remarks, that he had "planted two ears of the Chinese Tree Corn upon land well manured and limed—the result will prove it absolutely worthless, and more like a rush than a tree."

I have read also in your paper an article from that excellent paper, "The Yankee Farmer," whose editor affirms, that "the China Corn is a complete deception practised upon the credulous and confiding public," and adds with great severity,—and if the Chinese Tree Corn was the worthless thing represented, with equal justice, —that the author of the deception would be entitled to the severest reprehension. The same article contains the declaration of Mr. Howard, the able conductor of the Zanesville Gazette, that it was not an early corn, and that some farmers "observe that it will require two years to mature this corn."

I have no doubt that each of those gentlemen have spoken conscientiously upon this subject, and I am equally certain, from the result of my own experiment, that they have been deceived in the variety of corn they have purchased as the Chinese Tree Corn; for it is impossible that results so different to my own, could, under any other circumstances have occurred.

As I promised you in my former note that "in the fall I would measure my little patch, and give you a faithful account of its yield," I now proceed to redeem that pledge, and I do it with the more cheerfulness, as I conceive it but an act of justice due to Mr. Thorburn, that those at least with whom his corn has succeeded well, should speak of it as it deserves, in order that so far as their moral influence may go, his name may be rescued from the fate of those who practise "deception" either upon private individuals, or the public.

With these explanatory remarks, I will state its yield, and such other characteristic traits as it strikes me to possess.

My patch was planted on a plot of ground in my garden, 32 by 23 feet in dimensions, making 736 square feet. The soil was a deep rich loam, which as I described to you, I highly manured. It had the benefit of good culture, and its working was always done at the right time. On the 15th of September, I gathered and housed my little crop, consisting of 254 good ears, rejecting all the nubbins. While the corn was in the roasting ear state, as I observed in my former note, I pulled 24 good ears. If then, I add these to those I pulled on the 15th of September, it gives the product of 268 ears on 736 suqare feet of ground, and as there are 43,564 square feet in an acre, the yield calculating that each ear will shell half a pint of corn* was at the rate of 128 33-64 bushels per acre. But this is far short of the actual yield, as one of my cows found her way into my garden on the night of the 25th of August, and destroyed a considerable quantity. Besides this, my chickens depredated largely upon it. Having spoken of its yield, I will proceed to state its peculiar traits of character.

Its suckers branch out from the root, and after arriving at maturity, it is difficult to distinguish them from the main stalks, being so nearly equal in size, and so alike in appearance.

The stalks and suckers were from 9 to 11 feet high: not so thick as may be supposed from the number of suckers which were thrown out and permitted to grow, as the larger varieties of field corn, which are generally carefully suckered. From actual measurement, however, I can state that the suckers and stalks in my patch were from 3 3-10 to 4 1-10 inches in circumference, measured four inches from the ground. I planted but two grains of corn in each hill, and yet these hills had on them 10, 14, and in one instance 19 good sized ears each.

The ears have 10 rows of grain on them, are from 8 to 11 inches long, of medium thickness; the grain a beautiful pearly white flint, of great specific gravity, and from the sweetness of the roasting ears which we cooked, I have no doubt will prove an excellent meal corn, and be found to possess a very large quantity of saccharine matter. It makes, as may be presumed, a very large quantity of fodder; and on that account is desirable to a very great portion of corn planters, most of whom rely in a measure upon their cornfields to furnish winter provender for their stock.

So far from its being a late corn, and requiring two seasons to mature it, I consider it an early corn, which opinion is borne out by the fact of my having gathered and housed mine on the 15th of September, a period when much other corn is scarcely out of the milky state.

I have given the result of my own experience above, and will add, that two of my friends who made experiments with it also, speak in high terms of its productiveness. Besides these gentlemen, I observe in your paper that Dr. Muse and Mr. Sangston, of the Eastern shore of this state, are well pleased with their experiments.

I have thus discharged a duty which I owe to Mr. Thorburn, and will remark, that in doing so I have no possible interest, either of a pecuniary nature, or of feeling, to subserve. He is a gentlemen that I know not except by reputation. I have never had the slightest correspondence with him; and in all human probability never will. But it is sufficient for me to know that he is a distinguished Seedsman, and that he is the original of Laurie Todd, to make me feel solicitous about his fame, and willing, whenever that fame may be assailed with unmerited obloquy, to take up the gauntlet, couch a lance, and run the hazards of a tourney in his defence.

I will conclude this, perhaps uninteresting letter by stating, that I am so well pleased with the Chinese Tree Corn, that I have determined to plant no other kind next season as a crop corn. ED. P. ROBERTS.

Mulberry Grove, Oct. 1, 1839.

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* I measured an 8 inch ear, the yield of which was half a pint.

Sugar.

The population of all the sugar growing countries in the world is about 403,000,000—it is estimated that each inhabitant consumes ten pounds per annum—amounting in all to 4,680,000,000 lbs. nearly four times as much as is consumed in Europe, and in the United States. Great Britain consumes 400,000,000 lbs. or 24 lbs. to each inhabitant—the United States 200,000,000 lbs. or 16 lbs. to each inhabitant—our domestic production being estiat 50,000,000 lbs. In Ireland the consumption is 40,000,000 lbs. or 6 lbs. to each inhabitant. In Russia it is still less, being 60,000,000 lbs. or only about a pound to an inhabitant. Of the quantity consumed in Russia, it is supposed that 8.000,000 lbs. are beet sugar. Belgium consumes 30,000,000 lbs. or 7 lbs. to an inhabitant, of which 5,000,000 lbs. are beet—and Prussia, Austria and the east of Germany, 200,000,000 lbs. or four pounds to an inhabitant, of which 20,000,000 lbs. are beet. Holland consumes 50,000,000 lbs. or 16 lbs. to an inhabitant. Spain the same quantity, or almost 4 lbs. to an inhabitant. France, 230,304,549 lbs. or 7 lbs to an inhabitant —of this, 107,905,785 lbs. were, in 1836, manufactured from beet roots. Thus we have, for the total consumption of sugar in Europe, 1,267,000,000 lbs.—of which 140,000,000 lbs. or 62,500 tons are beet sugar—and for the annual consumption throughout the world, 6,267,000,000 lbs.—worth, at 6 cents a pound $376,620,000.

Margraff, a Persian chemist of Berlin, made the discovery nearly a hundred years ago, that the beet root contained a good crystalizable sugar. After this he enlarged and varied his experiments, but did not invent means of making sugar from the raw material, on a scale sufficiently large to render it an object of interest to capitalists. He died in 1782. It was Archad, also a chemist of Berlin, who discovered the method of extracting sugar from the beet on a large scale, and at a moderate expense. He first announced this result in 1797. The National Institute of France, appointed a commissioner to examine into the subject. Manufactories were established, but were not successful—and the high hopes which had arisen, of this new branch of industry in France, seemed destined to disappointment.—Political events, however, afterwards favored the attempt to find an indigenous source for the supply of sugar, and after many experiments, the preference was given to the beet. In January 1812, Napoleon issued a decree establishing five chemical schools for teaching the process of beet sugar making—detaching one hundred students from schools of medicine, pharmacy and chemistry, to be instructed in those establishments, and creating four imperial manufactories, capable of making 4,408,000 lbs. of raw sugar annually. Premiums were also awarded to persons who had already distinguished themselves by a successful application to this new branch of industry—and an impulse was thus given to the manufacture of beet sugar throughout France. The battle of Waterloo gave a great shock to this branch of industry, but some of the sugar establishments continued to thrive after this action; and in 1818, after the allied troops had left Paris, the government began to turn its attention towards the encouragement of an industry, which had struggled meritoriously and successfully, to preserve a boon to the French nation. It has already been stated, that in 1836, 107,905,785 pounds of sugar were made from beet roots.—*North American Review.*

Cost of Raising Sugar Beets and other Roots.

In examining an estimate of the expenses of making beet sugar in this country, many farmers will consider that the expense of raising the roots is reckoned too low; this is owing to the little attention that has been paid to root crops, and to farmers in general not being acquainted with the best and most economical method of culture, and not having machines and implements to enable them to manage the growing of root crops to advantage.

These unfavorable opinions will in a measure continue, till root culture is more in practice, for though cases are stated of crops raised at a small expense, they will be regarded as extraordinary cases, and estimates made on paper, in which no error can be pointed out, will be looked upon as something uncertain; yet these favorable accounts will lead the enterprising and intelligent to try and see whether these things are so, and although their expectations may not always be realized, yet they will find a great advantage in attending to root culture and be led to inquire into the most frugal method of pursuing it. Farmers who dig up a small patch and sow it in beets, and do not weed it till there are five hundred weeds to one plant, may find that the cost of raising a bushel of beets is one dollar, when with prudential management in raising on a large scale, ten to twelve bushels may be raised with this expense.

In raising beets and some other crops in a garden we have managed to do the weeding before sowing, and find that it is a great saving of labor: that is, pursue that manner of culture that will destroy the weeds before the seed is sown; and the same plan may be followed in field culture, and even to greater advantage, as most of the labor can be done by animal labor, which is much cheaper than manual labor in this country, and this, as has been observed in the articles lately published on the subject, will enable us to raise beets as cheap as they are raised in France.

Our method has been to put on the manure and stir up the ground in the fall or early in the spring, the former is preferable, as a frost will loosen the soil and make it mellow, and the weeds will start in the spring before the soil is dry enough to work. When the weeds were well started, we worked the ground over again. About the 20th of May the ground was well worked over, and the seed sown, after being soaked, so that it would come up in a short time; the plants were up and large enough to hoe when scarcely any weeds appeared, the hoeing was done in a short time, the soil being very light and mellow, and there was but little trouble on account of weeds through the season, they having been mostly destroyed before sowing. If this plan should be pursued in field culture it would save nearly one-half of the expense. One hour's work with a horse and cultivator in stirring the earth and destroying weeds before sowing, would save several days in hoeing.

The following method of culture for a field crop would be very economical as to weeding, which seems to be the most expensive part of the cultivation. A piece of land, a deep mellow soil that has been well manured and planted one year in corn or potatoes, would be in good condition for a beet crop. If it has been ploughed more than one year there would be danger from the grub worm, which, we believe is the principal injury from insects to which the sugar beet is liable.

A piece should be selected that can be ploughed deep, and the stones, if any, removed. If there has not been sufficient manure applied to the previous crop, apply the manure and plough the ground very deep in the fall; if it cannot be done at this season, then as early as possible in the spring. When the weeds have started, go over it with a cultivator, and in a few weeks go over it again in the same way, this will loosen and pulverize the soil and destroy the weeds. From the 20th of May to the 1st of June, let the earth be thoroughly stirred with a cultivator, or if the soil be not very loose it may be well to plough it again, then go over it with a light harrow to make the surface level and smooth, and the soil fine; be ready to sow as soon as the ground is prepared while the surface is moist and that the plants may get the start of the weeds. Pour water as hot as can be borne by the hand, on the seed and let it soak a day and a half or two days, then it will vegetate and up, and the plants will be large enough to hoe before the few weeds are liable to grow up, so as to be much trouble.

Sow the seed with a machine and the expense will be light. Let the rows be from two to two and a half feet apart, then a light cultivator may be used between the rows; in thinning the plants let them stand about one foot apart. If any places are vacant from the seed not growing or the grub worms eating them, the deficiency may be supplied by transplanting; though transplanted beets do not form so handsome a root, yet they yield about as much as the other. The expense for weeding and loosening the soil will not be great. In harvesting if the beets cannot be pulled easily, a furrow may be ploughed near each row with a horse plough, then they may be pulled with little labor. By this, or some better way if it can be devised, beets may be raised at a small expense, and as lands and animal labor are cheaper here than in France, and as much labor can be done here by animals which is performed there by the hands, we think our advantages are equal to that of France in the cheapness of manual labor. But supposing our advantages in raising the beets are not equal as to a cheap production, we have reckoned the expense higher in the calculations we have published so as to conform to a fair estimate on all expenses. Instead of $3.50 per ton as in France, we have reckoned at $5 per ton. No calculation on the expense of raising beets or other crops can be made exactly suited to all parts of the country, as the prices of labor and land are different. Near cities and large towns, and near the seaboard owing to good advantages for markets and communication, lands are higher, and the rent of them more of course than in the interior; in such cases labor too is usually somewhat higher.

Estimated expense of an acre of Sugar Beets.

Use of an acre of land well prepared for beets and manured, or managed in the previous crop,....	$12 00
Ploughing,..................................	4 00
Cultivating, horse, cultivator, and hand 2 hours,	50
Twice more before sowing,..................	1 00
Seed $2.25, sowing with a machine, 75,........	3 00
First hoeing,................................	4 00
Second hoeing, thinning, and transplanting to supply deficiencies,........................	4 00
Hoeing again and loosening the ground with machines,................................	2 00
Harvesting,................................	9 00
	$40 00

Make the rows 2 feet four inches apart, and then a cultivator can be used in hoeing. If the beets stand one foot apart in the rows, and weigh 2¼ lbs. each, the yield will be 20 tons. In rich ground, at that distance, a great number will weigh 4 or 5 lbs. each; twenty tons is a good crop, probably a large crop, but not extremely large for in some cases 25 or 30 tons to the acre have been raised in this country. At the above expense of $40 to the acre with a yield of 20 tons the cost would be two dollars per ton. We make this estimate to show how cheap beets may be raised under favorable circumstances, such as good land at a fair price, convenient machinery and implements, and the most prudential management in the culture, with labor at a moderate price, and a favorable season. We have no doubt that in some parts of New England beets could be produced in great abundance at the above price; but we must not always expect a combination of favorable circumstances.

Supposing we reckon the produce only two-thirds as much as above, say 13⅓ tons and the cost 33⅓ per cent more, which will be 53.33; then the cost of the beets will be only $4 per ton, one-fifth less than Mr. Bosson reckoned in his calculation on the cost of the beet sugar. If we reckon 50 pounds to the bushel, 13⅓ tons to the acre would be only 533 bushels which would be no more than a middling crop; not half so much as has been raised in a number of cases that have been named.

Flemish Husbandry.

AN ACCOUNT OF SOME SELECT FARMS.

The details of Flemish husbandry cannot be better explained than by reference to a few of the best cultivated farms in different parts of the country. There is a great uniformity in the general practice, but there are considerable variations introduced in consequence of the diversity of soil and situation. One of the first farms we shall notice is situated within a mile of Courtray, and is in the occupation of a man who has more theoretical knowledge of agriculture than most other Flemish farmers; he is a native of France, but has passed a great part of his life in Flanders; and his wife, who seems very active and well acquainted with the details of a farm, especially the dairy, is a Flemish woman. The place where the farm is situated is called Walle. The extent is thirty-six bonniers, each bonnier being about three acres. The soil is a good sound loam, which, although it is there called a strong soil, would not be reckoned very heavy in those counties in England where the clay prevails. It is such land as may be seen in parts of Essex and Hertfordshire, which will produce good beans, without being too heavy for turnips, or even carrots. The quality of the soil does not vary materially through the farm. It is not of so rich a nature as the clays of the polders, and, when washed, contains a considerable portion of silicious sand; but it has been enriched by repeated and ample manuring, not only by the dung and urine of the cattle kept on the farm, but by purchased manure of every description, especially the sweepings of the streets of Courtray and the emptying of privies.

The farm-buildings are very conveniently arranged at a small distance from the high road, from which there is an approach by an avenue of trees. The farm house, which is substantial and convenient, and the stables for the horses, occupy one side of a square or rectangle of sixty yards long by fifty wide. Opposite the house stands a roomy barn, and another occupies two-thirds of the west side of the square. The east side is taken up with a cow house, ox-stalls, and other useful buildings. The entrance is by a gate-way with double gates, at the north-east angle of the yard. A paved causeway ten feet wide runs all round the farm-yard, raised about eighteen inches above it. The cow-stall, barns, &c. are on a level with this causeway: and the yard slopes gently towards the middle, where there is an oval tank surrounded by a brick wall, which rises two feet above the yard. There is an opening in this wall sufficient to allow a cart to be backed into it: from this opening the bottom slopes to the further end, where it is three feet deep. This is the *croupissior*, into which all the liquid part of the dung runs, when it is washed by the rain, through openings left in the wall which surrounds it.—The urine is collected in another large vaulted reservoir immediately under the cow-house and ox-stalls.

This description applies equally to most of the farm-yards attached to large farms; for one hundred and twenty acres is a large farm in Flanders.

Thirty cows are constantly kept on this farm, and six horses, besides young heifers and colts. The cows are always kept in the stalls, and fed with green food in summer, and roots with meal in winter. Each cow has a stall in which she is tied up by herself, separated from the next by a large flat slab of stone about four feet square set on edge. There is a low stone trough before her, and an opening in the wall to give her air. She is tied by a leather strap round her neck, with a chain fastened to a staple, which goes through the wall and is secured by a nut and screw on the other side. The cow-stable is forty yards long without any division, and six yards wide, so that there is much room behind the cows. In the middle against the wall is a pump to supply water for the cows and to wash out the stable, which is very frequently done, the whole being swept into the urine-tank below through an aperture, towards which all the gutters slope from the cows stalls. Under the pump is a stone cistern, which is constantly kept full, that the water may acquire the temperature of the air. In this cistern bean or rye meal is mixed, in the proportion of a large double-handful to three gallons of water, so that the cows never drink the water without this addition. It is supposed to increase their milk and make it richer. Outside of the building is the pump, by which the urine is raised to fill the casks in which it is conveyed to the land. Another pump is in the centre tank, by which the dung water is raised, either to mix with the urine when rape-cakes have been dissolved in it, or to pour it over the solid dung to accelerate the putrefaction. The pens for fattening calves, are placed along the wall behind the cows, and, being only two feet wide, take up very little room; there are only two or three of these, for, so near a considerable town, the fatting of calves is not so profitable as selling fresh butter.

A few acres of grass are kept in permanent pasture near the house, and the cows are put there for a few hours every day in summer, more for exercise, and for the sake of their health, than for grazing. All the rest of the land is arable, and cultivated very strictly according to a regular rotation. Mr. Doutreluinge, the occupier, informed us, that he had several times made experiments by varying the usual course; at one time increasing the quantity of flax, and at another that of colza; but he found, by keeping very exact accounts of the expense and produce, that every deviation caused a loss in the end. The rotation is very simple. The whole of the arable land he divides into six parts—one part is half in flax and half in colza, one wheat, one rye and turnips, one oats (five-sixth of which with clover-seed,) one clover, with a small proportion in potatoes and carrots, one two-thirds wheat and one-third beans.

The land intended for flax is ploughed soon after harvest with a very shallow furrow, or only well harrowed to destroy the stubble; rotten dung is spread over it, at the rate of twenty large loads per acre, about the month of September. It is left spread on the land for some time, and then rolled with a heavy roller: this is to press it into the ground, and make it fine. It is then ploughed in with a shallow furrow. When the plough has made a furrow, six or eight men with spades dig spits of earth out of the bottom of it, which they set upon the part already turned up, so that the ground is partially trenched. The plough on its return fills the holes thus made, and, when the whole is finished, it lies in a very rough state with large clods all over it; so it remains all winter. In spring, when the clods are pulverized by the frost, the harrows pass over repeatedly and level the surface. The land is then ploughed and harrowed several times, till it is thought sufficiently fine. Liquid manure is now put on. This consists chiefly of the emptyings of privies and the urine of cows, and also of rape-cakes dissolved in urine, and left to ferment for some time, which is done in the open tank in the yard. The quantity of rape-cake used depends on the supply of *vidanges*, which are preferred, the other being only a substitute. This is allowed to soak into the ground for a few days. It is then well harrowed, and the linseed is sown at the rate of about three bushels to the acre, and covered by the harrows reversed or the traineau. The only peculiarity in this process is the spreading of dung over the land and letting it remain some time before it is ploughed in. According to the prevailing opinions, we should say that a portion of it must evaporate and be dissipated. But the practice must not be hastily condemned on mere theoretical principles. It is well known that there is no manure so good for flax as that which is collected in the towns by poor people, who sweep the streets, and make composts of everything which is capable of putrefaction. This compost is sold, in a dry state, by measure; and we have repeatedly seen the preparers of this manure spread it out in dry places in the sun to bring it to a marketable state. Probably the origin of this may have been that, by being dry, the carriage of it is lighter; but that the virtue of the compost is not lost by drying appears from the reputation it has amongst the farmers, who piously believe that its extraordinary effects are to be ascribed to a peculiar blessing of God, as it enables the poor and destitute to gain a livelihood. It must be recollected that this manure is so prepared by repeated turning and watering, and that the vegetable fibres in it are almost entirely decomposed. It is probably that in drying nothing is evaporated but simple moisture. This practice being peculiar, and not very generally adopted, renders it more deserving of notice.

A little beyond Courtray along the Lys, towards Menin, is a farm particularly noticed by Mr. Radcliffe in his report of the husbandry of Flanders. It was then in the occupation of a Mr. Van Bogeart, who afterwards retired with a competent fortune, chiefly acquired by farming. It is now occupied by Mr. De Brabanter, who cultivates it very carefully, with some slight deviations from the practice of his predecessor. This farm is called Vollander, and is one of the finest and most compact we have seen. It consists of about one hundred and forty acres, of which about twenty are fine meadows along the river, occasionally flooded in winter, but not irrigated; about ten acres are rich heavy land, adjoining the meadows, in which beans and wheat thrive well; all the remainder, about one hundred and six acres, or rather more, lie in an oblong field bounded by a hedge-row, at one corner of which, nearest the river, stand the farm-buildings. A road or path, six feet wide, runs through the middle of the field, and the road which leads to the farm-yard skirts one end of it. The soil of this field is a rich light loam, which lies over a substratum of clay, but at such a depth as to be perfectly sound and dry. It is not extremely fertile in its own nature, but has been rendered so by many years of an improving husbandry. Every part of the land has been repeatedly trenched and stirred two or three feet deep; and the immense quantity of manure, chiefly liquid, put on year after year, has converted the whole into a very rich mould. The strength and vigour of the crops bear witness to the goodness of the husbandry. As we walked along the middle path, which is just wide enough to admit the wheels of a cart, the whole produce might be seen at once. It was just the time when the flax had been pulled, and remained stacked on the ground. The colza had been beat out, but the stems remained in heaps where they had been cut. There were fifteen acres of most beautiful flax of a bright straw-colour, and the stems a yard long. This, besides the seed, was worth in the stack from 25*l*. to 30*l*. per acre; twelve acres of colza had produced about fifty quarters of seed; eighteen acres of oats looked so promising, that they could not be set at less than nine quarters per acres; eighteen acres of wheat, which stood well with short but plump ears, we valued at five quarters per acres; eighteen of rye, partly cut, with the straw above six feet high, would probably produce rather more than the wheat. There were six acres of white poppy, of which every plant was strong and upright, and the ground under it as clean as a garden; we are no judges of this crop, but we were informed that the expected produce would be about seven or eight hectolitres (twenty to twenty-three bushels)* per acre; six acres were in potatoes, expected to produce eight hundred hectolitres (two thousand two hundred and seventy bushels:—three hundred and seventy-eight bushels per acre.) A small patch, about an acre, was in carrots, which looked fine and large; twelve acres were in clover, nearly the whole of which was cut green to give to the cows and horses; it produces three good cuts in the year where it is not allowed to go to seed. The ten acres of heavy land were partly in beans and partly in wheat.

Thus we have one hundred and sixteen acres all profitably cropped, leaving four acres for the roads and farm buildings. Although this farm is within two miles and a half of Courtray, the greatest part of the manure is collected on the farm. Rape-cake is used more profusely, and to this, as well as to the depth of the soil, the beauty of the flax is ascribed. Mr. De Brabanter usually sows his flax after oats, which, on this account, have been very highly manured. His urine-tank is very capacious, like a large cellar under his cow-house. The farm-buildings are arranged nearly as those of the last described farm; he has a large dry vault to store his roots in winter. His stock consists of twenty-seven cows in milk, five or six heifers, nine horses, and three colts. The rent of this farm, including land-tax and other imposts paid by the tenant, amounts to 4880 francs, 187*l*. 15*s*. which is fully equal to 270*l*. in England, taking the value of agricultural produce in the two countries as a measure.

There is nothing very peculiar in the practice of Mr. De Brabanter. He ploughs the land well, lays it in narrow stiches with deep intervals dug out by the spade, puts manure with every crop, more or less, keeps the land clean by weeding, and adopts a long and varied rotation.

The beauty of this farm consists in the equality of the soil of the great field and its depth. This is not so much owing to natural advantages, as to a long course of stirring and manuring, by which there is such an accumulation of humus, as to render a sandy loam, naturally of moderate fertility, equal to old garden ground, absorbent and retentive of moisture, without being wet. The labourers on this farm were mostly lodged and boarded in the house, and they had all the appearance of being healthy and well fed. The farmer himself is a tall athletic man, with a good-natured, but shrewd countenance; he seemed very ready to give every information respecting his farm. His wife, equally active, superintends the dairy, and took some pride in showing us in a cool vaulted cellar numerous pans set on the brick floor filled with the last milking, and deeper vats in which the milk of the preceding day had been put in its progress towards churning. The milk, even when it is not intended to be skimmed, is always set in shallow pans for twelve hours before it is poured into the vats, and the different milkings are kept separate.

The next farm which we shall notice is somewhat different from the two preceding, and if the land is not quite so carefully tilled, it is made very productive from the quantity of stock kept upon it. It is situated between Furnes and Dixmude, at a place called Stuiveskenkerke. It partakes of the nature of a polder farm; for the land may be considered as an old polder. The extent of the farm is considerable, upwards of four hundred acres, of which two hundred are in rich natural pastures, the remained is cultivated with the plough. The soil is here a good stiff loam, having the appearance of clay; but it approaches more nearly to a marly soil, which crumbles when moderately wetted. It contains a considerable proportion of calcareous matter mixed with sand and clay, and is decidedly of a superior quality to that of the two preceding farms. It requires less manure, but is more difficult to cultivate; both the extremes of wet and dry in the weather rendering the plough useless. In the first case the surface is converted into mud, and in the latter it cannot be ploughed; for if sufficient strength were applied, it would rise in large clods, which would harden in the sun, and remain so till continued wet or frost crumbled them again.—Wheat and beans are principal crops, and the latter are more carefully cultivated than we have seen in any other part of Flanders; they are planted in rows, in imitation of kitchen-gardeners. A drill is drawn with a hoe, and beans are deposited in it three or four inches apart; the earth out of the next drill serves to cover the seed. The distance between the drills is about ten inches or a foot, which in rich land is too near. When the beans are out of the ground the intervals are hoed. The produce is from three to five quarters per acre, but might be more with wider intervals, and more effective hoeing.

The rotation of crops on this farm is generally—1 fallow; 2, winter barley; 3, beans; 4, barley or wheat; 5, beans, clover, potatoes; 6, wheat; 7, oats. The fallows are not ploughed before winter, but four times in spring and summer. Thirty cart loads of manure in a long state, without the straw being much decomposed, are put on before the last ploughing, and the winter barley is sown in October; the produce is eight quarters per acre. Wheat on the same preparation produces from four to five quarters, so that the land is better suited for barley, and this last gives a better return with less exhaustion of the soil; every year a small portion of the pasture is broken up, and sown with colza. This would probably not have been permitted, had the farm not been occupied by the son of the proprietor.

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* A hectolitre is 2.837 Winchester bushels.

The natural fertility of the soil is shown by the succession of the crops produced on the newly-broken-up land without any manure; viz. colza, wheat, beans, barley, beans, wheat, clover, wheat, beans, oats. After this scouring is it no wonder that the soil wants rest; and this is given without much care, by merely allowing the natural grasses to spring up without the trouble of sowing the seeds. It takes three years before there is any tolerable pasture; but as it remains twenty years or more in grass before it is broken up again, the deteriorating effect of the cropping is not observed. How much more productive might not the land be made by more judicious management! The whole of the farm has repeatedly undergone this process, and must have been extremely rich at first. At present it requires repeated manuring to produce even average crops, except on that portion which has been broken up from old grass. Under a regular and judicious course of convertible husbandry, this land might be kept up in the highest state of fertility, and the ultimate profit would be much greater.

If we cannot altogether praise the management of the arable land, we must do justice to that of the dairy and stock. Here the finest and richest butter in the world is made. The stock consists of twenty-four milch cows, twenty-eight yearling calves, twenty-eight two-year-old heifers and steers, and fifty bullocks. All these are wintered on straw, hay, and split beans. The straw is cut into chaff, and the farmer, Mr. Graeve, son of the proprietor, a spirited young man, has procured from England a machine for cutting chaff, which is to be worked by a horse, in the same mill by which he churns his butter. The bullocks are fattened on the pastures, and are fit for the butcher by the end of July or August.—The weight of the carcass, when slaughtered, averages ninety stone, of eight pounds each, and sells for 12*l.* or 2*s.* 8*d.* a stone. The cows give each, on an average, twelve quarts of milk per day. He churns three times a week, making forty pounds at each churning. The cream only is churned in a barrel-churn, which is turned by a horse. The butter comes in one hour and a quarter in summer; in winter it takes two or three hours.—As soon as it is taken out of the churn it is well washed, to get all the butter-milk out, and immediately salted: before night it is worked again, and more salt is added. It is then put into the cask, and brine is poured over it. It sells for one franc (10d.) the pound of twenty ounces. This butter is famed for its keeping, and is therefore much sought after for ships' provision. In summer there are fifty labourers on this farm, half of whom are boarded and lodged, and have from 8*l.* to 12*l.* yearly wages. The day labourers have 9d. a day and their food.

The calves which are reared, of which there were twenty-eight when we visited the farm, have per day a bushel of oats and eight oil-cakes amongst them, with hay and cut straw, from November to May. The fifty oxen have a sack of beans per day amongst them, and cut straw as much as they can eat. There were two hundred sheep, which are folded on the fallows, and in the day-time feed in the pastures and along the canals and dykes. When they are fat they are sold and others bought in. None are bred: for, when kept long on this land, they become subject to the staggers and the rot in winter and spring; they are therefore fattened and sold as soon as possible.

The breed of pigs was much better than the generality of Flemish pigs, and appeared to have had a foreign cross, perhaps of a Berkshire hog; but there was no distinct account of this. The short legs and pricked ears clearly prove them not to be indigenous.

The cows are dry for three months in the year; at that time they have only straw to eat, with a small quantity of meal diffused in the water they drink. They calve in April or May, and, when the grass becomes abundant, each cow is expected to give five pounds and a half of butter weekly; and as the pound is of twenty ounces, this is a large average, and shows good pasture.

Hay is made more carefully and better stacked on this farm than we have seen it on any other. The ricks are square, as they are in England, and hold from forty to fifty tons of hay; they are carefully thatched, and want only the pulling and trimming of the ricks in Middlesex, to vie with them in neatness.

There are seventeen horses kept for farm-work; these are mostly of a French breed, much more active and vigourous than the heavy Flemish horses. A good horse costs from 16*l.* to 20*l.* The cows are mostly Dutch, and cost from 8*l.* to 10*l.* each. They are large and have fine udders. The colour is generally black and white, the horns moderate, and the skin fine. They are not so high as the Holderness cows, but their carcasses are as large; some of them give an astonishing quantity of milk.

This is one of the largest farms in Flanders, and may be considered as an intermediate between the upland farms and the polders. The buildings are scattered and irregular. It was formerly the property of a religious order, but confiscated and sold at the Revolution in 1794. The chapel still remains, but it is converted into a barn. The tenant purchased the land for a small sum compared to its worth, and his son is the present occupier. A small canal winds through the property, acting as a drain for the superfluous water, and at the same time as an easy means of conveying the produce of the farm-yard, and taking manure to the fields bordering upon it. With a little attention it is not difficult to make this farm produce everything that a frugal Flemish family requires, and enable the occupier to lay up a considerable sum every year. In the hand of a skilful and scientific farmer a fortune might be realized on such a soil in a few years, by keeping up the fertility, instead of reducing it by excessive cropping of the land broken up from pasture; but especially by introducing improved breeds of cattle, and grazing them to advantage.

Not far from Roulers, at Newkerken, there is a small farm of about sixty acres, occupied by a Mr. Verpoort, which is worth noticing. The soil is a good sound grey loam of a moderate quality, the subsoil being retentive; the fields are divided by ditches four feet wide and three deep. Some trees and underwood are planted along some of the ditches but not everywhere. There are no raised banks; the earth of the ditches having been spread over the land. The fields are all small, not exceeding three or four acres each, and mostly of an oblong shape. There was no water in the ditches when we saw it; but it is probable that in winter they are necessary to keep the land dry, as the country is so flat that the water must be a long time in running off. The principal produce on this land is wheat, of which there are eighteen or twenty acres every year. The wheat this year (1837) was sown on land which the year before had been cropped as follows: two acres in beans, four clover, two potatoes, three colza, three flax, and four fallow—eighteen acres in all. Mr. Verpoort, thinks that it might be more advantageous to have more fallow, as the land is very apt to be overrun with weeds, in spite of every precaution, and a fallow now and then is unavoidable. The other crops besides wheat where distributed as follows: three acres in rye and turnips, four oats, five flax, three colza, four and a half clover after flax, two beans, three potatoes, half an acre beet-root, five fallow, ten grass, half of which was pastured, and half mown. These ten acres lie along a low rivulet, and are flooded in winter. What makes this farm worthy of notice is the great proportion of wheat sown, and the variety of other produce, which return at a much longer interval, clover only every nine or ten years.

The whole of the work of this farm is done with two horses. There are thirteen fine cows, four heifers, two or three calves, one colt, and five or six hogs; and all these animals seem well fed. Except a few grains from the brewers, and some linseed cakes, no food is purchased for the cattle, but the farm supplies all that is required. Mr. Verpoort used to breed horses and sell them to English dealers, who came round to the different farms, and bought three-year-old colts at a fair price; but none of them had been there for some time, at which he was disappointed, having a very promising colt eighteen months old, very large and fat, which he thought would be much admired. The colt had been brought up in the stable, like a fatting calf, without much exercise. His feet were flat and wide; and, from good feeding, he was large and heavy. He might at one time have been admired as a heavy dray-horse, but he was evidently very unfit for muscular action; and although as well shaped as most Flemish horses, he was not likely ever to become very useful.

The cows on this farm were milked three times a day for three months after calving, and only twice afterwards. They were fed in summer with clover cut for them and brought into the stalls. Occasionally they were led out into the pasture, but only for a few hours at a time, and never in the middle of the day, when the flies would teaze them. In winter they had their brassin, made of turnips and potatoes cut in pieces, and chopped straw, boiled together in a copper, and some linseed cake added to this. Sometimes beans were soaked in water for twenty-four hours, and then mixed with the brassin. The roots were cut by a machine something like our turnip-cutters, but not so perfect.—This is the only farm where we have seen a machine, as the spade is the usual instrument with which roots are cut. The chaff-cutter is exactly like our common chaff-box, where the work is done by the hand; and, except where horse-power can be applied, or the chaff-cutter can be attached to a mill, the hand-box is, perhaps, the instrument which will cut most chaff in a given time by mere manual labour. The cows are of the Dutch breed, and apparently very good milkers. Mr. Verpoort fattens calves a twelvemonth old, and thinks it more advantageous than if he kept them longer. This young beef is probably more readily disposed of in Flanders than it would be in England. All the labourers on this farm are fed in the house. The women have five-pence and the men eight-pence a day for wages, which makes the food to be reckoned at only three pence per head per day. A labourer obliged to find his own food could scarcely provide himself at so cheap a rate; but the farmer, who has everything from his own farm, finds that it is more economical to feed the labourers, even at that low rate. They have for breakfast bread and potatoes, with *tea* as it is called, but it is a very weak infusion of that herb, and may be better called hot water with milk in it. For dinner they have a soup of butter-milk and bread boiled in it; after that they have potatoes and a bit of salt pork. For supper skimmed milk or butter milk and potatoes.

The hogs are kept in separate dark styes, and fed on beans and the remnant of the brassin. They are six months or more in fatting, and then not remarkably fat.

The whole farm is in very good condition and clean. The beans are sown in the furrows after the plough; the produce per acre, on an average, is four quarters of wheat, seven of oats, four of beans. All the roots are consumed on the farm. The land does not suit barley so well as wheat. The clover is usually sown amongst the wheat in spring. Flax is sown after oats, and colza after rye and turnips, which two last always come after wheat. This seems to be the most universal practice all over Flanders.

No sheep are kept on this farm; but a neighbouring farmer, who has eighty acres, keeps one hundred sheep which he fattens, not by pasturing them, but by feeding in the stable like oxen. They have clover cut for them, and sometimes partake of the brassin. They get fat, but whether the flesh is well tasted when they are killed, is more than we can say; the principal object is profit, of which the dung forms an important item.

On another farm situated near Grammont, the property of Mr. Spital, who is a great *amatuer* and breeder of English blood-horses, we found the soil of a still stronger nature, but the cultivation very similar to the last. The name of the tenant is Vander Stude, a sensible and intelligent farmer, who seems to be well acquainted with the practice of the best farmers. He holds about one hundred and thirty acres of land, of which three-fourths are arable and one-fourth pasture. A third of his arable land, or about thirty acres, is in wheat, ten rye, fourteen oats, fourteen clover, ten flax, twelve colza, three beans, three barley, and six in potatoes.—There is no fallow, yet the land is clean. It seems not so wet as the last, and this may account for the fallows not being so necessary. He sows turnips after rye or colza. The colza plants are raised on the land which has had clover upon it, with one ploughing. The flax is sown in March, on clover ley also, with only one shallow ploughing, which is given before winter; but the land is repeatedly harrowed before the flax is sown.—Everything which is grown on the farm, except wheat, flax, and rapeseed or colza is consumed upon it. His urine-cistern is twenty feet square, and seven feet deep, but he says that it is much too small. There is a smaller cistern under the dung in the yard, from which the drainings are occasionally pumped up, and spread over the dung to accelerate its decomposition. The produce of the land is from four to five quarters of wheat per acre; the same of colza: but this last is worth one-fourth more than the wheat. The flax is sold on the ground at about sixteen pounds an acre, the farmer feeding the labourers who pull it;—this is a lower produce than where the land is differently prepared for this crop.

The stock consists of seventeen cows, five calves, and a few heifers, nine cart horses, and three colts. The labourers are fed and paid exactly as at the last farm. A few hops are grown on about half an acre.

Near Alost we met with one of the smallest farms, which will maintain a family without other work; it was barely five acres. The house was much larger than such an occupation warranted; but it was an old farmhouse, and the land had been divided into small holdings, leaving only five acres to go with the house.—There was a small orchard of about a quarter of an acre, in whch there were some thriving apple and plumb trees. The grass under these was good; and the only cow which the man had was led by the wife to graze there for a short time every day, apparently more to give her exercise than for the food she could pick up.—The grass seemed to have been cut for her in another part. This cow had cost eight pounds, and the man regretted that he had not had the means to purchase a second, as he could have maintained two very well. Half of the land was in wheat, the other half in clover, flax, and potatoes; so that the clover did not recur sooner than in six years, the flax and potatoes in nine. As soon as the wheat was cut he began to back the stubble about four inches deep with the heavy hoe, and as fast as he got a piece done, it was sown with turnips, after having some of the contents of the urine-tank poured over it: for, small as the farm was, it had its reservoir for this precious manure. Thus a considerable portion of the wheat stubble was soon covered with young turnips of a quick-growing sort, which, if sown in the beginning or middle of August, were fit to be pulled in November and December, and stored in the cellar for winter use. There was a small patch of cameline, which was sown less for seed than for the stem, of which he made brooms in his leisure hours in winter.—But these hours could be but few, and only when snow covered the ground, and prevented him from digging and trenching, which was a constant operation; for the whole five acres had to be dug in the course of the year, and as much of it as possible trenched; the soil being a stiff loam of a good depth, which was much improved by trenching and stirring. The milk and potatoes fed the family, with the addition of a little salt pork; for a pig was fed on the refuse of the food given to the cow, and a very little corn, and consequently was not overburdened with fat. Most of the wheat and all the flax were sold, and more than paid the rent, which was not high—about 10*l.* a year without any rates, tithes, or taxes. Incessant labour kept the man in good health, and his wife was not idle. They had two or three young children, one at the breast: but, except the wish for another cow, there seemed no great dissatisfaction with their lot, nor any great fears for the future. They had no parish-fund to fall back upon, not even a union workhouse; but had they come to want by unforseen accidents, they would have found the hand of private charity stretched out to help them.

We have before alluded to a farm of which the occupier kept ewes for the sake of their lambs, which he alone in the neighbourhood fatted for the butchers. His name is De Keyart, and his farm is situated at a little distance from the neat and flourishing village of Hamme. It consists of sixty-five acres, of which five are meadow, near a little rivulet. The ewes are kept as another farmer would keep cows. He considers the keep of one hundred sheep as equal to that of fifteen cows. He has however, five cows, also; and three horses to do the work of his farm. His rent is about thirty shillings an acre,—a considerable rent, but small in proportion to the price of land, which here sells at an extravagant rate, not paying two per cent. for the outlay. Hamme is in the Waes country, where the cultivation is carried to the greatest perfection. One-sixth part of Mr. Keyart's farm is trenched two spits deep every year, which costs him 30 francs—about 1*l.* 5*s.* per acre. This shows that the land is light, and the trenchers expert, to be able to do it at that price. The first crop on the trenched ground is potatoes, after the land has had twenty tons per acre of good yard dung spread over it. This is ploughed in four inches deep. After a fortnight an equal quantity of dung is put on and this ploughed in seven or eight inches. It must be observed that in ploughing the ground is turned completely over, so that the dung lies under the furrow-slice. The second ploughing does not bring the dung first laid on the surface again; but the point of the share, going four inches under it, lifts it up enclosed in two layers of earth; that which had been above the first dung is turned down upon the last portion, and the four inches last raised are turned to the surface, so that there are two distinct strata of dung, if we may so express it, one four inches under the surface, and the other eight. The advantage of this method must be obvious; and the ploughmen who can execute it should not be despised. Potatoes are planted on a part of this ground, and hemp sown on the remainder. The potatoes are put into holes made with a blunt dibble, and it will be perceived that if they are put in six inches deep, they are placed between two layers of dung, and cannot fail to grow readily in such a rich and mellow bed. When the potatoes are fairly up out of the ground, the earth is stirred and raised around the stems, and liquid manure is poured on the little heaps thus made. It is not surprising that with so much manure a great crop should be produced: but this manure is not all put in for the sake of the potatoes only, but for the flax, which is to follow, for which the dung should be well incorporated with the earth, and the land very clean. For the flax rape-cakes dissolved in urine, or what is preferred—*vidanges*, form the chief manure. Carrots are sown soon after the linseed, if not at the same time. In weeding the flax great care is taken not to pull up the young carrots; when the flax is pulled the carrots are already very forward, and by the help of the urine-cart, soon swell to a good size. After the flax and carrots the land is manured with fifteen tons of dung, which is ploughed in, and wheat sown in October. The next crop after wheat is, as usual, rye and turnips, with six tons of dung. Then oats without dung; and, after them, buckwheat also without manure. The course then begins again with a fresh trenching.—This is the usual course in the sandy loam of the Waes country. But what distinguished Mr. De Keyart's farming is his flock of ewes. Of these he has 100, who are carefully fed in the yard in summer and under cover in winter. All their food is brought to them, and as the lambs are the principal object, the ewes are well supplied with roots and corn in winter. The old crones are fatted off regularly. The manure is collected carefully: what can be washed into the tank goes there; the more solid part is mixed with earth before it is put on the land. His crops are as those of his neighbours, viz;—wheat about four to five quarters an acre, flax worth 20*l.* an acre, hemp 12*l.* In 1837 there were on the farm twenty acres of wheat, eight of flax (part with carrots and part with clover,) three of hemp, four of clover, four of oats, two of buckwheat, fifteen of rye and turnips, two of potatoes (fifty-eight acres in all.) The remainder of the sixty-five acres is pasture and homestead. The wheat is thrashed with the instrument described in page 19, and the chaff beat off is boiled in the brassin. Here we observed some small stacks of wheat neatly thatched, which might contain eight or ten loads of straw in each. The making and thatching of these is here a separate trade.

In the neighborhood of Tamise there are many small farms chiefly cultivated by the spade, which are perfect models of this species of husbandry. The farm of a man named Everat may be taken as an example. He has eight acres of land, and keeps three cows. The whole is cultivated by himself, with the help of a labourer during three months in the year, who is chiefly employed in trenching and digging. The manure is carried on the land in wheel-barrows. The land is much poorer than on the farm we noticed near Alost. The first crops after trenching are buckwheat and potatoes—the latter with all the manure that can be spared—as many as sixty tons an acre are frequently put on.—By this means the produce will be one hundred and twenty sacks, each of 200lbs. weight, or nearly twelve tons, which is a very large crop on such a soil. After potatoes he sows wheat, then rye and turnips, then flax and clover, wheat, rye, and turnips: this is the regular course, which is only varied by carrots being sown in part of the flax, so that the clover may not recur too soon on the same ground. The cows are kept in stalls with their heads completely separated from each other: each cow has her own trough, and cannot interfere with her neighbour. The partition goes back as far as behind the shoulders of the cow; when she lies down she cannot see any of the others. The food is given to them from a narrow chamber before them, in which are the troughs for the brassin, so that they may literally be said to feed like pigs. They are cleaned and curried like horses.

The habitation is neat, only one story high, containing a kitchen and two chambers, with a small garret over these. There is a small barn, cow-house for three cows, with a calf-pen. There is a place where a horse might be kept; but a horse would only be profitable if there were more land; at present his keep can be saved. The urine-tank with the privy over it is an indispensable part of every farm-yard, however small. The wheel-barrows, which are used instead of carts, have a large wheel, and the frame is light. They are calculated to carry dung and sheaves of corn. The liquid manure is carried to the field in a tub, sometimes by means of a pole between two men, or a man and a woman, sometimes on the wheel-barrow. It is poured out by means of a bowl, with a long handle, and which can take up liquid and semi-liquid substances equally well. There is an appearance of comfort in these little farms which is very pleasing. Hard work, instead of being here thought an evil or a hardship, is thought essential to the health and comfort of the individual. The children are brought up in industry. It is interwoven with all their associations; and when the young men marry, they find wives who are brought up in the same manner, and are useful helpmates to them. The great ambition of the small Flemish farmer is first of all to be able to set up his children, by giving them what is indispensable in taking a small farm. If he has been very successful, and at the same time very frugal, he will hoard his savings till he can buy a few acres of land of his own. If he can build a house, he then has arrived at the utmost point that the most sanguine man can look forward to. There are many small proprietors who have risen slowly by the labour of their own hands; and their habitations show, by their extreme neatness and the care taken of everything about them, that they feel a pride in enjoying the just reward of honest industry.—*Flemish Husbandry.*

[*From the New-England Farmer.*]

Rohan Potatoes.

Beverly, 28th Sept. 1839.

Messrs J. Breck & Co.—Gentlemen—On the first of May last I planted thirteen hills of Rohan potatoes in my garden (or nursery,) some two, some three eyes in a hill, in all thirty-three eyes, two of which did not come up; the thirty three eyes weighed less than eight ounces; the ground is a rich loam inclining to clay, with a stiff clay subsoil, moist through the year. I manured with a good shovelfull of strong compost in each hill.

I have this day dug the potatoes from these thirteen hills, and find they weigh one hundred fifty-eight and a half pounds. The eight largest weighed thirteen, and the twenty largest, thirty pounds; the whole filled a flour barrel rounding full.

I planted some on high land, soil loose—also some on high, stiff clay soil: they did well—the poorest averaging less than twelve hills to the bushel, although in both soils they were injured by the dry weather. I am satisfied they require a moist, rich soil, and in such soil they will yield double or treble as much as any other potato I am acquainted with.

Very respectfully, your ob't serv't,

JOSIAH LOVETT, 2d.

—

Dracut, 2d Oct. 1839.

Messrs. J. Breck & Co.—As there has been so much said about the yield of the Rohan potatoes, I will send you the result of my crop from ten ounces which I bought about the first of May, and gave sixteen cents. I cut out of two small potatoes the eyes and put them into a tea cup of new milk and soaked them three days and then planted them in fifteen hills; but one of the hills was broken down, so that I had fourteen hills only, and I dug them to-day. On account of the mice getting in one of the hills, I think, I lost about two pounds, the remainder I weighed which amounted to eighty-two pounds, some of them weighing 20, 25, 28, and 32 ounces. The bearer of this saw the above. Yours, &c.

HUMPHREY WEBSTER.

[*From the New-England Farmer.*]

Berkshire Pigs.

Mr. Editor—Sir—In a letter recently received from a gentlemen in the vicinity of Boston, I find the following advertisement, with a copy of a pictorial representation of one of my breeding sows, which requires some notice from me, to guard the public against deception:

"Berkshire Hogs.—W. S. Turner has just received 14 pigs from Albany, male and female, of the Berkshire breed. These pigs were procured of Bement & Glauson.

Framingham, June 29th, 1839."

Now, sir, as regards myself, *I deny in toto*, of having ever sold any Berkshire pigs to W. S. Turner, or any other person in that town. If Mr. Turner purchased them from me, he has some written evidence of the fact, either in a bill, certificate, or letter.

I called on Mr. Lossing, (not Glauson,) who peremptorily denies ever having sold any pigs to a person by that name.

Mr. Lossing also informed me that late in the spring or early in the summer, a person from the east called on him for Berkshire pigs; but having none except those that were engaged, inquired of him if he knew where he could find them, or some that "*resembled the Berkshire*"!!! And he "was not *very particular*—the *runts* would answer, if he could obtain them at a low price." "Dunder un blixum!" a Dutchman would exclaim, "dese tam Yanks peats de very tuyval."

Not long after this, Mr. L. was informed that a person going east with a lot of pigs and offering them for sale, exhibited a certificate with his name attached, as an inducement to purchase. This Mr. L. declares a forgery.

In another letter lately received from a gentleman near you, I am informed that "most of the drovers who pass through *******, where I keep my swine, have pigs which they call '*pure Berkshire*,' at least a few in each drove, and the *invariable* story is, that the pigs were got by your boar, out of some sow in your vicinity, by which means they injure the true breed."

Now I am not at all surprised at this, for a man living near me does not hesitate to sell half breeds for the pure blood Berkshire; and, I am sorry to say it, there are others in this vicinity, who would do the same, should an opportunity offer.

Mr. T. for aught I know, may have the pure Berkshire pigs; and had he not published that he procured them of me, I should have let it pass unnoticed; but having used my name without my authority, I deem it a duty I owe the public as well as those who have purchased of me, to make the above exposition.

Respectfully, Yours,

CALEB N. BEMENT.

Three Hills Farm, Albany, Oct. 12th, 1839.

Report on the value of Bone Manure, in comparison with ordinary Farm-Yard Manure.

BY THE HONOURABLE CAPT. W. OGILVY, AIRLIE CASTLE.

[The thanks of the Highland Agricultural Society and the honorary silver medal were voted by the directors to the author of this paper.]

Mr. Watson of Keilor, introduced the use of bone-manure into Strathmore, having seen it used in England. I am not certain in what year he began to make experiments with it, or to employ it extensively, but I remember well that the great deficiency of farm-yard dung in 1827, (consequent on the almost total failure of the crop of the previous year) first induced me to try four acres of turnip without other manure, sown with 15 bushels of bone-dust per acre, which I obtained from Mr. Watson: it cost 3s. per bushel, or £2. 5s. per acre. The crop of turnips on these four acres was at least equal to the rest raised with farm-yard manure; but as the whole of the turnips were pulled, and the land received some dung before the succeeding crop, much stress cannot be laid on the circumstance of the following white crop and grass being good.

Next year, 1828, encouraged by the former successful experiment, eight acres were sown with turnip, solely with bone-dust; the soil a light, sandy loam; the subsoil gravel and sand, coming in some places nearly to the surface, which is very irregular, but in general has a south exposure. This field had been broken up with a crop of oats in 1827, after having been depastured six years principally by sheep. The quantity of bone-dust given was 20 bushels per acre, and cost 2s. 6d, per bushel, or £2. 10s. per acre. The turnip-crop was so heavy, that, notwithstanding the very light nature of the soil, it was judged advisable to pull one-third for the feeding cattle, two drills pulled, and four left to be eaten on the ground by sheep. The following year, 1829, these eight acres were sown with barley and grass-seeds, and the produce was 57 bolls 1 bushel, or 7 bolls 1 bushel nearly, per acre, of grain, equal in quality to the best in the Dundee market, both in weight and colour. Next year, a fair crop of hay for that description of land was cut, about 150 stones an acre; and though I am now convinced that the field should rather have been depastured the first year, yet the pasture was better than it had ever been known before for the two following seasons, 1831 and 1832. It is worthy of remark, as a proof of the efficacy of the bone-manure, that in a small angle of this field, in which I had permitted a cottager to plant potatoes, well dunged, and which, after their removal, was included in one of the flakings of sheep, and had (one might have supposed) thereby had at least equal advantage with the adjacent bone dust turnip land, both the barley and grass crops were evidently inferior, and this continued to be observable until the field was again ploughed up. A very bulky crop of oats has been reaped this season, probably upwards of eight bolls per acre, but no part of it is yet thrashed.

Having detailed what may be considered a fair experiment during the whole rotation of the above eight acres, I may add, that turnip raised with bone manure, and fed off with sheep, has now become a regular part of the system on this farm; 15, 20, and, last year 25 acres were fed off, and invariably with the same favorable results, with the prospect of being able to adopt a five-shift rotation, and to continue it without injury to the land. Every person in the least acquainted with the management of a farm, of which a considerable proportion consists of light, dry sandy loam, at a distance from town-manure, must be aware of the importance of this, from knowing the expense at which such land was formerly kept in a fair state of cultivation; indeed, the prices of corn for some years past would not warrant the necessary outlay, and large tracts of land, capable of producing barley little inferior to that of Norfolk, must speedily have been converted into sheep pasture, but for the introduction of bone-manure.

Note.—For the last four years, 25 bushels of bone-dust have been given to the acre: the price this year was 3s. per bushel, or £2. 15s. per acre.

Of the Fallow.

The fallow defined.—Its effects.—Similies to elucidate the subject.—The soil mechanically retains, and chemically combines with air, water, and vegetable and animal manures.—Whence the source of fertility.—Remarks on the practical parts of the fallow process.

By fallowing, is meant a repeated mechanical moving and pulverizing of the soil, to a depth of eight, ten, twelve, or more inches, with the plough, the harrow, and the roll; and permitting, during the process, which usually occupies the spring and summer months, no vegetables to grow.

This mechanical process usually commences at a dry time in the autumn: and the land, from the consequent unevenness by the furrowing of the plough, presents a large surface to the frosts, snows, sun and weather of the succeeding winter. The effects from such an exposure, shiver the most stubborn clods, and with no cost to the husbandman.*

In the spring, the surface is harrowed and dressed down; the weeds picked off or destroyed; and the field again submitted to the plough; when the under side is turned up to the heat and moisture of the sun and showers, and to the drying winds. This exposure should be continued, if the weather be favorable and time permit, till quite dry, then to have a shower and get dry again, with the surface in the roughest state; that the effects from the alternating extremes of heat, moisture, and dryness, (the great decomposing agents of Nature), upon the largest possible surface, may the more speedily render the clods tender, the proper opportunities being taken for the operations of the harrow and roll.

Another ploughing, and perhaps dressing succeeds: then a fourth; and probably a fifth; when the duties and object of the husbandman are performed and accomplished.

A soil that has been so treated and exposed, even if very stiff in its nature, and poor when the operations were commenced, is found greatly improved in its tenderness and in its powers of fermentation, consequently in its fertility; and the benefit arising from the fallow, is in proportion to the time and labor bestowed, and the interval before a crop is again taken.

Naturally good soils need but a short period for their restoration, because they are readily brought to a pulverized state, and of course proportionally soon improved in their powers of fermentation.† Whereas the stubborn and almost barren require at least a year, or indeed better if two years are devoted to a well directed cultivation, before an equal degree of pulverization and powers of fermentation can be accomplished.

From the tendency of the fallow to render light lands close, and stiff lands light, it favors the approximation of the two different soils to the same state of fertility.

Having gone through a detail of the particulars of the mechanical part of the fallow process, its effects are the next object of attention.

The balance of affinities, or the equilibrium of the particles of matter composing the soil, are very essentially disturbed by the operations of the plough and harrow; indeed so much so that scarcely two particles, it may be said, that were in contiguity before the commencement of the ploughings, are to be found together at the conclusion of the operation; also the particles of stale air and moisture that were within the interstices of the soil at first, together with those particles in slight combinations with the soil itself, have escaped, and their places are supplied with fresh; consequently every way favoring fermentation in a high degree, as well as being rendered more easily permeable in all directions for the infant roots of future plants.‡

Now a soil, before it is broken up by the plough, is—as to its interior particles, and the air and water that may occupy the few cavities—in a comparatively quiescent state, because the various particles have entered into a chemical union with each other. That is to say, the materials of the soil are saturated with those substances they could then combine with; and therefore would so continue to remain, if the subsequent variety of the seasons did not tend in some measure to destroy the equilibrium.

A few examples may contribute to the better explanation of the above, and also materially assist future investigation. They are the following:—

What is the use of stirring or shaking two liquids when put together, or one or more liquids with one or more dissoluble solids? The object is, to facilitate a chemical union with each other, of their respective atoms which the occasional stirring effects, by removing one portion after the other of the atoms of one liquid, when they have been sufficiently long in contact to perfect a union with a portion of the atoms of the other liquid or dissoluble solid, till all the combinations of which the nature of the materials are capable of entering into under their present circumstances, have been completed.

Let a sponge, or a piece of cloth, be thrown into any dying liquid that will combine with the materials of the sponge or cloth, and there permitted to remain awhile. The first effect will be, that every pore of the sponge, &c. will be filled with the liquid, and a combination with the dye, immediately in contact with the sponge, take place when all will be again quiet. If the dye is too diluted to give the requisite colour at first, the sponge is left undisturbed, and the liquid also; for a considerable time, the shade will not be improved because a saturization has already been effected with the sponge, and the dye in its immediate contact; but if the sponge, after having remained a certain time be taken and squeezed, then returned again into the liquid, it will absorb a fresh quantity of the dye by fresh particles being exposed to its surface, when a second coat will be formed; and so on with a third and a fourth, at every alternate immersion and squeezing, till the requisite shade be accomplished. In this manner any degree of shade of a dye may be communicated to a piece of cloth, or other material capable of taking it up, in a much shorter time than in any other way.

Again, how does Nature effect the oxidation of the blood in the lungs of animals? It is upon the same simple principle: for what does she do to gain this important end? Let us for a moment observe ourselves in this instance; we inhale a quantity of air into our lungs, and then immediately after exhale another quantity; a moment's pause ensues, when the process is repeated again and again, to the end of our existence. Now the lungs are a body somewhat like a sponge, but composed of an infinite number of ramified tubes, by which means an immense surface is exposed to the air.

The air that is inhaled is the amospheric, which is composed chiefly of nitrogen and oxygen. The air exhaled is different, being partly nitrogen, partly carbonic acid gas, with water in a gaseous form. We see, then, that the carbonic acid gas has been substituted for the oxygen, and if respiration be suspended, the air, just fresh received into the lungs, cannot yield up more than its quantity of oxygen, if continued within them for the space of an hour; and thus a balance, or equilibrium would be established; consequently, to gain more of the oxygen, the stale air must be expelled to admit its place being occupied by a fresh quantity of atmospheric air. This is effectually done by the moment's pause after exhalation, as the pause admits of the expired air escaping and ascending out of the way, having been rarified by heat, and rendered lighter than the atmosphere, and thus making a pure entrance for the inhaled air.

Another simile, and a familiar one, may also be brought forward. It is of a fire that wants stirring, which exactly resembles a piece of land permitted to remain awhile unmoved. For the fire is becoming stale, or a balance of affinities is forming, or, properly speaking, the surfaces of the fuel, immediately in contact with the air, formed a combination with the air whilst the heat was sufficiently strong to effect it; but by the hollowness consequent on combustion, from the consumption of a portion of the fuel, the particles in a state of ignition become more and more distant, when the heat proportionally declines, till falling below the power of decomposing the air, which now only gets rarefied in its passage through the embers, and thus robs them of their remaining heat, when the fire soon goes out. If, however, it be stirred in due time, and with judgment, whilst the heat is sufficiently powerful to decompose the air, a large exposure of fresh, or unsaturized surfaces and particles are presented to the current of fresh air, together with the approximation of the parts in combustion which, by consolidating the heat that was before distantly divided, materially prevents the further loss of the same, and consequently favors immediate ignition. The fuel being put closer together, is however, left sufficiently porous for the free circulation of the air, which accordingly enters into chemical union with those particles that are capable of receiving it; when the oxygen of the air, from a gaseous form, assumes a more condensed one with the fuel, the latent heat is in consequence given out, and shows itself in the general redness; should hydrogen be present, as in coal or wood, it unites with this gas, and becomes cheeringly visible in the flame.

To further elucidate this meaning respecting this balance of affinities, and the advantage gained by moving the soil, the reader is requested to inspect a dung mixhill that has been made two or three months. This mixhill will be found, if trodden down hard by the horses and carts during the time of making, or the interior defended from the outward air by a covering of earth, in a comparative quiescent state; and why? Because the fermentation has gone as far as the fresh air contained within lasted, when the balance of affinities takes place. Now let this heap of manure be turned regularly over, and each spit broken and shaken in pieces, after the manner of making a cucumber bed, and spread about to prevent the same two pieces that were together before, from coming in contact again; the uncombined stale and gaseous moisture will then be facilitated in their escape; and from having less affinity for the materials of the manure than the fresh air and gaseous moisture to which the materials are now exposed, will readily give place to them, when a fresh and strong fermentation ensues; and this arrives at a great height after some hours, or a few days, and so continues, till the fresh store of air or moisture, and the new position of the particles of the manure are exhausted and saturated, when all is quiet again.

When a soil is broken up by the plough and highly pulverized, this essential effect, fermentation, is gained which cannot take place without the presence and consequent decomposition of air or water, or both. This being the case, these two questions necessarily arise. The first; is air always present in the soil? The answer is, that it is; because it is impossible that a pulverized and porous body, such as the soil, which is always exposed, can maintain a vacuum in its innumerable cavities. The next respects the presence more or less of water in the soil. The same answer is again given, that it is present. The rains are the occasional contributors, together with the dews; and the constant interchange of the air, charged with moisture, ascending and descending through the upper part at least of the pulverized soil, by the influence of the interior fermentation, the day's heat, and the night's chill, leaves behind in this climate, a quantity sufficiently great to keep the soil moist even in the driest seasons.

Of the two former there is a positive certainty: and of the latter, the ploughman's experience equally satisfies him of this fact; but it is not discoverable in unmoved land, which is in consequence generally hard, dry, and cracky, during the summer months.

The next step to be taken in this inquiry is, to ascertain whether the soil, by cultivation, will mechanically retain, and chemically, or by cohesive attraction, as Sir H. Davy says, combine with air and water, and any gaseous materials.

What has been shown already relative to the porous nature of the cultivated soil, equally answers in this case. For having proved that the air is more or less present and diffused through the soil in proportion to its improved state; then this presence of the air denotes also its mechanical retainment.

The next investigation relates to the capability of the various soils chemically combining with air and its component parts, and the products of decomposed vegetables and animal manures, beginning with the latter.

When vegetable and animal manures are applied to the soil and buried by the plough, they undergo fermentation, and gases of various natures are evolved; these, passing into the finely pulverized earth, become arrested in their nascent state by the numerous particles of the same, and are so strongly retained, as to exhibit their presence for a series of years afterwards (although every part of the manure appears gone), by the superior crops that follow, and which gradually consume them. If these gases were incapable of chemical union, then from their specific gravity being so far inferior to that of the soil, they must effect their escape in a greater or less degree, but more particularly so at every successive ploughing; consequently with the proportioned impoverishment of the land according to the frequency of the operation. However a long age of experience has no proof of such results; therefore the detainment of the several gases for such a period must be more than mechanical, consequently then, is chemical.* The like reasoning applies to atmospheric air.

The presence, or mechanical suspension of water in soils, has been before shown; and its chemical or cohesive combination with the particles of the earth, is on the same principle as water with lime; though the union is not so strong; but the strength of the union, and the affinity of the soil for water, are increased by cultivation.†

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* If it were practicable to expose land to the effects of the winter season, more than is generally done, by one or two extra ploughings during that period, the advantage gained in fertility would be considerable. But, the fear of kneading the land whilst wet, and the impossibility when frosty, sets all attempts on any large scale at defiance. In a garden, a bed may be dug and re-dug during slight frosts, and thus fresh surfaces and clods turned up to the weather, when the great benefit of the winter's exposure and pulverization can be obtained; and indeed is so by industrious gardeners.

† Fermentation is the struggling of different affinities of materials in contact with each other, to enable their respective proportions to continue at rest: or the struggling of various particles of matter for the balance of affinities. It is one of the chief objects of a well directed cultivation to continue this fermentation, having the seasons and the power of vegetation to assist, lest vegetation should be exposed to a too long continuance of the balance of affinities.

Land dries much sooner when moved, than when left untouched. Just harrowing the surface dries the soil rapidly, the weather being fine; and why is this? It is because the water and air in the unmoved soil is in a comparative state of rest or balance; and having the same surface exposed to the sun and winds for some time, they at length saturate the particles of the soil exposed to their influence, consequently at last excite little fermentation: when, however, the surface and clods are disturbed by the harrow or plough, every part is fresh to both sun and air, fermentation becomes strong (proved by a thermometer) and dryness rapidly ensues.

‡ A gardener, whilst digging, always takes care to break each spit in pieces, both on the top and in the trench. He does this, knowing from experience that this extra labor will be amply compensated for, by the proportioned superior produce of the next crop.

* This is a strong practical fact, that the particles of the soil have a superior affinity for the component materials of animal and vegetable substances than the atmosphere; if true, the soil never can be so injured by exposure as some persons have imagined: indeed facts are every way in favor of exposure, so much so that it is absolutely necessary from the essential benefit the land derives by being allowed to breathe, to exchange its stale bad materials for those that are fresh and good.

Meat, as of a dead sheep or horse, is sweetened and made tender by being buried in the ground for a day or so; for the soil commences a digestive process, and imbibes and retains all the putrid effluvia as it generates. Dogs are, by their instinct, aware of this when they bury a bone, otherwise, from the acute smell of their own species in general, their store would be easily discovered, if the least effluvia escaped during that time, and the treasure robbed; but the occurrence is very rare.

† A portion of soil being taken from a cultivated fallow, and compared with an equal quantity from an exhausted soil close by, and with corn in ear growing upon it, the differences were; that the fallow soil retained moisture longer than the exhausted soil, and when both were equally dried, the former regained moisture from the air quicker than the latter—a most important fact. Again; a thermometer was inserted three inches into a soil cultivated a few hours before, and then put the same depth into the same soil close by, which had not been so recently moved; the result proved

When there is an excess of water after saturization, it evaporates in dry weather, and forms a mud, when very wet.

Before terminating this part of the inquiry, the following well known fact is adduced in support of the argument; that aration alone is capable of fertilizing land. Whence is the source of such fertility? We know of none; if we exclude the air and water, and the improved digestive powers of the soil, saving the pulverization; which, indeed, without these would be next to nothing; therefore these three must be pronounced as the real source, which, under the influence of the sun and seasons, yield to the hand of industry their hidden treasures, and fixes them in the soil, to be gradually taken up by the future vegetation.

This satisfactory conclusion may at length be drawn, that the particles composing a well managed soil are capable of mechanically retaining and chemically combining with air and water, and their principles; and also with the various products from vegetable and animal manures. And this capability of the soil is to be improved, strengthened, and perpetuated, by well-directed cultivation; thus proving not only the use, but the necessity and importance of cultivation.

To dismiss this interesting chapter without a few remarks on the practical parts of the fallow process would be incorrect, and to do so it is necessary to review some of the operations, and make comments as we proceed.

The commencing the operation for the fallow in the dry part of the autumn is highly necessary, and the advantages are these: that the plough presents an entire fresh and somewhat dry surface to the influence of the succeeding winter, instead of the same which had been before long exposed during the preceding summer, and was in consequence become stale, therefore the soil would not derive the proportion of benefit it ought to do from the ensuing winter's frosts, rains, and other changes, which however will be gained by the particles of the now fresh turned up surface. Again, the land being broken up as dry as it will plough, and never mind how rough, the surface not only presents a greater number of particles to immediate exposure, but being at the same time rather dry than otherwise, the winter's fresh rain and snow enter more readily and generally into every part of the clods, and after the manner of lime, crumbles the same to powder. Whereas if the same land be ploughed up wet so as to knead by the horses, the cavities of the soil, from this cause, being already filled with water, like the sponge, can receive no more, and therefore from the approaching winter there is no chance of it to be again moved or become dry. The fresh rains and snows which may fall, cannot penetrate through the clods, every interstice being already pre-occupied by the former moisture; and this same quantity thus locked up, as the liquid dye in the sponge or cloth, and the air in the lungs, when it has parted to the soil all that it is capable, the balance of affinities is established by the saturation; and no further benefit is to be expected, except upon the mere surface, where the frosts and sun may occasion a dryness. Such land, when ploughed in the spring, will, as the expression is, cut up whole furrow, instead of being in the fine and tender state of the land that was ploughed dry, and now again ploughed in a dry time also.*

With respect to the burying all the stubble and weeds; these should always be done when practicable, and if done, they will, during the exposure of the winter season, particularly in very wet and stiff land, keep the same open and porous, and thus, not only make it more easily divisible by being blended with the soil, but assist the running off of any superfluous water by the hollowness which the stubble naturally occasions, at the same time admitting a circulation of the air; besides, whatever of the stubble and weeds goes to decay, fertilizes, lightens, and improves, at no expense.

If a person follows the plough in the spring whilst stirring that land which was ploughed in the autumn, where the stubble and weeds were buried, he will see that the land, in turning over, separates readily into pieces where the stubble is intermixed, and thus materially assists in the commencement of its pulverization. This stubble, on examination, will be found in a blackened and mouldy state, like manure, with the green weeds quite decayed, excepting the hearts of some of those plants that are of the biennial and perennial kinds; all this proceeding from the fermentation which ensued during the changes of winter, aided by the easy decomposable nature of the substance buried, and taking place too at a period when vegetation is at the weakest; in consequence, the decay of the weeds, rather than their vegetation, followed, to the greater benefit of the land. Whereas, if the weeds had been suffered to remain unmolested all the while, they would, at least, continue alive, and if a mild winter, have grown.

The advocates for not ploughing in the autumn, say, in their defence, that such lands plough up more tender and dry in the spring. Let this be granted, because they may argue, that the under soil, not having been disturbed by the plough, becomes porous as the roots of the former plants decay, as well as retaining uninterrupted the old water-courses and cracks, which were formed the preceding summer, and thus let off the winter's rains and snows; also, the old heaten down surface arrests a part of the water which is then dissipated by the sun and winds that follow. In answer it must be observed, the object of the husbandman is not only dryness, but an improved fertility by the winter's exposure, and which cannot take place in an unmoved soil, according to what has been already stated, and likewise, because the channels and cracks, similar to a fire, become hollow, and want stirring; having had the particles of the earth lining their surfaces so long exposed to the summer's rain and air, they thus become effectually saturated as far as they were capable of receiving, and in consequence, little or no after benefit can be gained from the succeeding winter's rain and snow. Such reasoning as the non-autumnal ploughers use, only applies, if with any force, against those farmers who are in the habit of ploughing up their land at that season of the year when really too wet.*

The spring tillage for the fallow comes next; but before entering upon particulars it may be asked, which of the four seasons are those hest calculated to crown our operations with the greatest success? The spring and early part of the summer are decidedly to be preferred, the land having of course been previously rough ploughed up in the autumn. This opinion is thus defended.

In the first place, let this question be put, when is vegetation the strongest? Why, certainly during the spring and early summer months; then of course must be the time of the greatest chemical changes with the soil, air and water; therefore, the more the land is exposed to the influence of the sun, air, and rain, by cultivation at this important time, the greater will be the increase of fertilization.

To account for all this is the next question, and it is thus attempted. That contrasts and extremes, acting alternately on matter, produce in general the greatest effects, by weakening and destroying the balance of their affinities; as is instanced in the familiar case of hot water breaking a glass that is cold, and cold water breaking a glass that is hot. But the continuance of such contrasts for any length of time in either extreme, preserves the equilibrium of their particles unaltered,† as for example, paper when dry, and the piles of bridges that are always wet. What have we then so favorable to the overthrow of the chemical affinities of the soil? A winter, the very extreme in its nature to the preceding summer, as being a period overcharged with moisture and cold, in opposition to its dryness and heat. As these extremes of wet and cold continue for about six months, the very active energies of vegetation, and of composition and decomposition, are not to be wondered at, when the opposites, heat and dryness,‡ are increasing in their powers in the spring and early summer months, till the sun has reached its greatest height and limit.—The rays of the sun afterwards, being on the decline, become daily less and less powerful, therefore less and less effect must be produced, and this explains the cause why the vigour of vegetation is then seen to cease,§ and with it we naturally infer, the fertilizing effects, as respects composition and decomposition on the soil also, with the consequent tendency at the same time to a rest in their several affinities; though afterwards the autumn rains come, and vegetation is seen to revive a little, yet winter soon follows, and seals up all with its frosts.

OF THE SPRING TILLAGE.

Should the land be extremely foul, harrowings and scarifyings,* with pickings and burnings, must be had recourse to whilst the land is in the driest state, and all completed, if possible, before the next ploughing. The plough may then be introduced and let into the land the greatest depth required, that the largest possible mass of soil may gain the benefit of the future exposure and tillage. With a field fairly clean the ploughing may at once commence, as the surface will be quite tender, and sufficiently pulverized without the aid of the harrows.

If the fallow is to be manured, no better time can be chosen than the present to be now ploughed in—but more of this hereafter.

During the early spring tillage, be careful to knead the land as little as can be avoided, and, as the season advances, it is best not to suffer a horse's foot or a cart-wheel on the surface until the soil beneath is too dry to knead;† because all the former labor will be in a great measure lost, whilst the time is too short to do it over again. Nevertheless, should necessity oblige a husbandman to plough his land before it is fit, as he is to expect extremes of dry weather instead of the winter's rain, the clods may get perfectly dry, and the spring showers falling afterwards would re-pulverize them.—The main object is to let the clods be quite dry, when, if rain does not fall, they, being returned to the bottom of the furrow by the next ploughing, will gain sufficient moisture to dissolve and pulverize them. In fact, the plan of always ploughing in, when possible, a dry, dusty surface, instead of a wet one, is to be preferred, because the extremes of dryness of the former surface being turned to the bottom of the furrow, where there is always moisture, which being absorbed in an equal degree by the dry soil occasions a rise of temperature readily detected by a thermometer, consequent on the union with the moist earth and with the air contained within the interstices of the clods. But when the top surface is ploughed in wet, little or no interchange can take place, for the reasons before adduced.

(Remainder in our next.)

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that the fresh moved soil raised the quicksilver at least 2° higher than the unmoved, and selecting a spot just manured and fresh moved, the difference of temperature was found greater.

Cultivation increases the powers of decomposition and composition of the soil, or fermentation, denoted by the proportioned increase of the growth of plants; likewise by the more rapid decay of any vegetable or animal substances contained therein. But vegetables growing in a soil have the tendency to lower the temperature of the same, caused, it is conceived, partly by their shade, and partly by their very act of growing, which by transforming the more solid and liquid manures about their roots into a rarer or gaseous form, occasions the difference, from the consequent consumption of a portion of the surrounding heat taken up in a latent form during the rarefaction of any of the above substances.

It is also known, that fish-manure ploughed in early for a fallow, last longer than when ploughed in for a crop on an exhausted season. Thus proving again that cultivation strengthens the chemical powers of the soil. On the same principle farm-yard manuro will go further when put on a fallow.

* The best remedy, when the season and time obliges the land to be ploughed wet, is to plough the furrows up an hedge as much as possible, that the water may drain away the easier, with a greater surface being thus left for the frosts, sun, air, &c, to operate upon. Land should never be ploughed flat when in a wet and kneady state.

* Land improves very slowly indeed when suffered to lie unmoved; if otherwise, the not cultivating of it would of course be the cheapest plan; but facts are the reverse, and the cause easily explained. Although the unmoved land receives the effects of the same sun, the same rain and winds, yet little fertility is left behind, because the surface particles are early saturated, when whatever comes afterwards is lost to them. No extra heat and chemical powers are communicated to the soil by cultivation, no change of position of the particles of the soil relative to each other takes place, and from being deficient of these essentials, no extra fermentation can ensue, consequently, its improvement in fertility must be proportionally small; and this is borne out by facts. Therefore, every omittance of cultivation, if a gain in labor, is a loss in fertility.

† The preservation of fish and meat preserved in ice is the result of the strong balance of affinities.

Meat preserved in salt, fruit preserved in close stopped jars and bottles, are instances of the same kind.

‡ That is to say, though more rain is said to fall in summer than in winter, yet it quickly vanishes again, and by its evaporation assists, no doubt, in the decomposition.

§ Upon the same principle may be explained the cause why the morning sun has more effect upon vegetation than the afternoon.

* Scarifying is very well for cleaning land, but never will answer as a substitute for the plough; because, a scarifier is unable to bring up and turn over the fresh soil of the bottom to the top for exposure, like the plough: consequently, the top surface soon getting saturated, gains no more benefit from the sun, air, and rain, however often the same surface may be moved.

On following the plough, whilst preparing a bean land for wheat, much of the stubble of the barley crop ploughed in for beans was observed undecayed, although the last crop, beans, being a drilled one, was horse-hoed at least threo times. Proving, that the effects of superficial cultivation do not descend with much influence below the actual operation; also proving, that the lower materials of the soil must be actually moved, and brought up to the sun. air, &c. before the requisite strong fermentation and benefit can ensue.

† A clayey soil when rammed quite close for the bottom of a pond, will remain in a perfect state of the balance of affinities for more than a century; for if it did not, it would soon lose its property of holding water. Now land of a clayey nature in a field will be affected similar to the clay at the bottom of a pond, if trampled on by horses in a kneady state; and the evil will be proportional to the purity of the clay.—If it is full of manure and foreign substances, the kneading will go off in time, by their fermentation. Pond makers are aware of this fact; and therefore carefully eject all vegetable and decomposable substances from their clay before ramming it down, knowing that they will be the means of destroying all their present labors, by breaking down the texture of the clay, and thus cause the pond to leak after a few months or years.

Young Men's Department.

Chemical Catechism—Chapter IX.

[*From Parkes' Chemical Catechism.*]

OF SIMPLE COMBUSTIBLES—*continued.*

What is the substance you call carbon?

The base of common charcoal, divested of all impurities, is known to chemists by the name of CARBON.

What is the most striking property of pure carbon.

Carbon is capable of crystallization, though not by art; and in that state it is called diamond.(1)

(1.) The diamond is chiefly found near Golconda in Asia, and in Brazil. It always occurs crystallized; indeed, if not, it would be carbon and not diamond. See a note respecting the diamond under the article Steel, in the chapter on Metals; where you havo an additional proof that diamond is simple carbon. It is wonderful that Newton, who had no chemical means of examining the diamond, should have conceived the idea of its inflammable nature. See Additional Notes, No. 35.

Mr. Tennant has satisfactorily shown that tho diamond is pure carbon, carbon crystallized. See *Philosophical Transactions* for 1797. The diamond is the hardest substance in nature, and one of its rarest productions. From its hardness it is employed for sawing and boring the hardest stones. It is a conductor of electricity, though charcoal is a non-conductor of that subtile fluid. "Diamonds are usually found in an ochreous yellow earth, under rock of grit-stone; they are likewise found detached in torrents, which have carried them from their beds. The sovereigns of India reserve the largest, in order that the price of this article may not fall. Diamonds have no brilliancy when dug out of the earth, but are covered with an earthy crust. Diamonds are also found in considerable numbers in the island of Borneo. Whenever the mines are searched for them, an overseer attends, and watches

What are the other properties of carbon?

Carbon has the property of de-oxidizing the oxides of metals and other combustible substances (2), and with this view it is often used in the arts. These purposes are effected by means of fire, the carbon uniting to the oxygen to form carbonic oxide, or carbon acid (3); and the metal thus deprived of oxygen, is left in its pure state.

Does carbon enter into any other combination?

Carbon is found in large proportions in bitumen, petroleum, and pit-coal; it seems to be ready formed also in all vegetables, and in most animal substances; and combined with oxygen, enters into the composition of a great variety of the products of the mineral kingdom.

What is the proportion of carbon in pit-coal?

Pit-coal vary in quality, according to the different proportions of carbon and bitumen which they contain (4); but carbon is the *chief* ingredient in all. What are called *slaty* coals hold also from 10 to 40 per cent. of earth (5); and some coals likewise contain a considerable quantity of the sulphuret of iron, known by the name of *martial pyrites*.

What is the use of carbon in the vegetable kingdom!

Carbon is not only a component part, but it forms nearly the whole of the solid basis of all vegetables, from the most delicate flower in the garden to the huge oak of the forest(6).

If carbon forms so large a part of all vegetables, what occasions that infinite variety which we observe in the vegetable creation?

We are in a great measure strangers to the economy of vegetables; but much of this variety may be attributed to the different modifications of carbon(7), as well as of the other principles which enter into their constitution(8).

What products of vegetation are there which are indebted to carbon for their formation?

Carbon not only constitutes the base of the woody fibre, but is a component part of sugar, and of all kinds of wax, oils, gums, and resins; and of these again how indefinite is the variety!

How are these substances formed by the vegetating organs of plants?

All living vegetables have the power of decomposing water(9), and of combining in different proportions the hydrogen of the water with the carbon of the soil, as well as with that of the carbonic(10) acid of the atmosphere(11), to form the numberless productions of vegetable nature(12).

If carbon and hydrogen enter into the composition of all these substances, how is it that one vegetable affords gum, another resin, another oil, &c.?

The infinite variety which there must be in the internal organization of vegetables, to enable different orders to prepare such different substances from the same elements, renders this subject too intricate and minute for our investigation. We feel the insufficiency of our faculties—"The will of God is the ultimatum of all human knowledge."

Is it known what other substances are employed by nature for the formation and growth of vegetables?

All orders of vegetables are produced from four or five natural substances, viz. caloric, light, water, air, and carbon(13). Nature has required only these in order to form even the most exquisite of her productions—

"With hues on hues expression cannot paint,
The breath of Nature, and her endless bloom."

How is it that such an inexhaustible variety of forms, colours, tints, odours, tastes, qualities, &c. so conspicuous in this kingdom of Nature, can be produced from such a scanty number of natural substances?

The means by which all this is effected are unknown to us: but this we know, that "these wonderful harmonies are not by necessity in the nature of the elements, but in the will of Him who has ordained them, in subordination to the wants and the enjoyments of his numerous creatures(14)."

What is the office of carbon in the animal *kingdom?*

As carbon is a necessary part of sugar, of oils, &c. it consequently enters into the composition of animal milk, and of animal oils and fat; it is also found in albumen, gelatine, fibrina, and in many of the animal secretions.

Does carbon enter into any mineral combinations?

It is imagined that most of the metals may be combined with carbon: but at present we know only of its combination with iron.

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the workmen with great care, that the largest may be secured for the sovereign prince. Notwithstanding, they are frequently conveyed away clandestinely by the workman, who will swallow them." Von Wurmb's *History of Bornea.*

The usual method of calculating the value of diamonds, is by squaring the number of carats, and then multiplying the amount by the price of a single carat: thus, supposing one carat to be worth £2. a diamond of 8 carats is worth £128 being 8 x 8 x 2. A carat is four grains. *Polished* diamonds, without blemish, are worth about £6 per carat.

In the year 1772, the empress of Russia purchased a diamond that weighed 779 carats, nearly 6½ ounces troy. She paid the immense sum of twelve tons of gold for it, and granted a pension of 4,000 roubles per annum to the vender.

(2.) Charcoal has such a powerful affinity with oxygen, that in a proper degree of heat it will abstract it from all other substances.

(3.) The merit of the discovery of carbonic acid is due to the illustrious Dr. Black of Edinburgh. Those who have not been in the habit of reading the early chemical writers can have no idea of the service which this great man has rendered the science by his very accurate investigation of this compound gaseous substance.

(4.) The immense quantity of pit-coal which is deposited beneath the surface of the earth is truly astonishing, and affords abundant matter for reflection. This kind of fuel is consuming day after day in incalculable quantities; and so great is the store, that there is no probability of its being exhausted for ages yet to come. Supposing the formation of pit-coal to be owing to the deposition of vegetable and marine animal matter; the same process must be still going on, and the inmost recesses of the present seas may be receiving the materials of fuel for the inhabitants of new continents in the most remote periods of the world. The wise economy of the great Author of Nature, in this constant circulation of the elements of matter, is equalled by nothing but his own infinite beneficence:

"Who, not content
By one exertion of creative power
His goodness to reveal; through every age,
Through every moment up the tract of time
Adjusts, accommodates, and blesses all."

(5.) There are four species of coal, very distinct from each other: the *graphite* of Werner, or plumbago; the *anthracolite*, the *jet*, or pitch coal: and the common coal.

One hundred parts of plumbago contain, according to Berthollet, about 90 per cent. of charcoal and 10 of iron. That of the best quality, and which is found at Keswick in Cumberland, is used in making pencils. Plumbago has also been found lately in considerable quantities in an estate about 7 or 8 miles north of the town of Ayr in Scotland, and in some parts of that neighborhood it even occurs at the surface of the ground.

Anthracolite, or anthracite, is distinguished from other coal by burning without flame. It is composed of 64 charcoal, 33 silica, and 3 parts of iron.

Jet occurs in Scotland, at Whitby in Yorkshire, in Bavaria, &c. and in France near the Pyrenees. At the latter place more than a thousand men, it is said, are constantly employed in fabricating it into ornaments of dress, drinking vessels, rosaries, &c. It is composed of bitumen and charcoal: 76 parts charcoal, 22 parts bitumen, and 2 parts earth.

Common coal is composed of bitumen and charcoal in different proportions, according to its quality, and the places whence it is procured. At Newcastle-upon-Tyne, martial pyrites are often found mixed with the coal, in such abundance as would render the coal unsaleable; but persons are employed to pick out these pyrites and remove them to a proper situation, where in process of time they become acidified, and fit for the production of green vitriol. See an account of this process in Chapter X. under the article Salts of Iron. This species of coal, when, in contact with water, is apt to be decomposed, and to burn spontaneously. Ships at sea have sometimes been suspected to have been lost by this means. His Majesty's ship Ajax, of 74 guns, took fire a few years ago in the middle of the night on a station in the Mediterranean, and no cause for that dreadful catastrophe has yet been assigned.

(6.) It has been discovered that air which has been spoiled by the breathing of animals is peculiarly fitted for the vegetation of plants; and no doubt this is owing to its containing a larger portion of carbonic acid. By the analysis of soils it has been proved, that of all the substances found in the mixture of earths which constitute a soil, calcareous earth contributes most certainly to its fertilization. An interesting account of some experiments on manures, by Mr. Arthur Young, may be seen in the *Retrospect of Philosophical and Chemical Discoveries*, vol. i. page 118. There is an ingenious memoir by Dr. Paris on the application of mineral manure to land, and on the connexion which subsists between the geological structure of any particular district and its agricultural economy, in the 1st volume of the *Trans. of the Roy. Geol. Society of Cornwall*, pages 168—200.

(7.) Vegetables have the power to absorb oxygen from the atmosphere, and to transmit it to the absorbent vessels of the roots. It cannot be questioned but that this oxygen becomes useful in vegetation, by converting the carbon of manures into carbonic acid. See Additional Notes, No. 48.

The operation of paring and burning turf, which is always found by farmers extremely serviceable to their lands, is doubtless rendered universally advantageous from the carbonaceous matter, which is produced by the burning.

(8.) When we consider the small number of simple substances which enter into the composition of plants, how astonishing is the variety that has been given us by the profuse hand of Nature! The species of vegetables already known are more than 40,000, and large additions are daily making to this number by new discoveries. Is it possible that so bountiful a provision can have been made by Nature ultimately for the use of man?—Yes "for him she has covered the earth with plants; and though their species be infinite in number, there is not one but may be converted to his use. She has selected some out of every class to minister to his pleasures, or his support, wherever he shall please to fix his habitation. Others serve for his bed, for his roof, for his clothing, for the cure of his diseases, and for the fire of his hearth."—St. Pierre's *Studies of Nature*.

Fourcroy has remarked that "vegetables may be considered as beings intended by nature to *begin* the organization of crude matter, and to dispose the primitive materials of the earth and atmosphere in order to become the source of life, and consequently to establish a communication between minerals and animals; from whence it follows, that plants are truly chemical apparatus employed by nature to produce combinations which would not take place without them.—Fourcroy's *System of Chemistry*.—Nature is as admirable in the simplicity of her means, as in the constancy and regularity of her operations.

(9.) When we decompose water, we can do it only by abstracting its oxygen and liberating the hydrogen, which is easily effected by some combustible bodies. But vegetables perform this process in a different way: they preserve the hydrogen and set the oxygen free. This process of Nature in the latter instance, has been noticed in a former chapter.

Berthollot has remarked that the decomposition of water must always take place to give rise to substances of a resinous character, when the vegetation is performed without the concurrence of foreign bodies. See his *Essay on Chemical Statics*, vol. ii. page 393.

(10.) Van Helmont planted a willow, weighing fifty pounds, in a certain quantity of earth, covered carefully with sheet lead: he kept it in this state for five years, watering it with distilled water; and at the end of that time the tree weighed 169 pounds three ounces: the earth in which it had vegetated being weighed at the same time, was found to have lost only three ounces. This was repeated by Mr. Boyle with a similar result.

(11.) Organized beings cannot live upon the matter in which they vegetate: Nature, therefore, by making the air their food, has afforded them nourishment, without offering violence to their tender organs.

(12.) Sennebier found that plants watered by water impregnated with fixed air grew more luxuriantly than plants watered as usual; and that when insulated from every substance which could afford it to them immediately, they acquired carbon by the decomposition of carbonic acid gas in the atmosphere. This they take in by the under surface of their leaves, as well as by their roots.

It appears from hence, that it is not requisite to the growth of vegetables that matter should be presented to them in the solid form, but that they owe their increase chiefly to the decomposition of water and carbonic acid.

(13.) It has been shown that water and atmospheric air are the natural food of plants. Caloric is necessary to enable vegetables to decompose water and air; and light is equally requisite to give a part of the oxygen of these substances a gaseous form, and to put it in a proper state to be thrown off by the leaves. The other portion of oxygen goes to the formation of sugar and the vegetable acids. The analysis of vegetables confirms this theory; for, however they may be examined, the result is always the production of oxygen, hydrogen, and carbon. Some plants yield also a portion of silica, and others lime; but these no doubt are taken up by the roots from the soil. See Sir Humphrey Davy's paper on the silica found in the epidermis of reeds, &c. in Nicholson's *Journal of Philosophy*, &c. for May, 1799.

When we consider that the many thousand tribes of vegetables are not only all formed from a few simple substances, but that they all enjoy the same sun, vegetate in the same medium, and are supplied with the same nutriment, we cannot but be struck with the rich economy of Nature, and are almost induced to doubt the evidence of those senses with which the God of Nature has furnished us. That it should be possible so to modify and intermingle a few simple substances, and thence produce all the variety of form, colour, odour, &c. which is observable in the different families of vegetables, is a phenomenon too astonishing for our comprehension. Nothing short of Omnipotence could have provided such a paradise for man.

"Soft roll your incense, herbs, and fruits, and flowers,
In mingled clouds to Him, whose sun exalts,
Whose breath perfumes you, and whose pencil paints."

(14.) The various orders of vegetables provided in every part of the globe for the countless forms of animated existence, are eminently illustrative of the provident care of the Creator, and show us how great and how good is the Father of the families of the whole earth. The following passage from St. Pierre's *Studies of Nature* is so well calculated to impress this truth, that it is unnecessary to apologize for its introduction:—"The sluggish cow pastures in the cavity of the valley; the bounding sheep on the declivity of the hill; the scrambling goat browses among the shrubs of the rock; the duck feeds on the water-plants of the river; the hen, with attentive eye, picks up every grain that is scattered and lost in the field; the pigeon, of rapid wing, collects a similar tribute from the refuse of the grove; and the frugal bee turns to account even the small dust on the flower.—There is no corner of the earth where the whole vegetable crop may not be reaped. Those plants which are rejected by one are a delicacy to another, and even among the finny tribes contribute to their fatness. The hog devours the horse-tail and hen-bane: the goat, the thistle and the hemlock.—All return in the evening to the habitation of man, with murmurs, with bleatings, with cries of joy, bringing back to him the delicious tributes of innumerable plants, transformed, by a process the most inconceivable, into honey, milk, butter, eggs, and cream."

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ARTICLES.	New-York, Nov. 61.	Boston. Nov. 19.	Philadelphia. Nov. 15.	Baltimore. Nov. 16.
Beans, white, per bushel,......	2 12— 2 25	2 00— 3 00	1 75— 1 87	1 75— 1 87
Beef, per cwt..................	....	6 70— 7 00	7 00— 9 00	6 25— 7 50
Bacon, western, per lb..........	0 09— 0 10	0 80— 0 10	7 50— 8 00	0 09— 0 10
Butter, fresh, per lb...........	0 12— 0 15	0 11— 0 23	0 14— 0 16	0 15— 0 16
Cheese, per lb..................	0 08— 0 10	0 10— 0 12	0 10— 0 11	0 09— 0 10
Cotton, best per lb..............	0 11— 0 12	0 11— 0 16	0 13— 0 16	0 14— 0 15
Flour, best, per barrel, ...	6 00— 6 50	6 25— 6 50	6 00— 6 25	6 00— 6 25
GRAIN—Wheat, per bushel,....	1 10— 1 15	1 28— 1 33	1 18— 1 22	1 20— 1 30
Rye, per bushel,......	0 70— 0 71	0 88— 0 90	0 70— 0 71	0 73— 0 75
Oats, per bushel,......	0 31— 0 41	0 40— 0 52	0 63— 0 73	0 30— 0 31
Corn, per bushel, ...	0 63— 0 66	0 78— 0 86	0 68— 0 75	0 67— 0 73
Hams, pork, per lb............	0 10— 0 13	0 10— 0 11	0 09— 0 11	0 12— 0 13
Pork, in hog, per cwt..........	....	5 50— 7 00	7 00— 8 00	7 00— 7 50
SEEDS—Red Clover, per bushel,	....	10 00—13 00	....	2 00— 2 50
Timothy, per bushel,..	....	2 75— 3 00	....	2 00— 2 50
WOOL—Saxony, fleece, per lb..	0 55— 0 60	0 58— 0 62	0 55— 0 60	0 60— 0 70
Merino, per lb........	0 50— 0 55	0 55— 0 68	0 50— 0 55	0 50— 0 55
¼ and common, per lb..	0 37— 0 40	0 45— 0 48	0 37— 0 50	0 47— 0 42
Sheep, per head,....	2 00— 5 50	1 50— 2 50	2 50— 3 60	1 50— 3 25
Cows and Calves, each, ...	28 00—30 00	27 00—45 00	23 00—33 00	....

Prospectus of the Cultivator, Vol. VII.

A CONSOLIDATION OF

Buel's "Cultivator" and the "Genesee Farmer."

WILLIS GAYLORD AND LUTHER TUCKER, Editors.

JESSE BUEL & Co. Proprietors.

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From his excellency W. L. MARCY, late Governor of the state of New-York, dated "*Albany, October* 29, 1839."

"Messrs. Harper—Gentlemen—I have availed myself of the opportunity you have afforded me, to examine the second series of the School District Library; and though I thought the *first* a very judicious and appropriate selection, I am inclined to believe the *second* preferable to it. Some of the books contained in it I have never read, but the subjects of which they treat are such as should in an especial manner be presented to the class of readers for which the library is intended.

"The introduction of libraries into our district schools is a new and highly valuable feature in the system of popular education. The character of the books which you have published for this purpose, and the low price at which they may be obtained, must, I think, facilitate the establishment of such libraries. I sincerely hope that you will meet with sufficient encouragement to induce you to continue the series. I am with great respect, your obedient servant,

"W. L. MARCY."

The above, together with the *First Series*, are for sale by all the principal Booksellers throughout the state.

☞ **MORUS MULTICAULIS** AND OTHER MULBERRIES, &c.—The subscriber is now ready to receive orders to any reasonable amount, for trees of the Morus Multicaulis, or cuttings of the same. The trees are genuine, all being raised by the subscriber, either at his nursery here, or at his *Southern establishment at Portsmouth, in Lower Virginia.* Also, the Elata, Broussa, Canton and Moretti or Alpine, &c.

The collection of Fruits is of the most celebrated kinds. The catalogue of *Fruit and Ornamental Trees and Shrubs, Roses and Herbaceous Plants, for* 1839, is ready, and will be sent to all who apply. In that catalogue, the very best kinds of fruits, so far as proved, are particularly designated by a *star.* All orders will be promptly attended to: and trees, when so ordered, are securely packed for safe transportation. Nonantum Hill, Newton, Mass. 7th October, 1839.

t jan. WILLIAM KENRICK.

MULBERRY TREES.—25,000 Multicaulis, Alpine and Expansa Mulberry trees, and a few thousand Silk Worms Eggs, for sale by S. E. GIBBS & SON,

Address them at Brooklyn. October, 1839. 3t.

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

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ROHAN POTATOES.—The subscriber is now prepared to furnish the above very valuable root for transportation, at $5 pr. bbl. until the 1st Nov. delivered at Albany. Persons living at a distance, will find it to their interest to forward their orders early, so they will reach their destination before cold weather sets in. Orders enclosing five dollars, (postage paid) or more, will meet with immediate attention.

CALEB N. BEMENT.

Three-Hills Farm, Albany, Oct. 1st, 1839.–3t

☞ **ROHAN POTATOES.**—Orders received for Rohan Potatoes, at $5 per Barrel, to be forwarded, as may be directed, without delay, by J. BUEL. tf

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FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicester's flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 28, 1839.

Sept–tf JAMES A. HAMILTON.

THE SUBSCRIBER has located in Albany, where he is manufacturing his machines for thrashing and cleaning grain. He may be found at **53** North-Market-st. or at his machine shop on Patroon's Creek, near the Manor House. Sept. 2, 1839. [oct. 3t] JOHN A. PITTS.

IMPORTED CATTLE—BERKSHIRE PIGS.—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.: great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,
sept–3t. Bergen co. N. J. 5 miles from N. Y.

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.
ALBANY, N. Y.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

VOL. VI. NO. 5, WASHINGTON-ST. ALBANY, N. Y. DECEMBER, 1839. No. 12.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance. Subscriptions to commence with a volume.

Special Agents.—Lewis Hill & Co. Richmond, Va.; Bell & Entwistle, Alexandria, D. C.; Gideon B. Smith, Baltimore, Md.; Judah Dobson, bookseller, D. Landreith, and M. S. Powell, seedsmen, Philadelphia; Israel Post, bookseller. 88 Bowery, Alex. Smith. seedsman, P. Wakeman, office of the American Institute, Broadway, New-York; Hovey & Co. Merchants' Row, Boston; Alex. Walsh, Lansingburgh, and Wm. Thorburn, Albany, gratuitous agents; John Thorburn, seedsman and general agent, St. Louis, Mo. E. Valentine, Johnson's Springs, Va. See No. 12, vol. v.

The Cultivator is subject to common newspaper postage.

☞ The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Close of the Sixth Volume.

This number closes the present and Sixth Volume of the Cultivator. In place of furnishing an extra number, which the late Proprietor and Conductor promised in the June number, when he announced his intention of closing this volume "by publishing a number on the 15th of August, and another on the 15th of October, in addition to the usual monthly publication, in order to have the seventh volume commence on the beginning of the year, when most periodicals commence their volumes," we have substituted, at a great expense, as a frontispiece, an engraved portrait of the late Editor, JESSE BUEL, Esq. taken but a short time previous to his death, by Mr. F. FINK, of this city. It is, as has been universally pronounced by all who knew the original, an admirable likeness;—as a picture, it speaks for itself. Mr. FINK is a young man, and has, in all his works, displayed great ability. The engraving is by Mr. THOS. H. CUSHMAN, also of this city, and recently of the firm of Hall, Packard & Cushman, Bank Note Engravers. Although he may find the branch of engraving here presented, less lucrative than that of making bank notes, yet we are satisfied, he must find it more congenial to his taste, and one which will afford him a far more lasting reputation, if he succeeds as well as he has in the above. He has been constantly employed for the last six weeks in producing this effort, and we can answer for the justice he has done the painting from which he copied, and which, we have no doubt, will prove full as acceptable to our very numerous list of subscribers. We shall furnish all our present as well as future subscribers to this volume, with a copy of the engraving.

We publish in this number, the two last addresses of Mr. BUEL, being convinced they will not only be acceptable, but meet the approbation of our readers. This course appeared advisable, inasmuch as they were his *last efforts* in the cause of his favorite pursuits, Agriculture and Horticulture, and by particular request of our correspondents.

It would not appear strange should the same ideas or sentiments be repeated, still, we think them not the less interesting, and should not be objected to on that account.

We also present a beautiful engraving on wood, (by Mr. R. H. PEASE, of Albany,) being a representation of the Horticultural Coat of Arms, as exhibited by that spirited and enlightened horticulturist, ALEX. WALSH, Esq. of Lansingburgh, at the Horticultural Fair at Niblo's, in New-York. It elicited great praise, and excited the admiration of the thousands who thronged to view it. Much credit is due to the *head* that conceived, and the *hands* that executed it.

We would ask the indulgence of our subscribers, for the lack of interest in our three last numbers; for they have been attended with numerous difficulties. The confusion naturally incident on assuming the "responsibility" of conducting this work, will appear evident to all; and at the moment we were preparing copy for this number, we were called out with the troops, to aid our sheriff in serving certain processes against the tenants of the Van Rensselaer Manor; in consequence of which we were compelled to leave it in the hands of a friend, who has had no experience in such matters.

☞ To our numerous and valuable correspondents, we again tender our grateful acknowledgments, and earnestly hope they will continue to lend us their aid in the great cause we have espoused.

To those gentlemen who have enlisted their services, and acted as agents, we also feel under great obligations for our extensive circulation, and we respectfully solicit a continuance of their favors for our next volume, the first number of which will appear in the early part of January next, under the editorship of the Genesee Farmer, (WILLIS GAYLORD and LUTHER TUCKER, Esqrs.) combined in the Cultivator.

☞ Owing to want of time and space, we have been compelled to lay aside several communications, which will appear in our next volume.

The following table will show the extent of our present circulation.

States and Territories.	No. of Subscribers.	Post-Offices.
New-York,	3,341	762
Virginia,	1,866	402
Connecticut,	1,135	161
Massachusetts,	952	199
Maryland,	754	123
Pennsylvania,	659	189
New-Jersey,	621	125
Ohio,	578	156
Vermont,	563	109
Illinois,	424	118
Indiana,	315	69
Kentucky,	288	63
Georgia,	261	49
Tennessee,	230	58
New-Hampshire,	210	50
North-Carolina,	196	61
Michigan,	194	62
Missouri,	147	36
South-Carolina,	135	46
Rhode-Island,	106	20
Delaware,	88	19
District of Columbia,	78	3
Wisconsin,	77	21
Alabama,	70	28
Iowa Territory,	35	11
Mississippi,	25	10
Louisiana,	16	4
Maine,	15	12
Florida,	5	3
Arkansas,	4	4
British Provinces,	147	51
Texas,	1	1

Horticultural Coat of Arms.

The Horticultural Society of the Valley of the Hudson, held a meeting last September, in Niblo's Garden, in New-York.

The display of Plums, Peaches, Nectarines, Melons, Filberts, Pears, Grapes, &c. &c. were the most choice and inviting. The exhibit of flowers, particularly Dahlias, was truly gorgeous; and the show of vegetables fine. The most conspicuous contributors to the exhibition were, Dr. Torry, Messrs. Prince, Hogg and others, of New-York; Perry, of Brooklyn; Downing, of Newburgh; Holbrook and Kneeland, of Hyde-Park; Mrs. Stephen Van Rensselaer, Buel, Dennison and Wilson, of Albany; Strahan, of Halfmoon; A. P. Heart, of Troy, and Mr. Alexander Walsh, of Lansingburgh. The part of the latter gentleman is thus noticed in the N. Y. Commercial Advertiser:—

"The gentleman whose contributions are most extensive and various, is Alexander Walsh, and to his taste the society is indebted for a very appropriate and beautiful ornament at the head of the Saloon. It is what Mr. Walsh has fitly denominated the Horticulturists' Coat of Arms, forming a pyramid twenty-four feet high, constructed entirely of instruments of horticulture. A thermometer, handsomely decorated, is placed in the centre, with the motto, 'SCIENCE DIRECTS OUR OPERATIONS.' The spade, rake, hoe, &c. &c., covered with a wreath of evergreens, and decorated with a superb variety of dahlias, rare exotics, and native flowers, form the frame work of this fanciful device. From the most prominent parts of the structure, are suspended teazles, madder-root, woad, sumac, perennial flax, &c.; all produced by Mr. Walsh, emblematical of the aid horticulture affords to manufactures. The silk business is fully represented by the eggs, reeled silk, and a tasteful display of the cocoons, and wreaths of silk moth. Near the centre, the grape, and that which maketh the heart glad, corn, wine, and oil, are justly represented. The pedestal and platform, some 40 feet long, is loaded with some fifteen or twenty varieties of plums, also apples, pears, filberts, a profusion of choice and rare vegetables, a diminutive bee hive, and a sundial. On the right, a little raised from the pedestal, are placed a variety of rural engravings. Copies of the New-York, New-England, Michigan, and Genesee Farmers, the Cultivator, Boston Horticultural Register, Gardeners' Magazine, London Horticultural Register, Robert Mudaie's Botanic Annual, and other publications, fully to complete the Gardener's Budget, have likewise been placed upon the table. The whole furnishing a beautiful illustration of Mr. Walsh's motto, which is—

"*Son utile ainda que briconda.*"
"I am useful, even when sportive."

"The annual discourse* was delivered by WILLIAM EMMERSON, Esq. and was such a production as might have been justly expected from the elegant scholarship and high attainments of the speaker."

We have endeavored to gratify the readers of the Cultivator, by a faithful representation of the *Horticulturists' Coat of Arms;* (see engraving in front of the volume.) The wood cut represents the entire pyramid and pedestal, but not the platform, which was too extensive for our page, and not altogether connected with the Coat of Arms. It was a neat, showy structure, which added much to the general effect in the Saloon. The centre shows the gardener's tools; on the right is the library for the improvement of his art; and on the left the plentiful fruits of his labors.

We should be pleased to see a steel engraving in some of our Annuals, giving the entire of this unique and singularly attractive device. We have presented a memorial of the principal part; a drawing of the whole we can furnish.

Comparison of the Temperature of November 1838, and November 1839,

Deduced from observations made at the Albany Academy.

	Nov. 1838.	Nov. 1839.
Temperature of 1st half month	41.20	39.20
Temperature of 2d half month,	28.29	32.71
Temperature of the month, ..	34.74	35.95
Highest degree,	60.	56.
Lowest degree,	1.	13.
Monthly range,	59.	43.
No. clear days,	17½	16
No. cloudy days,	12½	14
No. of days rain fell,	6	5
No. of days snow fell,	3	2
Rain and snow,	....	1
Rain gauge, inches,	3.55	2.95
WINDS—North, (days,)	2	4½
Northeast,	1½	2
East,	½	1
Southeast,	1	1½
South,	6½	7
Southwest,	4½	2
West,	½	1½
Northwest,	13½	10½

Judge Buel's Address,

To the Agricultural Institute of New-London and Windham Counties.

GENTLEMEN—Farmers and Mechanics form the great body of our population. Their influence upon public manners and morals is consequently great. Their labors constitute the principal source of our wealth.—They are to the community what the body is to the animal system—the seat of nourishment, of vigor, and of life. Though reciprocally beneficial to each other, the limbs would perish without the support of the body, while the body could live without the aid of the limbs. So in society, the different professions are reciprocally beneficial to each—they are all necessary to social and refined life; yet they are not all *equally* important to our well being. We might better spare a limb than to suffer the body, upon which all the limbs are dependant for life, to sicken and die. Productive labor, then, being the great fountain of wealth, and the source of moral health to the body politic, it should be fostered and honored, that it may more abound; and it should be enlightened, that it may better subserve its high purposes to society.

It must be apparent to all who can carry back their recollections to the commencement of the present century, that the useful arts have been undergoing, and are continually undergoing, rapid and wonderful changes in the economy of labor, and in the utility of results.—This change has been less, or rather less general, in the business of farming than it has in the mechanic arts, owing to the fewer facilities which the farmer possesses of acquiring useful knowledge in his business, by reading and personal observation. An improvement in the mechanics arts is no sooner made, than it becomes known, is adopted, and rendered profitable, in every part of the country; while improvements in agriculture, however important, travel slow, are received with distrust, and adopted with reluctance. To keep up with the spirit of the age—to prosper in our business and benefit the community, we must sedulously avail ourselves of all the prominent improvements which are going on in agriculture and the mechanic arts, and endeavor to infuse into those around us a spirit of industry, emulation and enterprise. For man does not live by his own labor alone. His success depends upon his being able to sell the surplus products of his labor to those who are able to pay for them, and to exchange the avails of his sales for such articles as he does not produce, and of which he stands in need. Hence he who is surrounded by prosperous neighbors can sell and buy to better advantage than he who is surrounded by poverty and want. I therefore lay down this proposition, that a man, whatever be his honest business, is profited by the prosperity of his neighbor, be that neighbor a farmer, a mechanic, a manufacturer, a merchant, a lawyer, a physician, or a clergyman: and that consequently, the true way to advance his individual interest is, to endeavor to improve the condition of his neighbors. It is a bad trait in the human character, and one which generally defeats its object, but which is nevertheless too conspicuous, that many seek to elevate themselves by depressing those around them—as if the poverty and misfortune of the one, added to the merits and virtues of the other. Not only self-interest but philanthropy and Christianity enjoin, that when we have provided comfortably for ourselves and our own, we should render all the assistance in our power to our brother who stands in need of our aid. The selfish being who lives but for himself, may, by amassing useless wealth, enjoy his hour or his day of fancied greatness; but he can never realize the pure, the elevated pleasures which flow from a life of active benevolence to the human family.

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* We should be pleased to have a copy of this address for publication.—*Cond. Cult.*

The farmers and mechanics who have united in this celebration, have many interests in common, and they do well to cultivate, in this way, kind feelings towards each other. They are neighbors; and there should be an interchange of good offices maintained between them, to heighten the pleasures of social intercourse—one of the chief enjoyments of society. It has been said that in fixing on a location for life, the grand requisites to comfort are, pure air, good water and a healthy soil; yet these seem incomplete, at least as regards comfort, without the addition of good neighbors. And with a right temper of mind, an individual may contribute much to make good neighbors. But the interests of the farmer and mechanic are otherwise intimately connected. They are mutually dependent upon each other for the comforts and necessaries of life. The farmer wants the fabrics of the mechanic—the blacksmith, the hatter, the cabinet-maker, the tailor, &c; and these in turn want the bread-stuffs, the meat, the butter and cheese, the roots, and the raw materials of the farmer. Both classes are best accommodated by an interchange of commodities. If the farmer can exchange with the mechanic, at home, enough of the surplus products of his farm to buy what he wants of the mechanic, the expense of transportation to market, of both parties, is saved, and the uncertainty of sale, and the danger of loss, obviated. It is much better to exchange, at home, the products of each other's labor, for a fair equivalent, than to trust to the contingencies of a foreign market.

On the old continent, some men are born to rank and privilege, and others are born to servile labor. Arbitrary laws have prescribed, to a great extent, a man's condition in life, ere the infant breathes the vital air.—Arbitrary power has perverted, then, the laws of equality, which were intended for the human family, and has enacted artificial distinctions, which industry and genius can hardly surmount, nor hereditary rank hardly sink below. We know no such distinctions among us. We recognize neither the hereditary distinctions conferred by birth nor wealth. With us

> "Merit makes the man,
> Want of it the fellow."

And this merit is the reward of individual effort, the prize of intelligence, industry and virtue. And the competition is open to all We are all endowed with natural capacities for improvement, like the soil we cultivate; and our reward, like the harvest, will be greater or less, in proportion to the measure of our self-improvment. But as with the rich soil, where nature has done most, man generally does least, so with the mind, where the expectations from parental aid are the greatest, the offspring seem least anxious to exert themselves to fulfil the high obligations imposed upon all. Poverty and want are often the strongest stimulants to physical and mental exertion; and when a laudable ambition is awakened to excel in any useful pursuit, it seldom stops at mediocrity. Adversity, more than prosperity, is the school in which men learn wisdom.

There are other high responsibilities resting on the farmer and mechanic, which should stimulate them to mental and moral exertion. They constitute the physical and political strength of our country. If they are ignorant, poor and dependent, they are very liable to become the tools of demagogues, and the corruptors of public morals. If they are intelligent and prosperous, they will be exemplary in their habits, strong in their influence, and independent and patriotic in the bestowing of their suffrages.

With these incitements to improvement, and these duties and responsibilities before them, the farmer and the mechanic have abundant cause to put forth their best exertions, to study the principles of their business, and to profit by the genius and talents of others who excel in their respective callings; for however a man is gifted naturally, or however successfully he calls his physical and mental powers into action, he may learn much from the skill and practice of others.

The establishment of fairs is one of the most efficient means of improvement. They bring together the ingenious products of labor, from the exhibition of which every individual may learn something useful, to improve his mind and his business. They promote friendly intercourse and excite to laudable emulation; they enable their members to see, in contrast, the weakness of want and the strength of innate independence; in fine, they put in motion a thousand springs to self-respect, to industry, and to usefulness.

Another prominent means of improvement is the periodicals of the day, which treat of agriculture and the mechanic arts. These record the discoveries and improvements which are daily making in their respective branches of productive labor, and are written by practical men, or by men of science, with a view to benefit labor. I am sure I do not exaggerate, when I say that individuals have been benefitted hundreds of dollars by an outlay of one dollar for a publication of this kind, in consequence of the useful information it has given him in the prosecution of his business. These discoveries and improvements in farming and the mechanic arts are continually going on, and he that will, may, by a moderate expenditure, largely profit by them.

The great secret of success in agriculture, consists in adapting our crops to our soils, in fitting the soil for their reception, in feeding them well, and in giving them proper culture; and the great obstacles to improvement are, ignorance of the principles or science of agriculture, a blind adherence to old practices, and a parsimony in expenditure. We better understand the economical management of animals than we do of plants. We all know that we cannot make fat beef, or pork, or mutton profitably, without we feed high. It requires a certain amount of food to keep an animal in condition—all beyond this which the beast can consume, digest, and assimilate, is virtually converted into flesh. Now, it makes a vast difference whether this extra food is converted into flesh in three months or twelve months; because, in the former case, three-fourths of the ordinary food required to sustain life and condition for a year, is saved to the feeder, besides an equal expense in attendance. It is precisely so with our crops. *One* well fed acre is more profitable than three poor fed acres, because it requires but one-third of the labor, and will, oftentimes, give an equal or a greater product. Take Indian corn for example, the average product of which I will assume to be thirty bushels an acre. Now, if we make an acre of suitable soil rich with 25 loads of unfermented dung, and tend the crop well, we may get ninety bushels of corn from the acre—and the amount has often been swelled to one hundred and one hundred and twenty. Here, then, is a net of gain of sixty bushels by feeding an acre well, over the nett gain of an acre not fed at all. In regard to the cost of the manure, call it, if you please, $25, and consider it capital expended. If you deduct this from the profits of the well fed acre, there would still remain a difference in favor of the latter, according to the common scale of prices, of $35. If you merely charge the interest on the outlay, this would be $1.50, and would diminish the difference between the good and bad acre but this amount, or would still leave the crop on the rich acre worth $58 more than that on the poor acre. Estimate the farmer's corn crop at ten acres, and you will perceive that the cultivator of the ten good acres realizes a nett profit of $580 more than the cultivator of the ten poor acres.—Carry out this comparison to the products of the whole farm, and we shall at once discover why the good farmer finds a profit in an outlay every four years, of $20 an acre, in enriching his lands. But if we suppose—what is, in fact, the truth that the long manure, which causes this great increase in the corn crop, is as good for the next crop as it would have been had it been summer yarded, as was wont to be, and is now often the case, the absolute additional expense is nothing—the food of the corn crop is absolutely saved to the farm. I might carry these illustrations to other crops, to farms, and to districts of country. In my late journeyings in the States of New-York and New-Jersey, I have seen many farms, and some districts, where the intrinsic value of lands has been enhanced a thousand per cent. or in a ten-fold degree, by the almost magic influence of improved husbandry, based upon the principle of working no more land than can be kept rich and worked well. Having gone into details in these matters on recent public occasions, I forbear repeating them here.

It should be borne in mind, that the elementary matters which constitute animals and vegetables are similar, though differently combined in animals and plants, and in different animals and in different plants. They are principally oxygen and hydrogen (the constituents of water,) nitrogen, which, with oxygen, forms the volume of the atmosphere, and carbon, the substance of charcoal. These elementary matters are found in all the combinations of matter—in a solid form in animals, vegetables, and rocks. By the interposition of caloric, or the matter of heat, they are rendered liquid and gaseous—liquid in water, and gaseous in the atmosphere. When they disappear in one form, they take another—they are never lost, never annihilated. They perform a constant routine, under fixed and established laws, termed natural laws, for the benefit of man, and for the order and preservation of the natural world.—As soon as the animal and vegetable cease to live, a decomposition or separation of their elementary parts commences, if exposed to the agency of heat, air, and moisture, and goes on until their organic forms are lost, and their elements are mingled with the soil, and fitted again to enter into new vegetable combinations, and are taken up, with the moisture of the soil, by the spongioles, the mouths of plants, or are imbibed by their foliage, and become again parts of new and living organic matters. Thus the products of the soil are consumed by the animal, and these elementary matters become flesh and its natural appendages, or they are voided by the animal, and decay upon the soil. When deprived of their vitality, they soon resolve themselves into manure, and when these animal and vegetable substances, known by the general name of organic matters, are blended with the soil, they become the proper food for new generation of vegetables.

These facts suggest to the farmer who would keep up the fertility and productiveness of his soil, the necessity of—

1st, Consuming his crops, as far as is practicable, upon his farm, or of returning to it an equivalent, in manure, for what he carries off;

2nd, Of carefully husbanding every animal and vegetable substance which he can command, of preserving it from waste, and of faithfully and judiciously applying it to the soil, as food for his crops; and

3d, Of studying those laws of nature which govern, to a greater or less extent, the whole business of the farm, and which can never be violated with impunity.

I am aware that something further is necessary to satisfy the wants of the farmers in old settled districts—that their lands have been deteriorating under a bad, a skinning system of husbandry, until they require extra stimuli, other than the ordinary vegetable products of the crops, to bring them into a state of profitable culture. These extra means of inducing fertility are abundant. They may be found in almost every district or upon every farm, and no intelligent or spirited farmer need hesitate about employing them. As I have said, nothing is annihilated. The vegetable matters, the humus, or the geine, or whatever term we choose to give to the food of plants, which originally existed in our soil, are not lost—they have merely changed position. It is the province of the farmer to restore them to their place of usefulness, and his reward will be commensurate with his labors. These fertilizing matters, it is true, have, to a great extent been lost to present, though not to future usefulness. They have been dissipated by winds; they have passed into the sub-soil; they have been wasted by the rains, washed into swamps, rivers, and the ocean;—and yet they are, in a measure, recoverable, and may be made again to feed our crops and renovate our husbandry. These great changes cannot be effected by ignorance and hereditary conceit, nor in a day. They must be the work of patient industry, of liberal expenditure, of scientific knowledge—of a generation. I will proceed to enumerate some of these means of renovating the fertility of the soil:

The first I shall name is a thorough system of draining. Many of our wet grounds have become rich in the elements of fertility at the expense of those which are naturally dry. There are certain coarse grasses which indicate the presence of surplus water within the range of their roots. In these vegetable matters, the food of plants do not decompose, or, to employ a term analagous to animal economy, do not digest, by reason of the exclusion of heat and air. No cultivated crop will do well in such situations, not from a lack of the elements of vegetable food, but from the inability of the vegetable stomach to digest it, and which, like the dyspeptic stomach of man, is rather injured, than benefitted, by excess. Drain these lands thoroughly. Let in the genial influences of the sun and the atmosphere, and cultivate them—the process of digestion or decomposition will go on, and the soil will render a liberal tribute to the cultivator.

In some cases draining will not suffice to induce fertility, by reason of an excess of vegetable matter, which resists putrefaction. This is no misfortune to the owner. If this peaty or vegetable matter, is placed in his cattle yards for a season, to the depth of twelve or eighteen inches, exposed to the tread of his cattle, and becomes intermingled and saturated with their dung and urine, or placed in piles with fermenting materials, it will undergo fermentation, and may then be blended with the soil to certain advantage. Another mode of converting these matters into the food of vegetables, is to pare and burn it, in smothered piles, and to spread the ashes upon grain and grass grounds; and still another mode, which has been successfully practised, is to carry on to these drained grounds, earthy materials, and to blend them with the vegetable surface.

The rivers, the salt marshes, and the sea are prolific in the materials of fertility. Their vegetables, their mud, and their fish, are all convertible into the food of farm crops.

From the materials already enumerated, great fertility has been imparted to farms which had been worn out, by bad husbandry. On mentioning to a visitor from South Carolina, Mr. Crowell, the other day, that I had visited a farm upon Staten Island, Mr. Seeley's, where the proprietor, besides manuring well his crops of the season, had accumulated a surplus of 2,500 loads of excellent compost, from the cattle yards, the swamps, and the sea, within his jurisdiction, my visitor remarked, that he had almost equalled that himself, for he had actually applied to his plantation, during the year, twenty thousand loads of like compost, with the addition of such materials as the cotton crops afforded. Mr. Crowell is a large planter. He cultivated, this year, two hundred acres of sea-island cotton. When he first turned his attention to manures, twelve years ago, he became, he told me, rather the butt of ridicule to his neighbors, than the subject of commendation. His continuing the practice, and his increased outlay upon it, is a sufficient evidence that he finds it profitable; while his neighbors are now giving their approval, by adopting his practice.

There are still other sources of fertility within the farmer's reach, which he may employ to profit. In a late jaunt in New-Jersey, I was surprised to find farms and districts, where I had been led to expect, from report, a poor sandy soil, a bad system of husbandry, and a depressed farming population—I was agreeably surprised to find, I say, instead of these indications of poverty and want, a sandy soil, to be sure, and naturally poor, but much of it made rich and productive—highly cultivated farms, and an intelligent, prosperous population. This fertility had been in a manner created by the enterprise of the inhabitants, in applying to their soil, often at the expense of twenty dollars or more an acre, the lime of Pennsylvania, the dung and street dirt of New-York and Philadelphia, the marl of their own State, and the animal and vegetable products of their own waters. Some of these materials, although not affording direct sustenance to plants, operate mechanically or chemically to the improvement of the soil, and tend essentially to increase its productive powers.

Another means of recovering the fertilizing materials of the soil, is deep or subsoil ploughing. Much vegetable matter has been carried down from the soil into the subsoil, by the operations of water. By breaking up the latter, we not only deepen the tilth, the pasture of plants, but by exposing it to atmospheric influence, we render the vegetable matter in it soluble, and adapted to the wants of the crop. We thus restore to the upper surface much of the fertilizing matter which has been rendered useless by filtration.

Another means of restoring fertility to worn-out soils, or of preserving or economizing it on unexhausted lands, is by the culture of root crops, and other green crops, as food for cattle, and for crops. This class of plants yield more food for both, than any other class; and they exhaust the soil less than any other class—for they are seldom permitted to mature their seeds, when the greatest requisitions are made upon its riches, and draw much nourishment from the atmosphere, which is always charged with the gaseous food of plants, as well by their leaves as their roots, the soil being kept permeable to the atmosphere, by the culture they receive. As cattle food, root crops, particularly the Swedish turnip, the beet and carrot, quadruple the amount that is given by grain or grass; they break and pulverize the soil by their tap roots, they clean it by their culture, and they return to it most in the form of manure. Clover and other green crops, buried in the soil by the plough, are a cheap means of increasing fertility, which every farmer has at command. A bushel of clover seed will suffice for six acres, sown with small grain. The next or second autumn, it will give to the soil, if ploughed in, at least five tons to the acre, in tops and roots of vegetable matters, which are soon rendered soluble, and fitted to become a part of a new vegetable structure. The farmer, therefore, gets thirty tons of green succulent matter in return for his bushel of clover seed besides the benefit to the soil of pulverization by means of the tap roots of the crop.

This brings to my mind an old practice, which has in a measure been exploded, as involving a waste of labor and manure—I mean the practice of summer fallowing. It has been ascertained that the quantity of vegetable matters contained in old sward, amounts to twelve tons an acre. If the ley is cross-ploughed, this vegetable matter is turned to the surface, generally when it is in an active state of fermentation or decay, to the wasting influence of the sun and winds, and at least one-half of its fertilizing properties are lost to the soil. The principal object of a summer fallow is to subject the soil to thorough pulverization—a very commendable object, but which I think is as well effected, on the first furrow, by the harrow and the natural decay of the vegetable matters of the sod. This is every where penetrated by the roots of grasses, &c., and if the sod is well turned, these undergo speedy decomposition, and leave the soil light and loose, pervious to heat, air and moisture, essential agents in vegetable growth. The modern practice is to substitute for the naked fallow, a fallow crop, as potatoes, corn, oats, &c. upon the first furrow, preparatory to a crop of winter grain. The advantages of this practice are, the manure is all saved to the soil, the expense of labor is diminished, and an additional crop is obtained. The only plausible reason now urged for naked fallow is that it is necessary, on tenacious clays, to clean the land.

The alternating system of husbandry has not obtained among us that consideration which its importance demands. It is well known that ordinary lands will not bear a succession of the same crops without a successive diminution of product; and that if grain, grass, and roots are alternated or succeed each other, the decrease of fertility is much less apparent. This is ascribed to the well authenticated fact, that different plants exhaust different fertilizing properties of the soil, or in other words, that each species requires a specific food, which other species do not take up. It is now generally conceded that wheat will not do well in a soil which has no lime in its composition—that clover and lucerne require gypsum—that flax cannot be raised on the same ground oftener than once in six or eight years, with advantage. These facts are explained upon the ground that on analyzing wheat, it is found to contain lime; clover on analysis, has yielded gypsum at the rate of four bushels the acre—and the supposition is, that a crop of flax exhausts the soil of some property essential to its perfection, which it takes years to restore. The crops can derive these supplies from no other source than the soil; and if the supplies are not there, the crop will be either deficient or defective.

There is still another reason to offer for alternating crops. The soil, if in grass, becomes annually more hard and compact; the roots are consequently restricted in their range for food; the heat and atmosphere become partially excluded, and the decomposition of vegetable food is arrested. The consequence is, that the finer grasses gradually disappear, or run out, as it is termed, and the grass crop gradually diminishes. If ploughed and cropped occasionally with roots, these inconveniences are obviated; the soil is broken and pulverized, and rendered pervious to solar and atmospheric influence, and the vegetable food which it contains is thereby render soluble; and if manure is given to the tillage crops, as it should and can be once during a course, the soil will become renovated and fitted again to receive the grass seeds, with the prospect of a greatly increased burthen of hay.

The grasses are however not the only system of crops that are impoved by the alternating system of husbandry. The tillage crops, in turn are alike benefitted, not only from the advantages of change which I have endeavoured to point out, but from the vegetable matters of the sward, which, instead of remaining in a measure dormant and useless, are decomposed and become the active food of the crop; while the root crop, by their pulverizing and cleansing influence upon the soil, improve it, mechanically and chemically, for both grain and grass.

The arguments that I have urged for enriching your lands, and cultivating well what you do cultivate, apply with equal force to your domestic animals. It costs as much to keep a poor cow, a poor sheep, or a poor hog, having reference to breeds, as it does to keep a good cow, a good sheep, or a good hog. And yet such is the difference in the breeds of animals, and sometimes between individuals of the same breed, that the good animals will return twice, thrice, and sometimes four times as much in product as the poor ones, for the expense of their keep. The mule is supposed to have a preponderating influence in the character of their progeny, and will multiply more rapidly than the female, the cross of any improved breed. Those, therefore, who do not choose to go to the expense of buying superior animals of both sexes, can, by purchasing a male, progressively improve their stock at a moderate outlay. If the best animals are retained for breeding, and kept in good condition, especially when young, the progress of improvment will be greatly accelerated. It is by judiciously selecting good animals as breeders, and by taking proper care of them, that the favorite breeds of domestic animals have been brought to their present state of unrivalled excellence in Europe. An observance of the rules will produce the same results here, in due time, that has resulted from their observance in Europe.—Cattle are also essential to keep up the fertility of a farm. They convert the forage of the farm into meat, milk, and manure. The meat and milk go to enrich the pocket, and the manure to enrich the soil, and feed the crops.

As a general remark, it may be said, that labor and capital can be expended in no way more profitably by the farmer, than by enriching his lands. God has given to us all the elements of fertility, of plenty, and of happiness. He has given to man the capacity of appropriating them to his own use. He has commanded him to exercise those capacities with dilgence; and although He has not promised, He seldom fails to bestow upon those who honestly keep the command, the highest rewards in temporal happiness.

The orchard receives less attention than its importance demands. If men do not drink cider, they must use vinegar and will eat apples. The orchard supplies a grateful dessert, and many economical culinary dishes, for our tables—and often profitable commodities for the market; and it has of late become a source of substantial profit for the food which it affords to farm stock of every description. The apple, whether sweet or sour, affords much sugar, one of the most nutritious properties found in vegetables, which is readily converted into beef, pork or mutton, by the domestic animals on the farm. It is asserted by some, who have experimented in the matter, that a bushel of apples is worth as much, for these domestic uses, as a bushel of potatoes. If this is true, or if apples are worth half or quarter as much as potatoes, an apple orchard is a valuable appendage to the farm; for an acre will often give from four to ten times as great a product in apples as it will give in potatoes, and without the expense of annual cultivation. In our zeal to promote the temperance reform, I fear some have neglected this branch of farming economy too much. The old orchards are disappearing, and few new ones are planted. We may as well discountenance the raising of rye as of apples, as both are liable to be perverted to evil purposes; yet we may use both without abusing them. Wisdom, like truth, is often the medicine between two extremes.

But whatever objections may lie against the orchard, none, I am sure, can be urged against a well cultivated garden. This affords almost a constant change of choice delicacies for the table, at once grateful to the palate, and highly conducive to health. No man eats so good fruits and vegetables as he who raises them, for none can so well enjoy them in all their freshness and perfection. A good garden is a matter of farm economy; for while it may be made to contribute largely to the sustenance of the family, its labors may be performed at odd times by the laborers of the farm, or by those who can or will do little else, without much expense. The object of our toil, as I have observed, is to secure the rational enjoyments of life. There is no profession which can gratify these indulgences to a greater extent than the farmer, if he will, from the varied products of his farm and garden.

There are other sources of enjoyment, in the garden, besides the innocent gratification of the animal appetites. It may be a source of high intellectual enjoyment, of useful instruction, and of moral improvement. It stimulates to the study of natural science, tends to purify and elevate the mind, to prevent the formation of bad habits, and to increase the delights of HOME, where the social and domestic virtues can only be well nutured and enjoyed. So salutary is the moral influence of a highly cultivated garden, that it has been considered a strong indication, wherever it is seen, of high intellectual and moral worth in the possessor. God put our first parents into the garden "to dress it and to keep it," and God commanded the man saying, "of *every* tree of the garden thou mayest freely eat," except of the forbidden tree.

The utility of the silk business, as an auxiliary source of profit to the farmer, no longer admits of doubt, and so much capital has been vested in trees and buds, that this must become a branch of national labor. And to no class can it be rendered more profitable than to the farmer, if judiciously managed. He can buy, however limited his means, a few mulberry trees; these he can multiply himself, with but little labor; he can plant them about his fences and waste grounds; he can purchase a few eggs to begin with; an out building, or a spare room, may be converted into a cocoonery; and without further expense the children and females of his family can gather the leaves and take care of the worms. When the cocoon are perfected, he may increase his eggs, and find a ready demand, and a fair price, for the surplus cocoons. The avails of the sale, be it two dollars or five hundred dollars, may be virtually considered as nett profits to the farms. Fifty years ago I was familiar with the management of the silk worm in my native town, then in the county of Windham. Under every disadvantage of those times, it was then profitable, and an auxiliary branch of household labor. I have every reason to believe it may be rendered much more so now.

In regard to the mulberry best adapted to farm economy, much speculation is afloat, and differences of opinions no doubt honestly exist. I think it may be laid down as a natural law, that plants attain to highest perfection, for all useful purposes, in the climate and soil where they are found indigenous; and that their useful properties are diminished in proportion as they are more or less removed from their natural zone. When the public mind has settled down to sober reality, I think this law will be found to apply to the mulberry; and that these species and varieties will be found to be best which are naturally best adapted to our climate and our soil. In corroboration of this fact, it may be stated, that in Italy, whence we receive our best, and most of our sewing silk, the leaf of the black mulberry, which is there apparently indigenous, is almost exclusively employed for the production of this article. The white mulberry, which is perfectly hardy in France, has a decided advantage there over other varieties.—The Brussa, in the mountains of Asiatic Turkey, and the Alpine, from the Alpine regions of Europe, both hardy species, are for the like reason deemed superior in elevated or northern regions, where they withstand the rigors of winters. The native red mulberry of our forests, (*Morus Rubra,*) though it has neither "far-fetched or dear bought" to recommend it, will ultimately, I think, be found to be as good as any kind we can cultivate. All the species and varieties cultivated will no doubt produce good silk, and some better in the north than in the south—as is the case with the apple, the pear, the peach, the plum, &c. each variety having its favorite zone and soil in which it best develops its highest flavor. In selecting fruit trees, it is always better to take them from a colder than from a warmer climate, because they will be more hardy, and mature their fruits in higher perfection. But a word more of the red mulberry. I have had presented to me a handkerchief, a most beautiful and substantial fabric, produced by the silk-worm from this native species of the mulberry. I have also several samples of sowing silk, of great strength and beauty, produced from like materials. And I am advised by Dr. Martin, a highly respectable gentleman from Kentucky, that his neighbor has sold sewing silk to the amount of $900 a year, for several years, produced by worms fed entirely on the native red mulberry; and that he has rejected offers of all other kinds of the mulberry, considering this decidedly the best.

If these observations upon the laws which govern the vegetable kingdom are correct, they plainly suggest to the cultivator, who raises the mulberry tree to produce silk, to select those kinds for his plantation which are most hardy, and which will occasion the least trouble and expense in preserving.

I should take pleasure, gentlemen, in giving you my views upon many other subjects which pertain to your business. If what I have said shall be of any value to you, I shall be happy in the consciousness of having fulfilled a high personal duty—that of benefitting my native State. If what I have said, shall prove of no value, I have certainly said enough. My object has been, the improvement, in their business, in their standing in society, and in their public usefulness, of the Farmers and Mechanics assembled around me.

The privileges you enjoy, and the opportunities you possess of improvement are great; and with moderate prudence and industry, virtues which always triumph, your condition in society will be respectable independent, and in all probability, happy. Be content, therefore, with your lot—with the business which you have learnt, and are best acquainted with—and strive to improve in it, for your children and your country. *Let well enough alone;* and do not hazard present enjoyments for the precarious chance of doing better, in any business in which you are not practically acquainted, and in which, to you, there will be at least three blanks to a prize. And may a kind Providence smile upon your labors, and bless you in your stores, in your household, and in a pure and approving conscience.

Address of the Hon. Judge Buel,

Delivered before the Agricultural and Horticultural Societies of New-Haven County, Sept. 25, 1839.

I appear here gentlemen, by invitation. to address you on the cultivation of the soil, which it is the object of the associations here convened to promote improvement in. I have been prompted, in the undertaking, rather by a *desire* to render a service, than from a confidence in my *ability* to perform one; and in the few remarks I have to offer, shall need much of your indulgence, for defect in style, and deficiency in matter.

Agriculture and Horticulture are intimately related to each other. They both depend upon the soil, and the animals and plants which it nurtures, for support, for profit, and for pleasure. They both administer, and are indispensable, to our wants and comforts. They are governed in their operations by the same natural laws. Agriculture has cognizance of the farm, which supplies our principal wants; Horticulture, of the garden, which administers to our more refined appetites, to our health, and to the rational pleasures of the mind. The one gives us bread and meat, and the materials for our clothing, the other the choice delicacies for the table, and multiplies around us the charms of floral beauty, and rural scenery. Both tend to beget habits of useful industry and sober reflection, and to improve us in all the social relations of life. It is befitting, therefore, that institutions designed to foster and promote improvements in these primary and associate branches of labor, should unite in their anniversary celebration, and in returning thanks to the Supreme Being, for the bounties of a fruitful season.

Of the utility of these celebrations, and exhibition of the products of the farm and garden which are made at them, I have no kind of doubt. They bring to public notice whatever is new and most valuable, in a business which highly interests us. They perform the work of years, in diffusing useful knowledge in all the departments of rural labor. They awaken, in the bosoms of hundreds, the dormant powers of the mind, which otherwise might have slumbered in apathy. They excite to industry, to emulation, and to the study of those laws which every where control the visible creation, and which enlighten and reward all who humbly seek and follow their counsels. Nor is it the cultivator of the farm and garden alone that are to be benefitted by these exhibitions. Whatever tends to increase and improve the products of the soil, serves to augment the common stock, and enables the grower to supply the market with more and better products, and to buy more liberally of the other classes in return. The merchant, the manufacturer, the mechanic, and the professional man, have all, therefore, as deep an interest in promoting the improvement of agriculture and horticulture, as the farmer and gardener have. Society is in some measure a joint concern, at least so far as relates to what are termed the producing classes; the more these earn by their labor, the greater is the accession of substantial wealth to the community. The amount of honey in a hive, depends not upon the number of bees which it contains, but upon the labor and skill of the *working bees.* The farmer virtually provides for the other classes, and is at the same time their principal patron and customer; and although his labors are too often held to be low and menial, by those who cannot, or will not, appreciate their value, his condition affords the best criterion by which to judge of the welfare of those around him. No *country* can long flourish, or preserve its moral and physical health, whose agriculture is neglected and degraded.—The amount of a farmer's sales, and of his purchases, will depend upon the surplus products of his farm, and upon the profits of his labor. Double these, by an improved system of husbandry, which I feel assured can be done, and which has been far more than realized, in many old districts of our country, and you will double the substantial wealth of the neighborhood, and impart corresponding life and activity to every other department of business. If we look to Spain, to Portugal, to great portion of Italy, to South America, or any other country where agriculture is neglected, or holds but a subordinate rank, we shall find a degraded population, characterized by superstitious ignorance, poverty and crime. Every class of the community, therefore, has a deep interest in promoting the improvement of the soil; and all should willingly contribute their aid towards enlightening, honoring, and rewarding those who are honestly employed in its cultivation.

With regard to the utility of agricultural and horticultural societies, much will depend upon the objects which bring together their members. If they associate for selfish purposes, merely to monopolize the spoils, and withdraw whenever they are disappointed in their sinister hopes, jealousies and apathy will ensue, and the association will fall, as many under like circumstances, have fallen, without public loss or public regret. But if the association is formed for mutual improvement, and in the benevolent and patriotic desire to do a public good —to stimulate and reward industry and enterprise, however humble their condition—and strives by concentrated and persevering efforts, to improve the condition of a district, of a county, or a state,—then will it inspire public confidence, obtain public support and become a public blessing. To illustrate this last proposition, I beg to refer to some associations which have been tried, and whose labors have been crowned with palpable and brilliant success.

The counties of Berkshire, Essex, and Worcester, in Massachusetts, have each, for many years, maintained an agricultural society; and they each distribute ten or twelve hundred dollars a year, one half of which is paid out of the state treasury, in prizes to successful competitors in the various departments of agricultural and household labor. It is said, and I believe with truth, that every dollar thus expended, has made a return of twenty dollars, in the increase of agricultural products which it has caused; and so satisfied are the inhabitants of the benefits of the expenditure, that an increased spirit is annually manifested, by all classes, to maintain and perpetuate these nurseries of industry and improvement.

The Highland Society of Scotland affords another illustrious example of the utility of agricultural associations, when conducted with a view to public improvement. This society was organized in 1784, but so few were its members, and so limited its means, that it attracted but little public notice, nor effected any great improvement in husbandry, till the commencement of the nineteenth century. Yet it had sown the good seed which never fails, under proper management, to yield to the husbandman a bountiful harvest. Nor did it fail in this case. The society now numbers twenty-two hundred members, embracing most of the opulent and influential men of the country, of all professions, and distributes annually in prizes, about seventeen thousand dollars. In no country or district has agriculture made more rapid strides in improvement, than it has in Scotland, since the organization of this society; and although it may not have been the only, it most assuredly has been a principal cause, of this wonderful and salutary change. Up to 1792, the agriculture of Scotland, to adopt the language of the Edinburgh Quarterly Journal of Agriculture, was "wretched—execrably bad, in all its localities! Hardly any wheat was attempted to be grown; oats full of thistles was the standard crop, and this was repeated on the greater part of the arable land, while it would produce twice the seed thrown into it; turnips, as part of the rotation of crops, was unknown, few potatoes were raised, and no grass seeds or clover were sown. A great part of the summer was employed, in the now fertile shire of Fife, in pulling thistles out of the oats, and bringing them home for the horses, or mowing the rushes, or other aquatic plants, that grew on the bogs, around the homestead." But a change soon came over the land. The seed which had been sown by the Highland Society had germinated, and its luxuriant foliage already covered the soil. In 1815, according to the authority I am quoting—"beautiful fields of wheat were to be seen,—drilled green crops every where abounded,—the bogs had disappeared,—the thistles no longer existed,"—naked fallows were abolished, draining was extensively introduced; wet lands were made dry; poor weeping clays were converted into turnip soils; and "whole parishes were completely transformed from unsightly marshes, into beautiful and rich wheat fields, and where the plough could scarcely be driven for slush and water, were heavy crops per acre, and heavy weight per bushel."* The improvements in Scotch husbandry have continued to advance, until, according to the estimate of Sir John Sinclair, and Professor Lowe, both high authority,—until the acreable products of her soil more than double those of our Atlantic states.

The means adopted by the Highland Society to effect these radical improvements in Scotch husbandry, are such as may be employed by us with almost a certainty of corresponding success. "In the days of its youth and feebleness," says the Quarterly Journal I have just quoted, "the Highland Society sent the leaven of the turnip husbandry into all the glens and straths of the north, by offers of small prizes to certain Highland parishes, and the same may be said as to the growth of clover and the finer grasses. As it advanced in strength as to numbers, and to cash, attention was turned to premiums for stock; then came offers of reward to men of science to discover better implements and machines, to diminish friction, and consequently draught, such as in the threshing mill, and other parts of agricultural machinery. Still advancing in the scale of intellect and of science, premiums were offered for essays to bring to light the facts connected with chemistry and natural philosophy; and, under the auspices of the society, was set up the Quarterly Journal of Agriculture, a work which has been the vehicle of conveying so much useful information to the agriculturist, that we humbly venture to say, it ought to appear on the book-shelf and table of every farmer's parlor. After this, the great stock shows were resolved upon." At the Glasgow show in 1838, there were exhibited for prizes, 461 neat cattle, 121 horses, 274 sheep, and 47 swine; total 903 domestic animals, in 634 lots. Of the other kinds of competitors, the numbers were as follows:

For Butter,	18
" Full Milk Cheese,	15
" Skim Milk Cheese,	6
" Wool,	8
" Roots and Seeds,	13
" Implements,	28

In 88 lots.

The number of persons present at the exhibition was estimated at over 17,000, besides workmen and official people,—not one thousand of whom probably left the exhibition without carrying home with him some newly acquired knowledge in his business, or some new stimulus to improvement and industry. Not only has Scotland profited by the labors of her agricultural society, but Great Britain generally, and even the United States have been highly benefited by them. The information which that society has promulgated, has been widely disseminated among us by our agricultural journals, and has contributed not a little to the improvement of the agriculture of our country. And in England, which had been thrown into the back ground by the superior improvement of Scotch husbandry, it has within the last year, induced the formation of the English Agricultural Society, on a broad and liberal scale, which promises important advantages to English husbandry, and to agriculture generally.

As evidence of the utility of horticultural societies in multiplying and improving the products of our gardens, and in promoting rural embellishments, I would refer to the neighborhoods of Boston and Philadelphia, where societies of this kind have long existed, and to the Horticultural Society of London. In the first named cities, and their environs, the progress of horticultural improvement has been manifestly great. Many new and choice fruits, culinary vegetables, and ornamental plants, have been introduced, culture has been much improved, the markets better supplied, and prices cheapened. The London Society, although its garden has been established but about twenty years, has concentrated in it, from both continents, and from the islands of the sea embracing every clime, more than five thousand varieties of edible fruits, including fourteen hundred varieties of the apple, and seven hundred of the pear, and an innumerable number of ornamental plants, many of them before unknown in our catalogues. Its collections of pears, which embrace hundreds of recent origin, from Flanders and from France, have been already broadly spread over these states, and supply our dessert with a succession of this delicious fruit. As a corresponding member of this society, I have participated, and have enabled others to participate, in the good which it has been generously diffusing abroad. In 1825, and at subsequent periods, I have been supplied liberally with grafts of the choicest fruits which it had collected.

The great obstacles to horticultural improvement, are ignorance of the relative merits of different kinds of fruits and culinary vegetables, and of the proper modes of cultivating and preparing them for the table. The generality of country gardens exhibit but a scanty assortment of vegetable productions, and these are but badly cultivated, and often of inferior quality. The tendency of horticultural exhibitions is, to show the good and bad in contrast, or rather to promulgate a knowledge of the better sorts, of their culture and use, to excite useful competition, and to demonstrate the utility of garden culture, as a source of health, pleasure, and profit. I have had many fruits presented to me, which the donors considered of the first quality, but which I found, on comparison, to be of secondary, or inferior grade. The man who has seen or tasted only inferior fruits, may well mistake them for good ones. It is as easy to cultivate good fruits as bad ones; and no one eats so good fruits as he who cultivates them himself. It is as easy to cultivate the vergaleu as it is the choke pear; the green gage as the horse plum; and yet the difference between them, in all the qualities which we most esteem, is incomparably great. But till we can show our neighbor better fruits, he will continue to cultivate and rest content with his choke pear and horse plum.

With regard to what is termed ornamental gardening, or the cultivation of flowering shrubs and plants, there is an objection, real or affected, often made by very many people, on the ground that it yields no profit. If the great object of life was to accumulate money, without enjoying any of the comforts which it confers, save the gratification of animal appetite, the objection would be conclusive. But we are endowed with other and higher appetites than the mere brute; and Providence has every where surrounded us with suitable objects for their development, and innocent gratification. And shall we reject the proffered benefaction so kindly tendered for our benefit, because it adds nothing to our pelf? And what is there in the natural creation, better calculated to soften down the rough asperities of our nature, to awaken kind feelings towards each other, and excite reverence and love for the Most High, than a familiar acquaintance with the wonders and beauties of His vegetable kingdom. Did you ever know a misanthrope, or a miser, who was an admirer of flowers? I would not recommend the neglect of more important duties, for the culture of a flower garden: yet when there is ability or leisure, and these may be found to a greater or less extent in almost every family, a taste for floral beauties should be inculcated in the young, not only as a source of rational pleasure, but as a salutary precaution against bad companions and bad habits. The mind must be employed, and must have recreation. It is better to direct it to the works of the Creator, than to the works of man. Lord Bacon has said of the garden, "it affords the purest of human pleasures—the greatest refreshment to the spirits of man—without which buildings and palaces are but gross handiworks."

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* Quarterly Jour. Ag. for June 1839, p. 70.

But I am forgetting myself. In my ardor to commend horticulture, for its useful, elevating, and purifying influence upon the habits and manners of society, I did not recollect that I am addressing the highly polished inhabitants of a classic city, who have long since demonstrated, in practice, the truth of the lessons I would inculcate. I will therefore dismiss this branch of my subject, and turn to the more rugged, though not less important topic of agriculture; barely adding,—

That in all endeavors to improve the condition of society, whether religious, moral, or industrial, individual efforts and example can affect but little; and hence, that in every great work of reform or improvement, the concentrated strength of many has been resorted to, and brought to a focus, by means of associations; and that the great objects of society are not likely to be promoted in a more eminent degree, by any, than by associations formed for like purposes with those which I have now the honor to address.

Being a native of this state, and having spent my early days within its borders, I can well remember the farming practices that were wont to prevail. The farm was, to use the commendatory language of that day, "suitably divided into meadow, pasture, and plough land," and each division was exclusively devoted to its object, until most of the nutritious grasses had "*run out*," in the meadow, and the plough land had become too much impoverished to bear a remunerating crop.—Many an acre was turned into "*old field*," or commons, destitute alike of natural or artificial herbage, affording scanty gleanings to half famished cattle. I beg not to be misunderstood. I am describing what *was* a bad feature in Yankee husbandry. Farming has no doubt recently undergone great improvements in Connecticut, as it has elsewhere. Yet on a fair comparison with highly cultivated agricultural districts, I believe that it will be found that the husbandry of this state, in the main, is susceptible of great improvement. The lands of Connecticut were originally rich and productive. The earthy elements remain in a great measure unchanged; the seasons are about as propitious as they were wont to be; and the lessons in improvement that have been taught elsewhere, leave little reason to doubt, that, under proper management, they may again be restored to their original fertility.

In a late tour which I made through parts of New-York and New-Jersey, I found many evidences of recent improvement, and I doubt not similar ones abound in my native state. In a part of Dutchess county, which I visited, the best farms have been sold within my recollection, with improvements and buildings, at from seven to seventeen dollars an acre. They cannot now be bought for one hundred dollars an acre; and one was sold last year at auction, without buildings, at one hundred and thirty dollars an acre. Fifteen years ago, a farm in Western New-York, of 400 acres, exhausted by bad husbandry, was bought by a Scotch farmer for $4,000. This farm has been so improved by good husbandry, that the owner was last year offered for it $40,000. He refused the offer, upon the ground that it actually netted him the interest of $60,000, or $10.50 the acre. A farm was pointed out to me in New-Jersey. which was recently sold for $7 the acre, and that was all it was said to have been worth in its then condition. By a liberal outlay in draining, it being level and wet ground, and in liming, manuring, &c. it is now considered worth $125 an acre. I went over another farm which a few years ago was bought at the same price, and which now, on account of the improvements which have been made upon it, is considered worth $100 per acre. I am informed on the best authority, that similar cases of the rapid increase in the products and value of farms, consequent upon an improved system of management, are to be found in Pennsylvania, Delaware, and Maryland. Although these cases are isolated ones, they nevertheless serve to show the practicability of vastly increasing the value and products of our exhausted lands.

Among the causes which have essentially contributed to the deterioration of our lands, and the consequent depression of our agriculture, I consider the following as prominent:

Ignorance of the *principles* of agriculture;

The want of a sufficient outlay in the management of our farms; and

The low estimation in which the employment has been held by all classes, including farmers themselves.

Agriculture has too generally been considered a business requiring mere physical power, with which the principles of natural science had little or nothing to do. To plough, sow, and gather the crop, has been the general routine of farming operations, regardless of the poverty which our practice was inflicting upon the soil and upon our children. Like the reckless heir of wealth, we found ourselves in possession of a treasure; and without inquiring for what purpose it came into our hands, or realizing our obligations to husband and preserve it, for others, we have squandered it lavishly, through our ignorance or our folly. True, we have been occasionally admonished of our error, by the schoolmen; who, wrapped in abstract science, and knowing little practically of its application to husbandry, have as often tended to confuse and mystify, as to enlighten and instruct. Hence the prejudice which has arisen against book-farming. But science and art are now uniting their labors, and are deriving mutual aid from each other, on the farm, as they have for some time been doing in the manufactory and in the shop of the artizan. A new era is dawning upon the vision of the farmer; new light is illuming his path, and a new interest and new pleasures are urging him on to improvement. He begins to study the laws which Providence has ordained for the government of improved culture, and he finds, in their application to his labors, the means of increasing profits and high intellectual enjoyment. And the more he studies and is guided by these laws, the more does he become satisfied of former errors, and of his comparative limited sphere of usefulness. Science is probably capable of rendering more important services to husbandry than to any other branch of labor, and presents a wider field of useful study to the cultivator of the soil, than to any other class of society.

The deficiency in farming capital, or rather the stinginess with which capital is employed in improving and maintaining the condition of our lands, is another cause of declension in the profits and character of our agriculture. The farmer is too prone to invest his surplus means in some new business, or in adding to his acres, instead of applying them to increase the profits of his labor and the products of his farm. He either works more land than he can work well and profitably, or he diverts to other objects the means which would yield a better return if applied to the improvement of the farm. He is apt to consider twenty or thirty dollars an enormous and wasteful outlay upon an acre of land, or upon a choice animal; and yet the interest of this outlay will be ten times paid by the increase of crop or the increase of the animal; and in most cases the principal also will be returned to him in the course of two or three years. Many of the most thriving farmers in southern New-York, New-Jersey, and Pennsylvania, make a quadrennial expenditure of twenty dollars or more to manure an acre; and it has become a maxim with them, that the more the outlay for manure, the greater the nett profit of their lands. But it is not the outlay for manure alone, that demands a liberal expenditure of capital. Good seed, good farm stock, and good implements, are all essential to the economy of labor, and to neat and profitable farming. And I think it will appear from the cases I have quoted, that in many locations, capital may be very advantageously employed in reclaiming wet and marshy grounds, generally rich and the most productive when laid dry.

When our cattle grow lean and threaten to disappoint our hopes of profit, we do not hesitate to impute the evil to the want of food, or to inattention in the herdsman. And if we are prudent managers, we at once graduate our stock to our food, knowing that one well fed animal is of more value in the market, than two animals that carry but skin and bones, and take care that the food is properly fed out. When our crops become lean, we need not hesitate to ascribe the decrease in product to like causes—want of food, or want of attention in the farmer; and prudence and profit in like manner require, that our crops, like our animals, should be limited to the food and labor which we have to bestow upon them. In other words, an acre well manured and well worked, will be found to be more profitable, than four poor acres badly worked.

I may here be asked, from whence are to be obtained the vast supplies of manure requisite to manure our old lands? I answer, from a multiplicity of sources around us, from every animal and vegetable substance within our reach. Nothing that has once been part of an animal or a vegetable, but can be converted into corn, grass and roots. I think I may assume as facts that upon an average, not half the manure is saved upon our farms that might be, and that this moiety is half lost before it is applied to the soil. Every horse, ox or cow, wintered upon the farm, if well fed, and littered with the straw, stalks, &c. of the crop, should make from six to ten cords of good manure. Dr. Coventry, late professor of agriculture at Edinburgh, estimated that the straw of an ordinary acre of grain, computed at 21 cwt. may be converted by the urine and liquids of the stables and cattle yards, into three and a half tons of manure; that meadows that cut one and a half tons of hay will give four tons of manure; clover, the first year, six tons, and the second year, five and a half tons per acre; and that with the extraneous substances which may, with due care, be collected without expense from the roads, the ditches, the ponds, and from refuse of every kind about the house and premises, the acreable amount should be amply sufficient for a full supply of manure once during every course of the four year system of husbandry.—Arthur Young, with 6 horses, 4 cows, and 9 hogs, which consumed 16 loads of hay and 29 loads of straw, obtained 118 loads of manure, 36 bushels to each; and from 45 fatting oxen, well fed and littered, 600 tons of rotten manure. But an American lawyer,* and an excellent practical farmer withal, has gone beyond these estimates. I visited his farm a few weeks ago, which lies upon the sea shore. It consists of about 200 acres, most of which was in a course of crops. The crops of the season had all received an ample supply of manure, as their appearance indicated—and yet I was shown masses of well prepared compost, in reserve, consisting of yard manure peat ashes, peat earth, sea weed, and fish—estimated at twenty-five hundred loads—*all produced upon his own farm.*

The third obstacle to agricultural improvement, which I propose to notice, is the subordinate rank to which this employment has been consigned, and to which the farmers themselves have contributed, by a want of respect for themselves and respect for their vocation. The wholesome habits of society have been so broken up, by the civil and political convulsions of the age, and the inordinate thirst for acquiring wealth and fashionable consequence, through mercantile and other speculations, that honest productive labor has been thown entirely into the background, and considered not only ungenteel, but menial and servile. Yet I venture to lay down this proposition, that he who provides for the wants and comforts of himself and family, and renders some service to society at large, by his mental and physical industry, performs one of the high duties of life; and will ultimately be rewarded in the conscious rectitude of his life, by a greater measure of substantial happiness, than he who makes millions by fraud and speculation, to be squandered in extravagance or wasted in folly, by his children or grand-children. The revolutions that are constantly taking place in families, sufficiently admonish us, that it is not the wealth we leave to our children, but the industrial and moral habits in which we educate them, that secures to them worldly prosperity, and the treasure of an approving conscience.

The farmers, I have remarked, share in the errors of the day. Not content with the gains which are ever the reward of prudent industry, and which might be greatly increased by the culture of the mind,—nor content with one of the most independent conditions in society, hundreds and thousands of them seek other and new employments, and some of truly menial character, to get rid of labor, the greatest blessing to man, and to raise themselves in the imaginary scale of fashionable society. And if they cannot participate themselves in this imaginary greatness, and it is seldom any thing more than imaginary, they are anxious to inflict the evil upon their posterity,—to rear their sons to the law, the rail-road to office,—to political power and turmoil; to make them merchants, a useful, but greatly overstocked business, or to place them in some other genteel employment, which shall exempt them from the toils of labor, the salt that best preserves from moral corruption.

Mistaken men! What class in society have within their reach so many of the elements of human enjoyments—so many facilities for dispensing benefits to others—one of the first duties and richest pleasures of life—as the independent tillers of the soil? "The farmer," says Franklin, "has no need of popular favor; the success of his crops depends only on the blessing of God upon his honest industry." If discreetly conducted on the improved principles of husbandry, agriculture offers the certain means of acquiring wealth, and as rapidly as is consistent with the pure enjoyments of life, or with the good order and prosperous condition of society.—Agriculture is the golden mean, secure alike from the temptations of mushroom opulence, and the craven sycophancy and dependence of poverty. "Give me neither poverty nor riches," was the prayer of the wise man of Scripture "lest," he added, "lest I be full and deny thee, and say, who is the Lord? or lest I be poor, and steal, and take the name of my God in vain."

When we consider that agriculture is the great business of the nation—of mankind; that its successful prosecution depends upon a knowledge in the cultivators of the soil, of the principles of natural science,—and that *our* agriculture stands in special need of this auxiliary aid,—we cannot withhold our surprise and regret, that we have not long since established professional schools, in which our youth, or such of them as are designed to manage this branch of national labor, might be taught, simultaneously, the principles and practice of their future business of life, and on which, more than any other branch of business, the fortunes of our country, moral, political, and national, essentially depend. We require an initiatory study of years in the principles of law and medicine, before we permit the pupil to practice in these professions. We require a like preliminary study in our military and naval schools, in the science of war and navigation, ere the student is deemed qualified to command. And yet, in agriculture, by which, under the blessing of Providence, we virtually "live, and move, and have our being," and which truly embraces a wider range of useful science than either law, medicine, war or navigation, we have no schools, we give no instruction, we bestow no governmental patronage. Scientific knowledge is deemed indispensable in many minor employments of life; but in this great business, in which its influence would be most potent and useful, we consider it, judging from our practice, of less consequence than the fictions of the novelist. We regard mind as the efficient power in most other pursuits; while we forget, that in agriculture, it is the Archimedean lever, which, though it does not *move*, tends to *fill* a world with plenty, with moral health, and human happiness. Can it excite surprise, that under these circumstances of gross neglect, agriculture should have become among us, in popular estimation, a clownish and ignoble employment?

In the absence of agricultural professional schools, could we not do much to enlighten and raise the character of American husbandry, by making its principles a branch of study in our district schools? This knowledge would seldom come amiss, and it would often prove a ready help under misfortune, to those who had failed in other business. What man is there, who may not expect, at some time of life, to profit directly by a knowledge of these principles? Who does not hope to become the owner, or cultivator of a garden or a farm? And what man, enjoying the blessing of health, would be at a loss for the means of an honest livelihood, whose mind had been early imbued with the philosophy of rural culture—and who would rather work than beg?

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* W. A. Seeley, Esq. of Staten Island.

An early acquaintance with natural science, is calculated to beget a taste for rural life and rural labors, as a source of pleasure, profit, and honor. It will stimulate to the improvement of the mind—to elevate and to purify it,—to self-respect, to moral deportment. And it will tend to deter from the formation of bad habits, which steal upon the ignorant and the idle unawares, and which consign thousands of young men to poverty and disgrace, if not to premature graves. A knowledge of these principles, to a very useful extent, can be acquired with as much facility in the school, or upon the farm, as other branches of learning. Why, then, shall they not be taught? Why shall we withhold from our agricultural population that knowledge which is so indispensable to their profit, to their independence, and to their correct bearing as freemen? Why, while we boast of our superior privileges, keep in comparative ignorance of their business, that class of our citizens who are truly the conservators of our freedom? I know of but one objection:—the want of teachers. A few years ago, civil engineers were not to be found among us. The demand for them created a supply. We have demonstrated that we have the materials for civil engineers, and that we can work them up. We have materials for teachers of agricultural science, which we can also work up. Demand will always ensure a supply.

The enumeration of the foregoing obstacles to agricultural improvement, sufficiently indicates the means which will be efficient in removing them. The means consist, so far as I now propose to notice them—

1. In giving a *professional* education to the young farmer, which shall embrace the *principles* and the *practice* of the business which he is designed to follow in life, and

2. In diffusing more extensively among those who have completed their juvenile studies, and are better fitted to profit by the lessons of wisdom and experience, a knowledge of the same principles, and of the best modes of practice which these principles inculcate, and which experience has proved to be sound.

We have professional schools in almost every business of life, except in the cultivation of the soil, one of the most important and essential of them all, and one embracing a larger scope of useful study in natural science, and in usefulness to the temporal wants of the human family, than any other. The policy of monarchs, and of privileged orders, has been to repress intelligence in the agricultural mass, in order to keep them in a subordinate station. But neither the policy nor the practice should be countenanced by us. Our agriculturists are our priviledged class, if we have such. They are our sovereigns, because, from their superiors numbers, they must ever control our political destinies, for good or for evil. And the more intelligent and independent we can render them, the more safe we make our country from the convulsions of internal feuds, and the danger of foreign war.

I put the question to fathers—Would you esteem that son less, or think him less likely to fulfil the great duties of life, who had been educated in a professional school of agriculture, with all the high qualifications which it would confer for public and domestic usefulness, than him who had been educated for the counter, the bar, or other high professional callings? On which could you best rely for support and comfort in the decline of life? Nay, I will venture to carry the appeal farther—to the discriminating judgment of the unmarried lady—Would you reject, as a partner for life, the student of such a college, coming forth with a sound mind, deeply imbued with useful knowledge, and a hale constitution, invigorated by manly exercise, whose cares and affections were likely to be concentrated upon home and country, and whose precepts and examples would tend to diffuse industry, prosperity, and rural happiness around him? The father's response would be, I think, an unhesitating no, to the first question; and the lady's after due deliberation, I verily suspect, would be a half articulate amen! I pretend not to the spirit of prophecy, yet I venture to predict, that many who now hear me, will live to see professional schools of agriculture established in our land, to see their utility extolled, and to be induced to consider them the best nurseries for republican virtues, and the surest guarantee for the perpetuity of our liberties. They should be established—they will be established—and the sooner they are established the better for our country.

To those who have passed to manhood, and who have made up their minds, from necessity or from choice, to till the ground, the means of improvement—of studying the principles of their business—and of becoming acquainted with the most approved and modern practices in husbandry,—the opportunities of acquiring useful knowledge, are abundant and cheap. One of these means, and a valuable one, is proffered him through the exhibitions and publications of these societies. Another is the perusal of books upon agriculture and rural economy, which should form a part of social and rural libraries. And another facility of acquiring this useful knowledge, is afforded by the agricultural periodicals of our country, which, besides containing much that is instructive in the philosophy of farming, are a record of the best modes of practice, and of much that is new and important, in the various departments of rural and household labor. A volume of the Cultivator, of which I can speak with accuracy, contains about as much matter as five or six volumes of the popular novels of the day, and twice as much as four numbers of our literary quarterly journals. The price of the Cultivator is one dollar per annum. I verily think, that if the farmer would divide his patronage between political and agricultural journals, he would be a manifest gainer, in his fortune and in his family—would be more happy in his business, and domestic in his habits—a better manager, and a more useful citizen.

Time will not permit me to go into the details of modern improvements in husbandry. These improvements are great, and afford the brightest hopes to the philanthropist and the patriot. No one who can carry back his memory forty years, can withhold his wonder at the astonishing improvements which have in that time been made in the manufacturing and mechanic arts, by reason of the aids of science; and those who can scan the future, will have no less reason to rejoice, in the anticipated advantages which are in prospect, from an improved culture of the mind and the soil, consequent upon a better system of education to the agricultural population, and the general diffusion of useful knowledge, which is likely to result from it.

I will merely further remark to the farmer, that if he would prosper in his business, he should study, practice and adopt, the better system of husbandry which is abroad in the land, and which has already greatly profitted thousands, so far as his soil and circumstances will permit;—that he should drain his wet lands, economize his manures, and apply them with judgment;—to cultivate well, what he does cultivate;—to alternate his crops;—to extend his root culture; to increase and improve his stock, as the products of his farm will permit;—and to substitute fallow crops for naked fallows.

In conclusion, gentlemen, permit me to express my hearty wish, that success and honor may crown your efforts to improve the condition of your country, industrial and moral, associate benefits almost as intimately connected, as cause and effect—and that you may long live to enjoy the blessings which are promised to him who truly loves his neighbor, and reveresand worships his God.

CORRESPONDENCE.

Tropical Florida.

[Lat. 24°, 48′, N. long. 80°, 55′ W.]
Indian Key, T. F. 12*th Nov.* 1839,
[Ther. 80° Fahrenheit.]

To Jesse Buel, *Editor of the Cultivator,*
Albany, New-York.

Sir—As none of the Cultivators for the last year were received until all the numbers came together a few days ago, via the remote part of Key West, I could not, of course, previously observe in your February No. at p. 187, the *paragraph* in which my *name* is connected with opposition to the Mulberry-selling speculations and silk producing calculations of the Northern States. Permit me then to repeat, that *my* written opinions of the silk business in the Northern States, are conformable to *your* printed opinions on the same subject. I have always maintained, that in those wintry regions this rural industry can only become a collateral branch of common farming—a temporary occupation of household industry—in short, what it has been in Connecticut ever since its first introduction, fifty years ago. I have, therefore, always sustained the positions, that the advantages of the *extension*, over the Northern States, of the combined propagation of Mulberry plants and the bona fide production of raw silks, should not be calculated on the false hypothesis that this new branch of rural industry would yield greater profits than the common products of common farms; but that the benefits should be estimated from the important facts, that the Mulberry trees can best be grown on the *poorest*, and otherwise least productive, *lands;* and the raw silk can best be produced by the *feeblest*, and otherwise least productive, *hands*. As a temporary collateral branch of farming, then, I admit that it may be desirable to employ six weeks annually in the production of raw silk by the *feeblest hands* on the *poorest lands* of even the Northern States. But the agricultural statesman for the whole country, will readily convince himself of the relative superiority of the *old* Southern States for the profitable production of raw silk as a *collateral branch* of their planting industry. The great superiority of the old Southern States over the old Northern States, and even over the new Western States, is easily shown by the irrefutable facts, that their vegetating seasons are much longer; that their poorest lands are much cheaper, and that their unproductive hands are more numerous and more controlable. In other words, it can be thus demonstrated that the old Southern States can afford to sell raw silk at two dollars and fifty cents per pound, and yet *gain* five dollars per acre *nett profit* for their *poorest*, unproductive lands, and will also gain fifty cents per day *gross wages* for their feeblest unproductive hands. As a temporary collateral branch of planting, then, I contend it will be much more desirable to employ twelve weeks annually in the production of raw silk by the feeblest hands on the poorest lands of the old Southern States. But, Sir, in relation to the permanent production of raw silks in the United States, the most important facts which should again be presented to the whole community, are those irrefutable facts by which I have long since demonstrated the *superlative superiority of South Florida for the profitable production of raw silk!* 1. That it enjoys a tropical climate peculiarly favorable to human health and to vegetable growth the whole year round. 2. That the morus multicaulis, being a tropical plant from the Tropical Phillippine Islands, has hence returned to its native climate on the tropical Florida Keys. 3. That in this tropical climate, the Manilla Mulberry is an evergreen tree, which does reproduce its bulky leaves, and which can be propagated by its numerous buds in every day of every year. 4. That hence, in this tropical climate, the silk worms can be fed, and their silk cocoons can be spun on every day of every year. Very respectfully, your obedient servant. HENRY PERRINE.

P. S. I still repeat that the morus multicaulis is a splendid humbug; but I shall rejoice at its continuance, provided its energies be exerted *in the only district* of the Union where the greatest possible number of plants can be propagated in the least possible time, and where the greatest possible quantity of silk can be produced at the least possible expense. If only ten of the wealthiest speculators had been established two years in these Florida Keys, the whole United States would have been roused by their clamorous proclamations of *certified* facts of their infinite superiority for the continual propagation of Mulberry buds, for the continual reproduction of Mulberry leaves, and consequently for the continual feeding of silk worms, and for the continual production of raw silks!!

Comparative contrast of the opposite climates of Southern Mississippi and Southern Florida.

1838.—*Natchez, Miss.*—Clear days, 43; cloudy 192; rainy 93; foggy 27; hazy 5; snowy 3; sleety 2.—Hottest day 94°; coldest day 18°, or 14° *below* the freezing point of Fahrenheit's scale.

Indian Key, T. F.—Clear days 314; cloudy 15; rainy 36.—Hottest day 90°; coldest day 50°, or 18° *above* the freezing point of Fahrenheit's scale.

Add for Indian Key the fact, that the *greatest* change in one *month* was 33°, and the *greatest* change in one *day* was 14°, and you will readily conceive the incontrovertible reality, that Tropical Florida enjoys the most delightful weather, with the most healthy climate in the whole United States.

You know that the slanderous charges of deadly sickness against South Florida are solely derived from the detracting reports against the only port of Key West. But supposing that near the southwestern extremity of this reef at the remote island of Key West, the village itself should be a sickly locality at all seasons of every year; nevertheless, you will perceive that it is *separated* by seventy-eight miles of latitude and longitude in the open sea from the *nearest* point of the *healthy mainland* at Cape Sable! HENRY PERRINE, M. D.
at Indian Key, Tropical Florida.

Manufacture of Maple Sugar.

Rutland, Vt. 24*th Nov.* 1839.

To the Conductor of the Cultivator,
Albany, New-York.

Sir—Understanding that Mr. Henry Mussey, of this town, is a competitor for a premium offered by you in the month of April last, "for the best sample of ten pounds of maple sugar, produced by household process," the arrival of whose sample was announced in the September number of the Cultivator, and that his standing in this vicinity for reputation, truth and veracity, should be vouched for by some person known to you, I have great satisfaction in giving my testimony in behalf of Mr. Mussey, as being one of our best farmers—one of our most substantial and reputable citizens—and whose representations as to his method of manufacturing the sugar in question, or, indeed, upon any other subject, would receive in this community, the most implicit credit.

I am, very respectfully, your obd't serv't,
JESSE GOVE.

Rutland, Nov. 26, 1839.

Mr. Jesse Buel—Sir—As a competitor for the premium offered in the April number of the Cultivator, sometime in August I sent your deceased father ten pounds of maple sugar, the receipt of which was acknowledged in the September number, with a request for the mode of manufacture and the estimated expense, which I will endeavour to give.

1. Scald the buckets clean.

2. Boil the sap as soon as possible after running from the tree, in the old burning process, that is, in fireplaces or between logs, (although we endeavour to burn as little as we can, and wash the kettles once a day,) down to thin syrup.

3. Settle over night, and draw off clear.

4. Cleanse with a pint of milk to 50 lbs. sugar, and sugar off in the common way, leaving it so thin that some molasses shall stand on the sugar: and,

5. After drawing molasses twenty-four hours through a hole in the bottom of the tub, (our tubs hold from 100 to 300 gallons,) spread a double cloth over the top and lay on clay about two inches thick, of the consistency of thick milk porridge; after three or four days, take off the clay, and if the sugar is not sufficiently

white, wet up the clay and lay on again, which may be repeated till the sugar is as white as loaf, (the sample sent was clayed only once.) This will whiten about one-third of a tub, say two and a half feet deep, which may be taken off, and the rest clayed as before.

I estimate the expense of raw sugar at five cents per pound, and of clayed at eight cents, in good seasons like the last, when from 300 trees we made 1500 lbs. raw sugar.

If the premiums in the April number are offered by any society, please to present the sugar to them; if they are only the private offers of your deceased father, present it to his afflicted family, as a testimony of the high respect in which the name of Jesse Buel is held by myself, as well as the agricultural community.

Respectfully yours, &c.
HENRY MUSSEY.

Durham Cattle.

It has been conjectured by many, that the apparent high prices at which the "Improved Durham Short Horned" cattle have been held, could be maintained but for a few years. This has been the burthen of the song of those who were desirous of possessing them, but were unwilling to pay but a trifling sum over the price of the common cattle of the country. And if perchance, a farmer who has a little more enterprise and liberality than his neighbors, should *venture* to purchase a bull of an improved breed, at one or two hundred dollars even, he is pretty sure to incur the ridicule and sneers of his less enterprising neighbors, instead of encouraging him and benefitting themselves by the introduction of a superior breed of cattle.

This feeling, I am happy to say, is losing ground, and the importance of improving our cattle is more apparent. Several Durham Bulls were purchased in this vicinity last spring, ranging from one hundred to four hundred dollars each, and taken into Vermont, which I am informed, cleared themselves the first season. This is as it should be.

Now, I will venture to assert, that the owners of the heifer calves from either of these bulls, and a common cow, could not be prevailed upon to part with one short of from twenty-five to thirty dollars, when they would jump at five dollars for one of the common breed.

Some have been patiently waiting, with an idea that the country would soon be filled with them, and the prices would fall; but from some late sales made by auction in this country, as well as in England, it is feared they will have to wait some time longer, before they will be gratified with an opportunity.

In a late (October) number of the "Farmers' Magazine," I observed the sales, in September last, of the stock of three noted breeders. The first was the stock of the Earl of Carlisle, at Castle Howard, near York. The attendance of gentlemen from all parts of the country was very numerous, and the sale excited much attention amongst breeders, graziers and others from the well know superior quality of the stock always raised at Castle Howard.

The prices paid for cows and heifers, forty-seven in number, ranged from 20 to 320 guineas each, and averaging $310. There were twenty-four bulls and bull calves, which ranged from 16 to 120 guineas, averaging over $226 each. The whole proceeds of the sale were near $20,000.

The second sale immediately after the above, was of Mr. Henry Edwards, of Market Weighton, and the sales effected, (above £50,) were for eight cows from 61 to 300 guineas each; averaging over 110 guineas, and ten calves from 20 to 100 guineas, averaging over 39 guineas each.

The third sale was the property of John Colling, Esq. of White House, near Gretna Bridge, and, says the writer, "a more splendid display of these beautiful animals has rarely been witnessed. The animals were of a superior order, both as regarded symmetry and condition, and the prices will fully prove their superiority."—Twenty six cows, heifers and calves, ranged from £18 to £200 averaging £71 each. Seven bull calves ranged from £13 to £82, averaging over £38 each.

From the above sales, we are led to believe, that the "Improved Durham Short Horned" cattle maintain pretty fair prices at the present time in England; and in this country, this description of stock appears to be still on the rise. This is owing to the great demand for thorough-bred animals in all the Western States, and the present impossibility of supplying that demand by the natural increase, of the number of animals now in this country.

At a late sale of Wm. A. Warner, Esq. of Kentucky, his bull Frederick, was struck off at $1,625. Several of his cows sold at from $900 to $1,100.

A sale of Durham Short Horned Cattle recently took place at Powelton, Pa. where eight cows, heifers and calves were sold at auction, averaging $458 each; the highest price paid being $610, and the lowest was for a calf only ten days old, at $200.

I am also advised by a late number of the "Franklin Farmer," that Mr. L. Sherley, of Louisville, Ky. lately sold at private sale, his imported Durham Bull "Velocipede," at the high figure of $1,500, after taking premiums in plate the past fall, of the value of $105.

The same gentleman also sold his imported roan calf, "Liverpool," for $1,000. He was exhibited only at the Jefferson County Fair this fall, where he carried off the $20 premium, as the best yearling calf.

It is now about thirty years since the Messrs. Collings' sale of Durham Short Horned Cattle took place in England, when the famous bull Comet, was sold under the auctioneer's hammer, for 1,000 guineas, and some of their cows sold from 300 to 410 guineas.

That these extraordinary high prices will be maintained, I will not contend; but that they will command fair prices for some years to come, will be readily admitted by those who are best acquainted with their merits.
C. N. BEMENT.

Three Hills Farm, December, 1839.

Devonshire Cattle.

Mr. Buel—Sir—It appears to be the general opinion among the northern farmers, that the Durham cattle are not adapted to the climate, that the pastures are not sweet or rich enough, and that the winters are too cold and severe. Why would it not be a good plan to buy some other breed that will keep on short pasture and stand our severe winters?

The Devonshire cattle I think will suit those persons whose opinion is against the Durhams. I do not say that the Durhams will not do, for I think I have seen as fine cattle of that breed in some of the northern counties as will be found: they were not entirely full blooded, but were bred up from the native stock, which is the only true way to get a good breed of cattle adapted to our climate.

Our native cattle are hardy and can stand our cold and rigorous winters, and their produce from an improved bull, will, I think, do better than the pure bloods.

The Devons are said to be a hardy race, are classed as middle horns, and celebrated for their beauty, activity at work, and aptitude to fatten. They are of a mahogany colour, white horns, the nose and circle around the eye yellow.

For working cattle they are allowed to be the most active, having a quick walk, and in a light cart or wagon will trot at the rate of four or five miles per hour.—This is not requisite, but it shows that they can use their limbs to good advantage. I have seen a yoke of them that drew a large load of grain nine miles, as quick as a span of horses would.

The disposition of the Devons to fatten stands almost unrivalled, and in a given time, with less food, they will acquire more flesh than most any other kinds. They are by no means a large sized cattle, the bulls are smaller than the ox, and the cows still smaller than the bull.

The cows for milk are considered inferior to some other breeds, but the quantity they give is richer in proportion to that of other breeds, and I believe were they thoroughly tested, they would rival almost any other breed in quantity and quality.

I have seen on the farm of C. N. Bement, at Albany, some fine specimens of this breed, also some half Devons, and half Durhams which were really beautiful cattle. The half bloods resembled the Devons in color and form, except being broader across the hips than the pure Devons, thus making up that deficiency which has so long been an objection by the amateurs of fine stock.

Mr. Rotch, of Butternuts, has imported within a year a couple of fine heifers of this breed, and I think much credit is due him, as they were procured at great expense to benefit the stock of this country.

Some other gentlemen have fine specimens of this stock, and it is gratifying to look into their barn-yards, and see the improvement that has gradually crept in of late years.

Public opinion has great weight with many people, and when a prejudice is once formed it is hard to overcome it. I am in hopes, however, that people will soon begin to think and act for themselves, and through the medium of agricultural papers let the world know what they have done, and by so benefitting one another, we may soon begin to look up and mend our old ways.
PHELIM.

December, 1839.

Rohan Potatoes—China Tree Corn.

Gustavus, Trumbull co. O. Nov. 13, 1839.

J. Buel, Esq.—Sir—When in New-York last spring, I purchased of Mr. G. Thorburn, a few Rohan Potatoes, and on the 29th of April planted *two* of them, weighing eleven and a half ounces.

I cut them into 30 pieces, leaving but one eye in each piece, and planted them in 12 hills, 3 feet apart each way. On the 16th of October, I dug from those 12 hills 175 potatoes, measuring two bushels, heaped measure, and weighing 118½ pounds.

I cannot say that any extraordinary means were used either in planting or hoeing. I put manure in the hill before planting, and hoed them three times, and I believe had the season not been unusually dry, the product would have been greater. As it is, if you think the notice of it worth a corner in the Cultivator, you are at liberty to give it.

I planted an ear of the China Tree Corn on the 15th of May, but it did not get ripe. I am not, however, entirely discouraged, as the Dutton Corn planted at the same time, in the same neighborhood, was also injured by the same early frost. The superior appearance, extraordinary growth, and great number of ears to the stalk and hill, induces me to think of giving it another trial.

I am fully persuaded, that if it *will* ripen in this climate, it will yield more abundantly than any other kind of corn.

Respectfully yours, &c.
GEORGE HEZLEP.

Staples's Patent Straw-Cutter,

Is a new invention on a new principle, for which the subscriber has received a patent.

Convinced of the great economy in cutting up every description of rough feed to be fed out, and the importance of a good and efficient straw-cutter to every farmer, the subscriber turned his attention to inventing one for his own use, free from the many objections to the various implements of this kind, and he has succeeded in perfecting a machine which is pronounced by good judges to be the end of improvement in these things.—It is as perfectly simple, durable and efficient a machine for cutting up every description of rough feed, as can be asked; the wear of any part will not prevent its doing its work well. This machine has two knives, which from a drawing motion peculiarly adapted to cutting, will cut well without that keen edge that all other straw-cutters require, and will therefore want less grinding or sharpening, and for this purpose they are very easily taken off and replaced, as no screws are attached to them, and no nice fitting on required. There are two bed shears which support the feed on each side as it is cut by the knives, and not a straw will ever escape uncut, or be bruised or mashed off, let the knives be dull or sharp. These machines require little power, and are easily made or repaired by any common workman.

To try how much could be cut in a given time with one of these machines, one hundred pounds of sheave oats were weighed out, and they were reduced to pieces in two minutes and a half.

These machines are manufactured at the subscriber's shop, near Lynchburg, Va. price $20.

To persons disposed to purchase the right of making and vending these machines, they offer great inducement, as an examination of them will not fail to induce every one to purchase who is in want of a straw-cutter; and to introduce them abroad, the rights for the different states or counties will be sold low; and for the same reason, where three or more machines are ordered, a considerable discount will be made, in proportion to distance, and the machines delivered in Lynchburg.

For further information, address the subscriber at Lynchburg, Va. WILLIAM A. STAPLES

Lynchburg, Nov. 25, 1839.

Rohan Potatoes.

Auburn, Nov. 14th, 1839.

Jesse Buel—Dear Sir—While reading the Franklin Farmer, (a paper published at Frankfort, Ky.) I observed the following notice or inquiry:

"Rohan Potatoes.—If any of our readers have been successful in the cultivation of this root, we should like to hear from them. We got a very large one from Boston, which we planted with some of our friends. We planted two hills in excellent soil, worked them well, but did not get a *tuber* as big as a pin head. One of our friends, from one hill, got five little things, neither as big as a partridge's egg; while he says, 'our common potatoes yielded prodigiously, the finest and largest we ever saw.'"—*Franklin Farmer, Vol. III. No.* 11, *p.* 83.

With respect to this, I should like to ask, (if this should chance to meet the eye of the Franklin Farmer,) whether there might not have been some mistake in the kind of potato? (as there probably has been here in respect to the Chinese tree corn,) or if the reproducing qualities of the potato might not have been injured in its conveyance from Boston to Frankfort? for it is generally believed that good old Kentucky is celebrated for its fertility of soil.

Last spring I purchased four Rohan potatoes from Walker's seed store, Schenectady. These, with a few other small ones given to me by Prof. Jackson, of Union College, I planted about the middle of April, and dug from them, the first of October, eight and a half bushels. From one of them, which was kept separate from the rest, I dug two bushels, the tubers in general being very large, none of them as small as our common potato; it was said by a gentleman who saw them, that they were larger and fairer than most exhibited in New-York.—The potato I planted had twenty-two eyes, I put them in eleven hills, three feet apart.

A gentleman residing in this vicinity raised *three bushels* from one potato, sent to him by a relation in Rochester.

I should also, in connection with this, like to ask, whether it is profitable to spade up a garden in the fall and let it lay till spring, or wait till spring, then to do it? And whether a difference of treatment should be used on a dry sandy, and a dark clay, soil? The reason of my inquiry is this—while spading a week or two since a garden of dry sandy soil, I was asked why I did it now? I answered, it was generally the custom to spade a garden in the fall. He said he did not believe the custom was in accordance with good policy, and did not believe that those who acted thus could give a reason for it to sustain the position. I should like, furthermore, to ask, whether it is preferable to put manure (not entirely fermented,) on the ground after spaded in the fall, and let it remain till spring, or put it on in the spring?

Should this meet your approbation, an insertion in your paper would be exceedingly gratifying, with information respecting the inquiries.

Respectfully yours,
HENRY H. HOPKINS.

Ruta Bagas and Sugar Beets for Hog-Feed.

About the 15th of November, 1838, I shut a pig by itself that weighed 82lbs. and fed it on boiled ruta bagas, with about a peck of bran mixed with a bushel of the ruta bagas. When it had been fed on this food 58 days, it was weighed and found to have gained 60 pounds.—I afterwards, during the winter, fed the same pig and other hogs, for a few days, with ruta bagas boiled and mixed with bran, the mixture allowed to get pretty sour; and they increased in weight very slowly. I then fed the same animals with sugar beets boiled and mixed with bran as were the ruta bagas, and allowed to sour; they ate considerable of it, but did not devour it greedily. After feeding them with this food a few days, I perceived they lost flesh, and probably would have died, if the same food had been continued; yet I have no doubt either of these roots will fatten hogs very well if fed before they sour. The principal part of the nutricious properties of these roots consists of sugar, and consequently the first fermentation changes it to alcohol and carbonic acid gas.

S. W. FOSTER,
of Scio, Michigan.

Albany, Nov. 20, 1839.

EXTRACTS.

[*From the Genesee Farmer, Nov.* 30.]

Caution to Postmasters.

We find it necessary to republish our exposition of the conduct of J. E. Force, as we learn that he is flooding the country with his spurious Prospectuses, in the hope, probably, that they will fall into the hands of many persons who will not see our statement, and he thereby be enabled to obtain *advance payments* on the credit and reputation of the genuine Genesee Farmer. It therefore becomes necessary to give our expose a more extensive circulation, that the friends of the Genesee Farmer, and the public generally, may be on their guard against the gross imposition attempted to be practised upon them, in thus sending out (with my papers in some instances) a Prospectus purporting to come from my office. As a specimen of the views taken of the matter, by those who understand it, we publish the following extract of a letter from one of the most distinguished advocates of the Agricultural interest in Western New-York. He says:—"What an infamous scheme your letter has exposed. I am glad they started so early, as I think your exposure will put on the cold water effectually for a time. The project will probably revive again in some form, but hardly, I imagine, in one so rascally. You may use my name in any way you think best, to counteract the scheme. I should have expected nothing different from Goodsell; and Force, I think, could have been only a tool. I have read your expose, and, though pointed, I do not think the language any too strong to properly characterize such conduct. 'Connected with the Genesee Farmer for a year,' Force says. Some years since, at a show in New-York, a company of gentlemen and ladies were admiring a beautiful volume—its printing, binding, &c. when a miserable fellow came up and claimed the credit of its execution. The assertion was doubted, and when pressed to tell what part of its execution belonged to him, he stammered forth at last,—'I made the paste!' Such is pretty much the part Force has performed in the office of the Genesee Farmer."

Gross Imposition.

I have just seen a Prospectus, headed "Genesee Farmer Extra, 1839," for what purports to be a "new series" of the "Genesee Farmer,"—"N. Goodsell and J. E. Force, editors, and J. E. Force, proprietor,"—a large number of which, I am informed, have been printed in this city for circulation abroad. Justice to the public, as well as a regard to the good name of myself and paper, seem to render it obligatory on me to caution the public against this spurious Prospectus, which has been got up by a young man not yet of age, who has been employed in my office, for a year past, to keep my accounts and mail my papers. Had not Force and Goodsell, however, placed *the name of the Genesee Farmer* at the head of their Prospectus, thus giving it the character of an Extra issued from my office, and made statements which are altogether destitute of truth, I should not probably have deemed it necessary to have noticed their efforts, nothwithstanding the dishonesty manifested in filching the name of my paper, and the perpetrator at the same time appropriating to himself the confidential knowledge of my business, books and correspondence, while yet in my employ. A simple statement of facts will serve to show whether the public will be likely to receive in return for their money, a paper of the high character of the present Genesee Farmer, or even any paper at all for any length of time. J. E. Force, who represents himself as proprietor, claims "a year's connection with the Genesee Farmer," from which the public might infer that he was or had been either one of its editors or proprietors. It is proper, therefore, to state the extent of his "*connection* with the Genesee Farmer," which consisted in his being employed in the office the last year to pack and carry the papers to the Post-Office at a salary of five dollars and a half a week. This Mr. Force, in an introductory note to the prospectus, which he acknowledges was not written by himself, is made to say that "he has engaged the editorial assistance of those who were formerly its editors, together with a number of its contributors." And the same thing is said in the body of the Prospectus in still stronger language, as follows:—"The new series of the Genesee Farmer will have the editorial powers of gentlemen already distinguished in this cause, and long engaged in the editorial department of the old series, and thus offer the best security in return for the patronage of the public."

The representation here distinctly made is that the spurious Genesee Farmer is to be conducted by the editors of the *present* Genesee Farmer. Indeed the pledge that it is to be under their control is given as "security" to the public that the paper will be worthy of their patronage. The public can judge of the value of this "security," when they are informed that the statement is entirely *destitute of truth*—and that no *person* connected in any way with the editorial department of the Farmer for the last six years, has been or can be engaged to aid the proposed dishonorable attempt to transfer to an irresponsible concern the reputation or patronage obtained by nine years indefatigable service in the cause of Agriculture by the present conductors of the Genesee Farmer. It is, however, proper to say that the "N. Goodsell," whose name figures in the Prospectus with that of J. E. Force, was employed as a writer for the weekly Farmer during the first years of its existence; but he *six years* ago, without a moment's notice, or a word of difficulty occuring between us, broke off his engagement, and started an opposition paper called "*Goodsell's* Genesee Farmer," which proved an entire failure, as he did not succeed in withdrawing from my paper either its reputation, correspondents, friends or patronage: and the *base attempt*, as it was considered by all familiar with the circumstances at the time, proved an utter abortion, the paper having never completed its first volume. The public will be able to judge from this statement of facts in relation to "N. Goodsell and J. E. Force," whether their Prospectus is worthy of credence, and whether they will be likely to receive a paper worthy of their patronage, *or even any paper at all for any great length of time,* for such payments as may be remitted in advance for the counterfeit Genesee Farmer.

The contemplated union of the Genesee Farmer and Cultivator, (occasioned by the lamented death of Judge Buel,) has, so far as has come to our knowledge, received the warm approbation of the friends of both papers. It may, however, not be amiss to caution the public against any *other attempt* which may be made to build up a spurious paper on the reputation and character of the Genesee Farmer, and thus defraud and disappoint the public, as we learn that there are other persons in this city who are prepared to make the attempt in case of the failure of the above named persons.

LUTHER TUCKER.

Postscript.

Since the above was written, I have learnt that Force has sent off to the West large numbers of these Prospectuses *with the November No. of the monthly Genesee Farmer*, the mailing of which he has delayed probably for that very purpose. Postmasters and others should therefore be on their guard against the Prospectus of Force and Goodsell, as it is not unlikely that they may find some of them done up in my papers. It may be proper also to state, that Force now assures me that he *shall not issue the proposed paper*, which I presume will prove true, as he must have relied upon anticipated *advance payments* for the means necessary to go on with it.

Second Postscript.

Force, who mailed a part of the November Monthly Farmer, was directed to put into each parcel a Prospectus for the Cultivator, but we have great reason to fear, from the following letter, that instead of sending our Prospectus, he sent his own, with such of the Farmers as he mailed:

"*Milan, O. Nov.* 26, 1839.

"Mr. Tucker—In your last No. of the Farmer you state that you will forward with each package a Prospectus of the united paper of Farmer and Cultivator.—As yet I have received none, but have received one of the Genesee Farmer to be conducted by Messrs. Force & Co. Now this work is new entirely to me, and I know nothing about its proprietors, and cannot speak in favor of it. I wish therefore you would, on the receipt of this, send me immediately two prospectuses for the united paper, so that I can solicit subscribers for it, and oblige yours, &c."

[*From the Farmers' Register.*]

On Fattening Hogs, by cold-soaked and fermented food.

You complain very justly, I think, that many of your first contributors have grown weary in well doing; in other words, that their communications have greatly fallen off in point of numbers. Although I myself am unconscious of being one of the culprits, I determined immediately upon reading your remarks, to act as if I really was one, and felt anxious to evince my repentance by forthwith inditing to you an epistle of some kind or other; but could think of nothing, at first, that appeared worth communicating; luckily, however, in the midst of this quandary, I picked up at second hand, from a friend, something in regard to the mode of fattening hogs, which seems to be well worthy of notice.

First, however, I must tell you, that having, for a year or two past, enrolled myself in the fraternity of root-steamers for stock, (horses and sheep excepted,) my own experience is not yet sufficient to report to you any result of trials made by myself. I must farther confess that, as a novice in the steaming business, I still retain somewhat of that incredulity which I always feel relative to the benefits of any practice, when they appear to me so exaggerated as those do that are generally ascribed to the steaming process. But being open to conviction, and utterly condemning the old and common wasteful method of fattening our hogs, I was much gratified to hear the account which I will now give you of the mode practised by some gentleman, whose name I forget, in King & Queen or King William.

One or more casks or tubs are nearly filled with alternative layers of chopped cabbages or roots, and broken ears of corn. Enough boiling water is then poured into the vessels, to cover the food. This is suffered to stand about twenty-four hours before it is given to the hogs, by which time some fermentation takes place, if the fattening process is commenced as early in the season as he commences it, which I understand he does long before frost. A constant supply of this food is given until a very short time previous to the hogs being killed, during which they have corn alone, which is generally deemed necessary to harden their fat.

By this method we may save the expense of steaming apparatus of every kind, such as have been heretofore recommended in our agricultural papers. It is true that some of these cost very little compared to the advantages derived from them; but this little, even in the cheapest that I have seen mentioned, is worth saving, if it can be done by some contrivance still cheaper, and preferable on other accounts, as the one which I have just described, appears to be.

I am gratified that I have it in my power to give you the foregoing information at this particular time; for I have long been convinced that we should probably save at least half the expense of fattening our pork, if we would commence doing it by the first of September, or even sooner, and give much less corn than we generally do. To postpone putting up our hogs for the sake of the acorns and chinkapins that they may be able to find by incessant travelling about in search of them, is as complete an illustration as I have ever known of the old proverb,—"*penny wise and pound foolish:*" since to say nothing of the notorious fact, that *hogs especially*, fatten much faster in warm weather than in cold, and when they can fill their bellies without having to travel miles for the wherewithal, (being the laziest animals upon earth, except the gluttonous man, and his prototype, the quadruped called the sloth,) more of them are lost by theft, if suffered to run at large, during the nut and acorn season, than would pay, twice over, the whole expense of feeding them in pens with food that cost us little or nothing, except the labor of collecting and preparing it. Even that portion of this stock which we call "*out hogs*" could probably be kept much more economically, if not suffered to run almost wild for half the year; and were supplied with food by their owners, instead of being left to supply themselves. As they are commonly managed, we may truly estimate the annual loss, in most cases, at nearly or quite half of the whole number; for many are killed for trespassing on our crops—starvation during three-fourths of the year, having taught them to be thieves; whilst a still greater number are stolen in the fall, after they get a little flesh on their bones, for a reason which I once heard alleged by an old negro in extenuation of the practice of stealing them, that "hog meat was so miserable sweet his fellow *sarvants* could not help stealing it."

Hoping that you will deem this new process for fattening hogs worth publishing, I remain, dear sir,

Yours very sincerely,
JAMES M. GARNETT.

August 31st, 1839.

Chinch Bug.

To the Editor of the American Farmer:

In the last Farmers' Register there is an extract from the Genesee Farmer, in which the "Chinch Bug is described as peculiarly a southern pest originating in the woods, from which it spreads in every direction, attacking indiscriminately wheat, corn, and indeed the most of the cultivated grains and grasses."

The writer of this communication is correct in some of his position; in others he is not.

The Chinch Bug has invariably first made its appearance in the wheat crops in this section of the country, and in all others that I have heard from. From this fact some of the most intelligent farmers in this section of the state have come to the conclusion that the Chinch Bug originates from the Hessian Fly, as you always discover them in our wheat fields near the ground where the Hessian Fly first makes a deposite of its egg.

The farmers, some thirty years since, in Orange county, in this state, had to abandon the seeding of wheat for two years, which I consider a conclusive fact, that the Chinch Bug must originate from the Hessian Fly, as all those who are acquainted with the history of the former, must know that the mere abandoning of the seeding of wheat would not have prevented the reappearance of the bug unless they originated from the fly. The bug was never known to make its appearance in any other than the wheat crop; it was never seen in this section of country until the Hessian Fly made its appearance in our wheat fields, which is another fact showing conclusively that they must originate from that insect. The rye crop is the only grain which is exempt from its ravages, at least my experience bears me out in the assertion. I seeded a field in oats, wheat and rye, the last season, the oats and wheat were injured by the bug, but they did not molest the rye; they would march around it, but would not molest it.

The same writer says, "though provided with wings, they seldom used them, and their disappearance is as sudden as their appearance."

This is not the fact in their history in this part of the country. Some here have asserted that they would take flight from our fields in July and August, and a new crop of them would come in September; but this has not been their history this season—they make their appearance in our wheat field the last of May, and the first of June, and continue therein and in our oat fields, until the grain is cut and secured, and they then march with all their forces and commence their attack on our cornfields, where they continue until the cold weather commences, and then take flight to the woods, though you may discover them in our corn-fields sheltered in the boot of the stalk in the depth of winter, yet they rarely survive the winter. I have discovered them in July taking flight from our wheat and oat fields, and you may see thousands and millions flying to the woods, from which I am under the impression they never return, but they leave a new generation behind, which are more destructive than their progenitors. No person can have the faintest idea or conception of the ratio of their increase unless they study their history and movements. At this time there are myriads in our corn-field attached to the stalk, and they shelter under the boot or shuck of the stalk, and there multiply beyond conception, hundreds perhaps thousand attached to a single stalk.

Some allege that the Chinch Bug takes shelter in stumps and broom sage, or old trees, during the winter, and commence their operations as soon as warm weather takes place in the spring. To prove beyond controversy that the Chinch Bug does not originate in this way in our wheat fields, I have known fields that had not a stump or any thing in them to protect them, and the wheat was very much injured by them; and in fact our tobacco land is most generally seeded in wheat, where there was no appearance of a Chinch Bug; you might discover them as abundant and as destructive in lands of that description as you would in any other field. As far as my observation extends, (and I have been examining into their history for twelve months) this insect perishes during the winter months; this I know to be a fact, as I seeded a field in oats this last spring, which was in corn last year, and examined minutely thousands of corn-stalks which had stood in the field during the winter, and you might discover thousands that had perished. I had the corn-stalks carefully collected and burnt, and I did not see a Chinch Bug in the field. You might discover the chinch in tobacco fields, entirely remote from any other field, and surrounded by woods, which was seeded in wheat, and I am told that the Chinch Bug was very destructive.

The only alternative left for farmers and planters of this state, and all other districts of country, to rid themselves of this truly alarming and formidable enemy, is to abandon the seeding of wheat for two or three seasons, as I am confident it is the only plan by which we can subdue this insect. It is awful to reflect upon the consequences that must ensue to this portion of the union, if the ravages of this insect are not stayed. Notwithstanding the most propitious season which the farming community have enjoyed for 20 years, we find since the fodder has been gathered and the tops cut, the corn crop has been seriously injured.

Whether the position which I have taken is correct, that the Chinch Bug has its origin with the Hessian Fly, remains for time to develope. This is the conclusion which some of the most intelligent part of the community have come to. I cannot in all my researches and examinations and inquiries, find any other cause by which this insect can come into existence.

JAS. W. JEFFREYS.

Red House, N. C.

The Chinch Bug and Hessian Fly.

Red House, N. C. Oct. 16th, 1839.

Mr. Editor—A writer under the signature of Agricultor has replied to a communication of mine published in the American Farmer relative to the Chinch Bug.

"Agricultor" wishes to know my meaning of the word "progenitor," as used in my communication. My meaning was this: after the Chinch Bug comes into existence, it produces a new race, which in a short time arrives at sufficient maturity to take wing and fly in swarms to the woods; and that those left behind are more destructive in their depredations than those who thus take wing. Their habits are very much like bees; they are very industrious, and are incessantly sending out a new race, or new swarms; those that are left are more destructive on account of their incapacity to escape. All those who have studied their movements and habits, and watched the various stages through which they pass, would confirm the position I have taken.

Agricultor says: "and if so, they say it presents a very anomalous case in the natural history of animals, to wit, that of two very unlike *parentages* producing *similar offspring*."

In reply to this part of his communication I will introduce a new race of the insect tribe to prove that the insect does undergo various changes, and that unlike parents do produce similar offspring. Agricultor may think it strange and contrary to the order of nature that those large white grub worms could be transformed or turned to grasshoppers. But such is the fact. A gentleman of highly respectable standing in this country, (no doubt he was philosophizing like some of the Agricultor's neighbors) who caught one of those long white cut worms and placed it in a box with some loose earth, and after it was confined for some days, he examined it one morning, and found it had changed or produced a grasshopper. Is it more strange for a cut worm to be transformed to a grasshopper, than that a Hessian Fly should deposite an egg which should produce a Chinch Bug? Grasshoppers produce grasshoppers, and Chinch Bugs produce Chinch Bugs.

Another case—How does Agricultor account for the Tobacco Fly depositing an egg on our tobacco, and after some hours by the heat of the sun, the egg produces a cut worm nearly as destructive in its operations as the Chinch Bug. This last case is well known to every planter of the south who cultivates tobacco.

Is it more strange that the Hessian Fly should deposite an egg in the boot of the wheat and be brought into existence by the heat of the sun, than that a Tobacco Fly should deposite its egg on a tobacco leaf, and that egg should be transformed by the same cause to a cut worm? I could adduce other cases in the insect tribe to convince Agricultor and his sceptic neighbors of *unlike parentages* producing similar offspring.

I will now reply to the first part of his communication.

Agricultor has called it a "novel discovery, and if verified by subsequent investigators of the mysteries of nature, the approach of a new era in the natural sciences, as far, at least, as the animal creation and procreation may be involved."

I can assure Agricultor that the idea of the Chinch Bug being a descendant of the Hessian Fly is not novel, as it can be traced as far back as the year 1783. About this period the battle of Guilford, N. C. occurred. There is a gentleman now living in Orange co. N. C. who is venerable on account of his age and great worth, who well recollects that when the British army moved through that county, there was a part of the army which were called the Hessian soldiers. Immediately after this event, perhaps that year, the Hessian Fly or Hessian Bug destroyed their crops of wheat. They believed and do believe to this day, that those soldiers left the flies or bugs as they passed through the country. The Chinch Bugs continued to destroy their crops of wheat for several years, until they were compelled to abandon the seeding of wheat. This aged gentlmen says they finally disappeared after four or five years.

After a period of 56 years the Chinch Bug has appeared in the same district of country, and upon the same tracts of land.

I have no douht that I could procure the testimony of fifty men of unimpeachable character, who believe that the Chinch Bug is the true descendant of the Hessian Fly. Agricultor may call it *old fashioned* stuff, but let him lay aside his books upon such subjects, and go and examine the operations of nature in these matters, and he will see great and strange transformations, proving that *unlike parentages* can produce *similar offspring.*—I am a plain homespun man, and draw my conclusions from the operations of nature. I should have been thankful, and no doubt this portion of the country would have felt themselves much indebted to Agricultor. to have given a better history of this insect, and given us his views relative to the best mode of preventing their depredations. We do not care for their genealogy—we wish to destroy them and not perpetuate their names.

JAS. W. JEFFREYS.

Of the Fallow.

(Concluded.)

After the land has been ploughed a second time, the question arises, whether the surface should be left in a rough furrow state or harrowed fine down? To this the reply is by no means difficult, since the rougher it is left, the greater is the surface exposed to the sun, rain, and wind, and, as the object is to have the surface as dry as possible before being again ploughed, the roughest state is then to be unquestionably preferred.

When the land is once dry, to have it any longer exposed, unless waiting for a shower, is useless, since the clods and crumbs can be no more than dry if they remain exposed for weeks in an arid season, for their affinities are at rest, as in paper or dry wood, decay or decomposition is prevented, and therefore no after enrichment is to be expected. If a good shower should come, it will prove of great value by falling on a dry surface, by causing a circulation, first of fresh water through the clods, and then succeeded by fresh air, as the former dessicates beyond what is chemically and mechanically retained by the soil; but when again dry, no time should be lost in turning this surface under with the plough, and bringing up a fresh one to be similarly exposed; because more advantage will be gained now, by exhibiting a fresh surface to the sun, &c. than permitting it to remain unmoved.

It is quite necessary for land to lie undisturbed after ploughing, for a certain time, before another takes place; as is the case when making bread, hay, beer and wine,* otherwise a fallow might be completed in a day, which is impossible. Now the usual period that intervenes between fallow ploughings during the spring and summer months, is from two to five weeks, which experience and the economy of a farm have decided to be sufficient and practicable; the appropriate rollings, &c. being of course applied when necessary, particularly if recently manured,† as the superficial dressings will assist in the general fermentation, therefore, in the decomposition and combination of the vegetable materials with the particles of the soil.

Before the third ploughing is entered upon, a heavy roll or a light one, according to circumstances, should be passed over the field across the furrows, and this implement alone will effect, generally speaking, all the requisite pulverization at the least expense of culture & treading. This act of pulverizing displaces the previous position of the particles of the soil, and brings others into contact, thus highly favoring fermentation. If the roll be unable to accomplish the present intention, the harrows or the scarifier, or both, may of course be employed.

Suppose the third ploughing to be completed, the soil will now present to the eye and touch a great improvement in its color, its state of pulverization, and in its inexhaustible moisture beneath. If turnips are to succeed the fallow, and the fourth or fifth ploughing is to be the last, then, before this takes place, the surface of the field should be reduced to the finest tilth by the harrows and roll, when the land and weather are favorable, that the seed, when sown on the subsequent plough furrow, may be deposited in and surrounded by an entire mass of close yet permeable soil, from being finely pulverized, of from six to ten or more inches in depth.—This is the very object of the husbandman, because, a body of earth in the above condition is the one, experience has ever found, most congenial to the infant germination and future growth of the turnip, and which, according to seasons, will attain in consequence the limit of its development and produce.

The benefit of the fallow process may be summed up in these words: that it replenishes the soil with fresh air and fresh water, improves its powers of composition and decomposition, strengthens its affinities for the products of vegetable and animal substances, renders it easily permeable to the roots of plants, and restores, by the general pulverization, its valuable property, inherent in rich soils, the absorbing and retaining of moisture and air from the atmosphere.—*Bland's Principles of Agriculture.*

Important Facts.

We observe with astonishment and regret, the conclusive evidence which appears in every direction, that the business of agriculture does not receive the attention due to it in this country, but it is treated with absolute neglect, compared with other pursuits. This ought not to be, and the inhabitants of this country will yet learn, that they have committed a gross error by abandoning the cultivation of the soil, for less independent and more precarious modes of obtaining a livelihood.

Who has ever heard of such a state of things as now exists here? We have a soil as fertile as any that the sun ever shone upon, a country almost boundless in extent, and so cheap, that any man may purchase a farm with the proceeds of a few months labor, yet we are actually importing for consumption, immense quantities of agricultural products from foreign countries! A people, thinly scattered over a land unequalled in fertility, and exhaustless in its resources, are buying their bread, at enormous prices, from countries so overburthened with inhabitants, that political economists have feared that the earth would fail to produce sufficient to support them. Such an extraordinary and unnatural circumstance should excite attention, and awaken the inquiry as to its cause.

The fault, as we have seen, is not in the soil, nor is the country overrun with inhabitants. It is, therefore, evident that the cultivation of the soil is neglected, otherwise we should be exporting agricultural products, but it is easier to show the fact, that agriculture is neglected, than to find a sufficient reason for this neglect. We apprehend, however, that it will be found to spring in a great measure, from the same causes which have produced much evil in this country, and the bitter fruits of which we are now reaping. The first and chief of these causes, is the inordinate thirst for wealth, which pervades every class of society, and induces men to abandon their legitimate business to engage in some wild, hazardous speculation, in the hope of becoming suddenly rich. It is also too often the case that the farmer becomes tired of the moderate and gradual accumulation of property by the products of his land, and leaves the cultivation of it to engage in the business of commerce or manufactures. He finds out his egregious mistake when it is too late. The property he had accumulated is often squandered and lost in consequence of his ignorance of his new business, and he again sighs for the cheerful and independent mode of life which he has abandoned, when it is out of his power to resume it. We have in our mind numberless instances of this kind, where industrious and prosperous farmers have been lured to their ruin, by being induced to lay aside the implements of husbandry, and engage in the universal scramble after sudden wealth.

There is another great error prevalent upon this subject, and that is, the business of agriculture is generally looked upon as less respectable than that of commerce, manufactures, or the professions; and wealthy farmers, instead of teaching their sons their own business, most usually transform them into merchants, lawyers, doctors, or dominies. This is all wrong. Agriculture is the very back-bone of all business, the main-spring of all wealth, and should be regarded as a profession of the highest respectability. It gives those engaged in it a feeling of independence, genuine nobleness without ostentation, honor, honesty and firmness, well calculated to perpetuate the free institutions of our happy country. The truth of the eloquent panegyrics of the ancients upon this employment may be more easily realized here, than in any other country upon earth. We confidently hope to see public opinion speedily righting itself upon this subject, and to find people seeking their permanent interests, and advancing the prosperity and glory of our wide domain, by engaging more generally in this healthful, honest and independent business.—*N. Y. Sun.*

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* Likewise with a fire, which requires, when endeavoring to get it up strong, to remain a time after every stirring, to allow of the requisite changes and combinations taking effect.

† Land should remain the longest after that ploughing which turned in the manure of a vegetable nature, but then should be well dressed with the scarifier, harrows and roll, and the dressing repeated, then ploughed up again, to air the soil, for the foul matter to escape, and to imbibe fresh. This exposure might continue for a week or two, of course depending on the weather, then the manure ploughed under again, to remain some time, and to receive the proper dressings. If any seed or corn is to be sown, let it be generally on that ploughing which turns the manure in well beneath.

[*From the Sangamo Journal.*]

Important to Farmers.

There are few of our farmers who have not witnessed the effects among cattle, of a disease known as the *mad itch.* It has sometimes carried off the most valuable stock; and all efforts to arrest the disease appeared to be useless. We think we can now lay before our stock raisers a remedy for this disease. It was discovered by Mr. David Simms, a farmer, living on Lake Fork. Considering it valuable to the public, he has handed us the annexed notice of it for publication. We would suggest to our farmers to preserve it, as it may prove of more value to them than the amount they would be required to pay for a dozen volumes of the Journal:

To the Editor of the Sangamo Journal—

The undersigned takes this method to inform the farmers and all those who raise cattle, that he has discovered a cure for the mad itch, a disease which is often fatally destructive to that species of stock. Last winter was two years, when I had four cows attacked with the above complaint, and I tried every thing I could think or hear of, to cure them, but with no good effect. This winter another of my cows took the same disease, which I discovered early one morning; and as soon as I discovered it, I gave her as much soot and salt as she would lick, and in a few hours after, I gave her from three quarters of a pound to a pound of pulverized brimstone. In the morning following, I gave her as much salts. The cow is now well, and is as hearty as any of my cattle. It is my opinion that sulpher itself will cure, or sulphur and salts given in the way prescribed. The cure was effected in about a week. The remedy operates severely for two or three days as a purge.

To those who are not acquainted with this disorder, I will inform them that it first comes on with a kind of hiccoughs or jerks at every breath. The brute jerks itself full of wind; frequently licking their sides and back; occasionally rubbing their heads; and if not stopped in five or six hours, they rub with apparent madness, and continue to swell until death takes place, which will be within about ten or twelve hours after the attack.

This cure is from experience, and I give it for the good of my fellow-citizens.

DAVID SIMMS.

Logan Co. March 15*th*, 1839.

Management of Sandy Loams, &c.

Mr. Ducket, of Surry, England, a most accomplished and successful farmer, ascribed the luxuriance of his crops to three principles, which he laid down for his guidance, and strictly adhered to. He relied, upon, 1st, deep ploughing, by means of which the roots of his plants were permitted to penetrate the earth to a depth where they found a uniform moisture, by which they were preserved in a healthful and flourishing condition, while those of his neighbors, who were *shallow* ploughers, in seasons of drought, were measurably destroyed.

In Flanders, in the Peys de Waes, where the soil was originally a barren white sand, by a sure process has been brought to a state of fertility which entitles it to be called a fruitful loam. At first it was barely scratched, being ploughed not more than ten inches deep; it was subsequently gradually deepened as it was enriched,—and it is now stated that this barren sand has been so fertilized that it bears to be entrenched to the depth of fifteen or eighteen inches. This operation is performed every seven years.

Clay soils.—All clay soils intended for spring culture should be turned up in the fall, to receive the benefit of the action of the winter's frost, which mellows and reduces it infinitely better than any treatment which man is susceptible of giving it. If very tenacious, its condition may be greatly improved by simply adding sand to it, after the ploughing, and so harrowing it as thoroughly to mix the two together. Instances of the success of this practice are numerous in Europe, and are said to have been so decidedly striking as to excite surprise. In numerous cases the advantages have been equally as great as if the clay has been heavily manured.

Milch Cows.—These animals should always, if possible, be kept where they can have free access to good water, whether ranging in the pasture or confined in the barn-yard. From experience, we hesitate not to say that having water always at hand will make a difference of 25 per cent in favor of their yield. In winter no man should pretend to keep a cow to the pail who does not provide her twice a day with either good rich slops, pumpkins or roots. How in the name of St. George can it be expected that a cow fed upon dry hay, fodder or tops, from November till April, can secrete any considerable quantity of milk; we know that there is a large quantity of nutritive matter in each of these kinds of provender; but to replenish the udder, it is necessary that some such liquids or succulent pabulum named, be daily given. No one should keep a cow to the pail who does not keep her well; humanity as well as true economy are both consulted in so doing.

Marl.—The meliorating effect of marl has been known in Europe for a long time, and clay, stone and shell marl have been severally used with decided advantage, and as our tide water regions are well supplied with each of those varieties of calcareous matter, we trust, as a beginning has been made, that wherever obtainable, our farmers will freely use it. Of this they may be certain, that nothing like permanent improvement can be effected without the use of calcareous manure of some kind. With the aid of lime, or marl in some one of its forms, with the addition of grass leys or green crops of some kind turned in, almost any soil may be pushed beyond even its primitive state of fertility.

Accumulation of Manure.—The scrapings of the road, the lanes, leaves collected from the woods, weeds from fence corners and any where else, marsh mud, fresh or salt, and indeed all vegetable or animal offal, if spread on the surface of your cow yard, becomes in a few months as good manure as stable or cow dung, for in addition to their own specific virtues, they sponge up and retain great portions of rich liquids which would otherwise be lost. All cow yards should be basin-like in form so as to prevent the escape of such liquids.—*Farmer and Gardener.*

Advantage of Manure.

We have frequently endeavored to call the attention of our readers to the subject of manures, and of applying them to the soil, but we fear that farmers in general, do not sufficiently appreciate their value. Our reason for forming this conclusion is, the prevailing inattention to the matter; although farmers are ever ready to acknowledge their conviction of the value of manure, yet we think their negligence in applying the means for procuring, preserving, and applying it to their lands, is a plain proof that its real value is not generally known.

The following short narrative is as plain a demonstration of its profitable effects as we have usually found; which, although we were not eye witness of the facts, came to us through a channel which left no doubt of their correctness.

A gentleman, somewhat inexperienced in the business of farming, sowed a piece of ground containing about twenty-one acres with wheat, at the rate of one bushel per acre, from which he obtained only twenty-one bushels, or about the quantity sown. Thinking that the result might have been owing to some unfavorable circumstance, to which a second crop might not be subjected, he again sowed the same piece of ground with a like quantity of seed, and again obtained a crop similar to the first. This latter result induced him to think that the failure in both cases, was perhaps occasioned by the exhausted state of his land; he therefore resolved to test the effect of manure, and accordingly collected what he could, and applied it to one acre of the same ground, which acre he sowed a third time, and obtained from it twenty-one bushels, or as much as the whole twenty-one acres had produced without manure.

We not unfrequently receive details of as profitable results from the application of manure as the above, and we have not a remaining doubt, but almost all exhausted land might, with proper culture, be as much or more improved; but what adds consideration to this, is the great improvement in so short a time. And it goes further to prove the utility of applying manure liberally on a small piece of ground, rather than the too common practice of scattering a small portion over a whole farm of considerable extent. Had the gentleman in this case have scattered his manure over the whole twenty-one acres, it might have yielded him more grain than he obtained from the one acre, but we must observe that it would have required twenty-one bushels of seed instead of one, and besides, a great deal more labor and expense in cultivating, which items would have greatly reduced his clear profit. This error in the most of our farmers, produces a serious drawback, and cheats them out of the greater part of their profit; if, instead of one hundred acres, they would apply the same amount of labor and other expenses on twenty-five, they would raise as much or more produce and consequently their clear profits would be greatly increased.—*Farmer's Advocate.*

Saltpetre in Meat.

Lansingburgh, N. Y. August 5, 1839.

It is a matter of regret that while so much salt meat is made and used, we have not yet acquired the proper knowledge of the best mode to prepare and preserve it; nor is it known how noxious salt meat may become by an improper use of saltpetre in the pickle or brine usually employed.

There are various modes of preserving salt meat and fish, by drying, salting, pickling, oiling, smoking, &c.; but I merely mean at present to notice some of the defects and noxious properties of our actual meat, either beef or pork.

One of the main defects appears to consist in the useless addition of saltpetre to the pickle whereby the meat often becomes sour or spoiled, and always acid and pernicious. I never could understand why this substance was added to common salt, except that it is said to make it look better. But it ought to be known that saltpetre absorbed by the meat *is nitric acid or aqua fortis, a deadly poison!* whereby our salt meat becomes unpalatable and pernicious. A slight excess of this acid renders the meat sour, or spoils it, as we say. It has been suggested to correct this by potash, which re-absorbs this excess; but this only hides the defect without neutralizing the whole poison.

Is it not surprising that we should feed and deal, as a staple of our country, with an article containing a portion of such active poison as *nitric acid?* In fact, our salt meats are *no longer meat!* They are a new pernicious substance produced by a chemical action of salt upon the flesh of animals. This flesh, when fresh, consists chiefly of *gelatine and fibrine.* Gelatine or jelly is the substance soluble in warm water, forming a broth by boiling, or becoming a jelly by concentration; while fibrine is the fibrous tough part of the meat, which cannot be dissolved, and is therefore unfit for food, while gelatine is the nutritious part of the meat.

But it is well known that salt meat and even corned beef can no longer afford a broth, and therefore the gelatine must have been changed to another substance no longer soluble, nor so nutritious, by the chemical action of salt and saltpetre. To this new substitute chemists have not yet given a name; but it is as different from meat as leather is from the hide before it is tanned by the tanbark or *tannin.*

To this chemical change in meat are to be ascribed all noxious qualities of salt meat, and the diseases to which those who feed chiefly on it become liable; sea scurvy, land scurvy, sore gums, rotten teeth, biles, ulcers, &c. which we entail on ourselves by using a kind of poisoned bad meat, which we call salt.

This important and doleful fact ought to be well known generally to all those who raise cattle, cure meat, or consume it, in order that they may correct this sad defect.

The first thing to be done is to abandon altogether the use of saltpetre in curing meat. This is indespensable, and no one who is told that aqua fortis is the produce of it, ought any longer use this poison in pickles or brines.

The best substance for it is *sugar.* A small quantity makes the meat healthier, sweeter, nicer, and quite as durable. Let this be known to all our farmers and sailors.

How to make brine for meat perfectly innocuous, is yet a desideratum. Gelatine ought to be preserved in salt meat pure and soluble, as it is broth in cakes, before any salt meat can be perfectly healthy and equal to fresh meat. But at any rate by withholding the saltpetre, we divest it of a deadly poisonous substance.

C. S. RAFINESQUE,

Prof. History and Natural Science, Elm Place.

Agricultural Warehouses.

One of the great causes which has led to the superiority of English agriculture, is to be found in the establishment of agricultural warehouses, nurseries, seed-stores, &c. in all the principle cities and villages of the kingdom, where agricultural implements of the best kinds, seeds and trees of the best quality and varieties can be obtained by all who wish them, at reasonable rates. The establishments of Loudon, and of Knight, in London, and of Lawson, and Dickens, in Edinburgh, are celebrated for the extent of their collections, the great amount of business they perform, and the acknowledged benefits they have conferred on the agricultural world. In these warehouses, seed stores and nurseries, may be found ploughs, harrows, rollers, and all the tools and implements required by the farmer and gardener; seeds of the purest and most approved varieties, and fruit and forest trees suitable for every situation. A large proportion of the farmers purchase at these stores their seed wheat, their grass seeds, &c. and by long experience, the proprietors of these establishments, knowing the kind and quality of the soil, can better apportion the kinds and quality of seed required for such lands than the cultivators themselves. So extensive and necessary has these branches of business become, that in a late number of the London Gardener's Gazette, a list of those the most distinguished are given from the principal cities and towns, amounting to no less than 800.

In the U. States, such establishments could scarcely be less useful than they have proved abroad; yet their number is very limited, compared with what we think the advancement of agriculture, and the benefit of the farmer demand. A few, however, exist, and we hope their success will be such as to cause the establishment of others at all the principal points of our country. If in every principal city or village the farmer could be certain of finding at some store or warehouse, the implements he needs, of the best kinds and quality, he would esteem it a favor, as saving him much trouble in collecting from various places the articles he wants.—And so with places for the sale of seeds and trees, which are becoming daily more useful and indispensable.

The agricultural warehouse of Mr. Breck, at Boston, the publisher of the New England Farmer, is one of the most extensive in New England, if not in the United States, and has been found of essential service to the farmers of that region. In the city of New-York, a beginning was made some years since by Mr. Fleet, then publisher of the New-York Farmer, in establishing such a warehouse, and is now carried on with spirit, and we trust success, by J. W. Weaver &c. Co. 79 Barclay-street. With the warehouse is connected a seed establishment, conducted on liberal and honorable principles, and deserving the notice and patronage of the public. At Albany, Mr. W. Thorburn, (not of Chinese tree corn memory) has added the disposal of agricultural implements to his former business as a seedsman, and is doing much to bring within the reach of farmers in that vicinity, the best implements required by the cultivator of the soil. Several minor establishments have also been opened in the state, the business of which is rapidly increasing, and the benefits of which are every year more clearly felt and acknowledged. Among the seed stores of the state, the Rochester one holds a distinguished place for extent and usefulness, and the new arrangements of Mr. Bateham will doubtless give it greater efficiency and activity, and consequently diffuse its benefits more extensively through the district.

We always hail the establishment of nurseries of fruit or forest trees, warehouses for the sale of agricultural implements, and seed stores for the dissemination of seeds of good quality, and many varieties, as an omen of good to the country; as a proof that the spirit of inquiry and observation is awake, and that our farmers are beginning to appreciate the difference that exist between implements of the same name, and seeds of the same variety. Good tools, and good seeds, are indispensable to good farming, and this should be understood and practised upon by the farmer. A choice of seed will not unfrequently make a difference of one-third, or even more, in a crop of wheat or corn, and in nothing do farmers err more frequently than in sowing an impure, heterogenous mass called grass seeds, but in reality made up of all manner of foul stuff for grass seed, thus propagating and perpetuating various nuisances on their farms. We say, let warehouses and seed stores be well patronized so long as they furnish good tools and pure seeds. The country reaps the benefit.—*Genesee Farmer.*

Care of Farming Tools.

We believe it may safely be asserted, that the farmer in a course of years sustains as much loss, or is put to as much expense in procuring tools, by their decay in consequence of needless exposure, as from their actual wear on the farm. How many are the instances in which the farming implements, the ploughs, harrows, roller, &c. instead of being carefully housed when their use for the year is over, are left in the fields, or peradventure drawn up in battle array in front of the house, occupying a goodly portion of the road, and when covered with snow, forming most convenient places for breaking horses legs, tearing off shoes, &c. &c. Perhaps, in addition to these, are sundry wagons, carts, hay-racks, and other necessary things, like the former, exposed to the decay which must result from exposure to the rains, the freezings, thaws and snows of winter. Now, one such season of exposure does more to weaken the wood of these implements, promote decay, and render new purchases needful, than their ordinary wear on the farm, with careful usage and protection from the weather. As a general rule, it may be remarked that no implement, tool or carriage of any kind should be exposed when not in use. Those not wanted in the winter should be secured from the weather during that time; and so with those not required during the summer season, as sleighs, sleds, &c. The skillful, thrifty farmer is known by his attention to the minor points of agriculture, by his care to save, as well as to acquire; and he who neglects the lesser things cannot fail to find the drawback on his profits large and constant.—*Ib.*

Women Milking.

Thirty years ago it would have been almost as difficult to find a man milking as to find a woman mowing, excepting in cases of very large dairies. In this respect matters are greatly changed; and any hope, for aught we see, of getting back to the old practice, would be vain. Half of the young girls now-a-days hardly know, at least they would pretend that it would be immodest and not at all lady-like to be presumed to know, whether the milk comes from the udder or the horns. "The rosy milk-maid," the title of a song which we remember to have often heard when a boy, is an animal not known in modern natural history; and as to a young lady with thick shoes, a checquered apron, her sleeves turned up, and a handkerchief tied over her head, though the apron should be clean and the handkerchief as white as snow, and never so pretty a pair of black eyes and ruddy cheeks peeping out from under it, it would be an idea too shocking for one of your modern exquisites even to dream of; and if presented to her abruptly, while looking in the glass her *mousseline de laines,* with her satin shoes, her gilt hair-comb, her paste earrings and her insect waist, as crooked as the limb of a scrub-oak, she would probably not recover from the fright for a week.

We say we have no hope of recovering the good old habits of former days. Revolutions never go back.—Yet in this respect we have lost a great deal. Men are seldom neat enough in their habits to be trusted with milking. They have not the patience to wash their hands or to wash the udder before milking. They are not gentle, and often abuse the animal by their kicks and thumps. They are in a hurry in the morning to get through a business which they dislike; and they come home tired at night; the cows are necessarily milked at an unseasonable hour, and the business is very often very badly performed. Women, on the other hand, are more patient, more gentle, more faithful, more neat, and we were about to say—they ought to do the milking. The morning air would be bracing to their muscles, (if the modern girls have any muscles, for there begins to be a reasonable doubt in this matter,) and the odor of the cow has been long known to be, and is often recommended by physicians as medical. But we will not say what we were disposed to say, because it would be useless. It is utterly vain to attempt a contest with fashion; for according to Franklin's proverb, "he that spits against the wind, spits in his own face." We must, however, be just; and in riding through Dedham last week at the close of the day, it was quite refreshing to see in at least four cow yards, woman in her appropriate sphere; and by her pleasant looks and her gentle conduct as she sat at the side of the bountiful cow, evincing her gratitude to Providence for this richest of all the benefactors which Heaven has given to man in the form of a quadruped.—*New-England Farmer.*

Bringing Cattle to the Barn.

The 20th of November is universally understood throughout New-England as the close of the season of pasturage, and the time for bringing our cattle and live stock to the barn. Sheep may be left out as long as the ground remains bare; but it is believed to be bad management to leave cattle out after severe frosts come; and especially in storms of sleet and snow. Fat cattle in the fatting districts are tied up to be fed and turned into the yards at night. In this case the yards are well littered and a dry place is always furnished for the cattle to rest upon. For young cattle, well protected yards and open sheds with a southern aspect, are to be preferred to close and warm barns. For milch cows, however, stables which are dry, warm, but well ventilated and well littered, and kept thoroughly clean, should be provided, and these animals should never be exposed to cold rains or storms, or winds, which make them shiver and become restless; and of course cannot fail to diminish their milk. They should be well fed, and carefully curried, and treated always with gentleness and unvarying kindness. It is impossible to reconcile the careless, slovenly, neglectful, and we may add, inhuman manner with which these useful and beneficent animals are commonly treated, with any just regard to the farmer's own interest or even with the principles of common justice.—*New-England Farmer.*

Foreign Agricultural Extracts.

[*From the London Farmer's Magazine.*]

On Farm Manure.

To the Editor of the Farmer's Magazine.

SIR—It cannot be expected, while men differ upon every subject in religion, morals, and politics that there should be a perfect uniformity of judgment in the leading divisions of agriculture. The constitution of our moral powers leads to differences of opinion—this difference arises from education, prejudice, habit, and indolence; the dropping of water, however, at last wears a stone; and seeing how many impediments stand in the way of improvement, we must not be discouraged by the slow advances which have, as yet, been made in agriculture. It must be admitted also that many farmers are so limited in their capital as to be, in a great degree, unable to try costly experiments or to undertake considerable improvement; but *all* of them are interested in the collection and distribution of their MANURE, and *all* of them have the means of attending to these important duties.

We have abundant proof of the vast benefits which a persevering desire of improvement has already bestowed; look at the various breeds of sheep! examine our celebrated specimens of stock! inspect the beautiful prize animal presented as the frontispiece to your last number! behold also the rich verdure and abundant crops which cover the valleys and mountains, fructified and improved by various modes of management and by various systems of cropping! Many deserts have been made to blossom and smile; many fields are now waving with golden-eared wheat which, but few years back, were worthless sheep-walks. It would confer a great obligation on the writer if some one of your correspondents would tell us the number of the millions of soughing tiles, buried under the surface of our lands, in order to drain and improve them. Nor ought we to overlook the various modes of artificial management now directed to general improvement by bones, rape-dust, salt, gypsum, &c. The agency of chemistry has, moreover, been solicited, and *she* is now giving to us the aid of her secret labratory. Within the memory of man scarcely a single acre of wheat was grown in Scotland; "oats full of thistles was the standard crop." Nor can any contrast be more striking than the well cultivated fields, at present heheld in our country, as compared with the cold, wet, and barren sterility which pervaded it formerly. Now the great agent in preparing this abundance is MANURE. It is therefore, well worthy of the farmer's inquiry, how far the influence of this great agent can be extended? How the quantity can be increased, and how that quantity may be rendered more effective as to production?

These remarks must be understood as applying to those lands which are under plough. It is hardly worth while to stop to inquire into the secrets of the causes of the exhaustion which land, in common with animal existence, sustains by continued exertion—it is a law of nature. I admit, however, that if the discovery of the cause could lead us either to *prevent* or to *retrieve* the diminution of strength, the inquiry might confer upon us a benefit; it is, moreover, an undoubted fact, that the rotation of crops *has* a tendency to lessen the inconvenience now referred to. There is some plausability in the doctrine of M. de Candolle, who maintains that the roots of plants eject certain excrementary matter which cannot be elaborated into the support and nourishment of the plant itself. This fact seems in conformity with the regular process of animal existence, in the elaboration of food necessary for support; and the wisdom of the Creator appears more than abundantly proved in the provision thus happily made for universal reproduction. It is, however, left to our own judgment and skill to make this law as beneficial as possible, and it is working along with an established law of nature, when we regulate and apply most efficiently the means of growth and fructification bestowed upon us by this excremental process, directed and distinguished by wisdom and goodness; it is, therefore, in analogy with an established system, when we conclude that the matter ejected from the roots of one crop may provide a stimulant for its successor. The mysterious cycle of decay and reproduction being in ceaseless movement through the whole range of creation.

In considering the subject of FARM MANURE, there are two matters which prominently belong to it, and to which I trust your readers will direct their attention.

First, as to quality.

Secondly, as to quantity.

The time is past and the doctrine also, in which it was maintained, that upon ordinary lands, a crop of wheat might be grown continuously without manure.—The process of fermentation and putrefaction is always at work in order to provide the food of plants, on which depends the support of all terrene animals, and as just noticed above, the wise provision made, for the beneficial action of decomposed matter in the work of reproduction, proclaims the wisdom of the process.

Let us, therefore, inquire, first, how the *quality* of manure may be improved and made most efficacious? The foundation of the farmer's management must primarily cousist of the straw consumed in his fold yard, and which in the first place supplies winter food for his stock—The more of this food therefore which undergoes the process of digestion, the better it is for his manure; the prominent duty of the farmer is, therefore, to keep *a quantity of stock in proportion to his quantity of food.* By this means he secures not only the profit upon his improving stock, but the profit also upon his improved manure; this mode conduces to the most profitable employment of the farmer's capital, and should, therefore, as far as practicable, be put into use; but *without* neglecting the subsidiary aid occasionally derived from the mere treading down of straw in the yard where it is exceedingly plentiful.

The next agent in the improvement under consideration will be found in the use of every *other* attainable variety of food in the farm-yard, such as turnips, oil-cake, beet-root, rape-dust, linseed, &c. &c. the better the food the better the manure heap; the more food taken to the fold yard to be consumed there, *in addition to the straw,* the more valuable will be the manure. It is now an ascertained fact that animals thrive much more rapidly when sheltered from the winter's blast. Mr. Handley, M. P. read a paper of Mr. Childers on the "Shed feeding of Sheep" at the late Oxford meeting, in which it was stated that an experiment had been made by the author which produced the following results. A score of hogs were fed equally upon turnips, linseed, &c. in a shed, with a score of the *same* weight which were fed on the *same* food in the field. From the 1st of January to the 1st of April, those which were fed at home, gained 19 stone 12 lbs. over those which were fed in the field, which is about a stone each per head. Those persons, however, who are in the habit of growing a pretty good quantity of Swede turnips, will always be in the possession of an exceedingly cheap, nutritious, and profitable food for the fold yard. No plant yields so abundant a supply either in the field or in the farm-yard as the Swede turnip.

The third regulation I recommend for the improving of the quality of manure, consists in the mixing of all the produce of the farm-yard together, the pig-stye, the stable, the dove-cote, and the feeding-shed must all contribute their respective quota of manure. The several products ought to be thoroughly mixed together, and if led out previously to the heap being applied to the crop, let such *other* supplies of night soil, rape-dust, ashes, &c. as are within the farmer's reach, be added thereto and mixed therewith, and then finally let a four inch coat of fresh soil be placed thereon as a covering to prevent evaporation till it is called into use.

The next matter to be attended to is the collecting in cisterns all the urine from the stables and feeding-sheds. About every ten days this should be pumped up and carefully dispersed all over the heap by means of a coarse watering pan. The ammonia (*hartshorn*) which is a constituent principle of urine, supplies a powerful stimulant in the process of vegetable growth, it ought to be carefully collected and dilligently applied, so as that it may percolate through the whole mass while accumulating in the yard.

Fifthly, the heap ought to be kept entirely free from any weeds whatever, the seeds thereof being almost indestructible. There ought to be channels, also, for the conveying away of all the rain water falling from the roofs of the surrounding buildings. The urine of the stock, together with the rain which falls upon the surface, will supply sufficient moisture; an additional supply will only tend to the impoverishment of the compost.

These several methods suggested for the improvement of FARM MANURE are recommended to the attention of your readers. So much space has already been consumed that we must leave that part of the subject relating to the *quantity* of manure for a future number. These suggestions are confined to those ordinary means which fall within the reach of the practical farmer, in order that they may be more generally useful.

When it is considered how much the productiveness of our farms depends upon the manure heap, and how much this matter is at times neglected, a few thoughts will not, I trust, be unacceptable which have for their object its improvement; and although familiar to most of your readers, if they should stimulate any person to apply them, who have hitherto neglected to do so, the object in writing them will be attained.

I am your obedient servant,
RICHARD HOPPER.
Papperwick, Nottinghamshire, Sept. 10.

Structure and Functions of Plants.

The cultivation of the various agricultural plants is by far the most important of the labors of the husbandman. The spontaneous productions of the earth are only suffient for satisfying the wants of man in a rude state of society: but as civilization advances, a taste for the comforts and luxuries of life is manifested in a greater degree, and the cultivation of the soil becomes important, in order to produce a greater quantity of vegetable food, and that, also, of a superior quality.

A knowledge of the structure and functions of plants is of the first importance, as laying the foundation of an economical system of culture. The necessity of becoming acquainted with the various phenomena of the vegetable economy is apparent; in order that the cultivator may avail himself of the great influence exercised, by human agency, over the productions of the vegetable kingdom, to the greatest extent. Apart from any considerations of profit, the study of the vegetative process affords greater pleasure than that of any other branch of natural science. But, if we can influence a seed so much, that, instead of growing up into a useless, stinted stalk, fit only for the herbarium of a botanist, it shall spring up luxuriantly, and send forth such a profusion of stems as to form a little sheaf of corn; or, expand its roots, which may be naturally hard and useless, into a large esculent mass, weighing many pounds; and, if we can do all this without knowing more than the means we have employed, might we not anticipate still greater and more wonderful effects, were we acquainted with the processes of the vegetable economy, by which such happy results were obtained? We should then be able to know what it is in our culture that has aided, and if there be any thing in it that has obstructed the processes of nature.

The importance of acquiring a certain knowledge of vegetable physiology cannot be pressed too much upon the attention of the cultivator. By means of selecting and improving the varieties of plants, the produce of our gardens and fields is not only increased in a ten-fold degree, but the *quality* of the produce is increased in a still greater proportion. The rose is the offspring of cultivation; the original plant, from which all our beautiful varieties have proceeded, is considered by botanists, to be the common wild brier. Our plums are cultivated descendants of the sloe; the delicious apples, whose species may be reckoned by hundreds, are the cultivated successors of the small, austere crabs; and our cauliflowers, cabbages, and other esculent vegetables, may be regarded as almost artificial products, so much has human skill had to do in their production.—Here the labor and assiduity of man are seen triumphing over the sterility of unassisted nature, and succeeding in bringing forth a race of beings calculated to supply his wants in a manner that the original species never could have done.

If the faculty of increasing the stores which Nature has already provided for his support, raises a man above the brute, that of adding new productions to those in existence, raises him above his fellow; and few subjects of contemplation can be more gratifying, or more elevating to a reflective mind, than this power as it were of creation, granted to his intelligence and industry.—Nor is it necessary to its enjoyment, that we should be either botanists or natural philosophers; or that we should devote more than occasional leisure hours to the pursuit. So boundless, indeed, is the scope which it affords for experiment, that it is in the power of any one, possessed of the smallest garden, and the least acquaintance with the principles of culture, so to improve the qualities of its products, as to add something to the common stock; while the farmer, who will take the pains to mark the progress of his crops, and to select from them the most productive ears of corn, and the finest roots and grasses for seed, may, by perseverance in such a plan, not only acquire wealth for himself, but confer an inestimable benefit on his country.—*Ib.*

The Rohan Potato.

Some time ago we directed the attention of our readers to a potato which the Prince of Rohan had introduced into culture in the neighborhood of Geneva, and which promised to yield very great returns. Since then it has received the attention of the agriculturists of Germany and France, who are not so much farmers as proprietors and scientific experimentalists, of whom there are many more of the latter class on the Continent than in this country, where scientific men will scarcely condescend to make experiments in the open fields. This potato has as yet attracted little or no attention in this country amongst farmers, and therefore we can give no account of any trials that may have been made of it here; but as it appears to yield large returns compared with many of the sorts in common cultivation, and though it seems a rather coarse potato for the table, it may prove useful in some districts for fattening live-stock. We shall communicate the latest intelligence in regard to the mode of its culture abroad on a small scale, no trials having yet been made in the open field.

The first experiments we shall relate are those of Viscount de Saint-Geniez, whose experience enables him to state that the Rohan potato is of a kind which has a strong tendency to grow above the ground, and, on that account, requires great earthing up all round about it, and, of course, it should only be set in ground deep enough to admit of earthing up.

"Towards the end of March of this year, 1837," says the Viscount, "I chose a large square bed in my kitchen-garden, equal to a good quarter of an arpent (1½ arpent = 1 acre,) which was made fine without dung. I formed lines of holes, east and west, at 3 feet apart every way, of 6 inches in depth. I divided the ground into three portions, north and south, and, of course, all having the same exposure. I then placed the sets of potato cut diamond-shaped, having each from one to three eyes, (dried for thirty-six hours on the side of the trench) into the holes, and covered them up with three inches of earth. Four weeks after, the stems began to appear, and, in a few days, they were above ground, which obliged me to fill up the holes. The stems growing tall, I tried this experiment with them: The first division was well earthed up all around, and a stout support placed at each mound of earth. The second was earthed up to the south, according to the advice of the Count de Turrenne, but had no supports. The third was cultivated as a kind of potato is cultivated at Roville, by that eminent agriculturist M. Dombasle, simply by letting the earth alone without earthing up and supports.

"I took up the potatoes on the 25th of November, and obtained these results: In the first division, with the plants earthed up all round, and with supports for the stems, which grew to the height of 6 feet, and the tubers weighing generally 4½ lb. 4 lb. 3 lb. and 2 lb. each, the crop weighed,…………………… 548 lb.

"In the second division, earthed up on the south and without supports, the tubers weighing 3 lb. 2 lb. and 1 lb. the crop was,…….. 364½ —

"In the third division without earthing up, and the ground left without any care but that of weeding, the potatoes being smaller than any of the above, the crop was,………… 318 —

Total produce,….. ……1,230½ lb.

"These 1230½ lb. raised on a quarter of an arpent, were produced from 30 lb. of sets, which gives an increase of 40-fold, which might have been raised to 60-fold if I had not made experiments contrary to the nature of this new kind of potato."

The Viscount comes to the conclusion, from the experience of the culture of the Rohan potato for two years, that earthing up largely is indispensable; that supports are necessary in a cold country, as a facility to the heat to penetrate to the tubers; but that supports are less necessary in a warm climate, as the creeping stems preserve the tubers from the great heat, and prevent, by their coolness, the mounds from cracking. It remains to be seen whether the same success will attend the culture of this potato in the open field, and earthed up with the plough, which the Viscount proposes to put to the proof.*

The next experiments which we shall relate, are those made by M. Pergot, at Rudt near Port-sur-Soane.—They are also on a small scale, but M. Pergot proposes to try the field-culture in the ensuing year.

"On the 20th April, 1837," says M. Pergot, "I planted, in holes 6 inches in depth and 2 feet asunder every way, 37 lb. of tubers, divided into sets having one or two eyes, and covered over with three inches of earth. The soil was sandy, and the space covered was 4.032 *ares* (an are being a square of 22 feet.) Three modes of culture were adopted; the first was just to fill the holes with earth the two others suitably earthed up. On the same day I planted, in the same manner, 187 lb. in a light soil of medium quality, covering a surface of 16.050 ares. They received the same culture as the preceding, but only there were no props to the stems which being 5 or 6 feet in length, covered the ground. They all flowered, what I had not seen since I began their culture three years ago. Yielding to the requests of several cultivators who adhere to erroneous practice, I planted 12 tubers entire, of the thickness of a turkey egg, and they have given me the worse produce, the largest not weighing 2 lb. The fear of frost determined me on taking up the crop on the 10th October, and I obtained

from the first field,………………………. 1,080 lb.
from the second,…………………………. 12,810 —

In all,……………… 13,890 lb.

or 62-fold. Most of the tubers weighed from 2 lb. to 5 lb. It is highly probable that they would have attained greater bulk, if I had not taken them up so soon, and if the stems had not been damaged by the hail which fell in the month of August."†

The peculiar result of these experiments seem to be, that the produce of 1080 lb. from 37 lb. of sets is only 29-fold, whereas the 12,810 lb. after 187 lb. of sets give 68½ fold the, average of the two being 48½ fold. The largest produce in these experiments was derived without support to the stems, whereas the results of Viscount de Saint-Geniez's experiments, given above, are quite the contrary.

The experiments of Vis. Morel-Vinde in some respects confirm those of M. Pergot, in reference to the largest produce being obtained without props to the stems, in the ratio of 58 bushels to 63 bushels per 2 1-6 perches of 22 feet square. Vis. Morel-Vinde, in the end of March, 1837, put into a good and light soil, not recently dunged, labored with the spade, containing 26 perches, divided into 12 equal parts of 2 1-6 perches, sets of two eyes at two feet apart each way; and each division was cultivated in a somewhat different manner, varying in the matter of props, and the number of hoeings and earthings up. The result from the whole was 666 bushels of potatoes from 26 perches of 22 feet square each; and, as the sets filled 20 bushels, the produce was 33 fold. A common kind of potato, yellow and round, and of less size, though more productive than others in its neighborhood, was planted at the same time with the Rohan; and its produce, in the best circumstances, was only 250 bushels from the 26 perches, or 12½-fold.

The remarks of Vis. Morel-Vinde on the nature of the Rohan, are valuable, and, in perusing them, the best method of cultivating it may also be learned.

"1. The Rohan potato," he says, "keeps together its tubers round the foot of its stem, and this property permits its being earthed up as much as desired.

"2. It produces its tubers so near the surface of the earth, that, without earthing up, many of them would show themselves above ground, assume a green color, and exhibit a great want of maturity. This property shows the absolute necessity of a large earthing up.

"3. This potato has need of moisture being preserved around the foot of the stem, the elevated position of the tubers exposing them the more to drought. It is this property which renders it indispensable to allow its large leaves to remain on the ground for the sake of the shade afforded by them.

"4. It carries flowers on almost all the stems, but it bears no apples, which may be explained from the circumstance of the large size of the tubers. The tendency of the sap constantly towards the tubers absorbs the elements necessary to the formation of apples, and deprives the plant of this mode of propagation.

"5. To form and ripen the large tubers, it requires to be a long time in the earth. It ought thus to be the first planted and the last taken up.

"6. I shall now speak of the quality of this potato, that varying according to the nature of the ground, and as often from different tastes; but at Celle Saint-Cloud I have subjected it to various cooking and culinary processes. I have had it tasted by great amateurs of the potato; and, if its quality is not superior to several fine and more succulent kinds, it is found at least to be of a good taste, sufficiently mealy, and superior to most of the kinds employed in feeding cattle or making starch."*
—*Edinburgh Quarterly Jour. of Agriculture.*

Fattening of Swine.

M. Bengtrapp mentions, in his work on the fattening of swine, several experiments which serve to shew the fattening powers of boiled carrots, potatoes, and some others. He brought up separately five couples of pigs, and obtained, after a certain length of time, the following results:

Couples.	Food.		Increase of Weight.	
1st got	55 decalitres†	of peas,………	22 st.	7 lb.
2d "	283 "	balls of wheat,	24	3
3d "	96 "	buckwheat,…	26	10
4th "	98 "	boiled potatoes,	20	4
5th "	175 "	boiled carrots,	28	2

These results of the experiment are unsatisfactory; because it is not mentioned whether the pigs were all of the same age and weight, nor is it stated whether the quantity of food marked in the table was as much as the pigs could consume. We have always believed that peas were the most nutritious food that could be given to pigs, and this experiment confirms the belief, as may be seen on comparing the relative increase of weight obtained from the various kinds of food: viz. 55 decalitres of peas gave an increase of 22 stones 7 lb. or nearly 6 lb. of increase of pork from 1 decalitre of peas; whereas. from boiled carrots, 28 stones 2 lb. of increase were only obtained from 175 decalitres, or about 2⅓ lb. from 1 decalitre, giving the advantage over the peas in the ratio of 2½: 1. The next most nourishing food is buckwheat, which nearly gives 4 lb. of pork from 1 decalitre. Boiled potatoes are next, giving nearly 3 lb. of pork from 1 decalitre. And the lowest quantity of pork obtained was from the balls of wheat, which is as low as 1 1-5 lb. from 1 decalitre. Flour would, no doubt, fatten better than wheat, especially if the feeds were made into small dry balls of dough and frequently administered, but better still, if made into bread of flour ground overhead.—*Ib.*

Profit from Thorough-Draining.

A farmer in Lanarkshire, whose name we are not at liberty to use, tried the effects of thorough-draining on a small field of four acres. Two acres of this field were drained in every furrow, the subsoil being retentive, but the upper soil was favorable to the growth of green crops. The other half was allowed to remain undrained, as the whole had been until the winter of 1837. In spring 1838, the whole field was worked for, and planted with potatoes. The potatoes were sold, and the result was, that the thorough-drained half yieded £45 an acre, whilst the undrained only realized £13 an acre. The drained land thus yielded about three and one-half times the undrained; and, supposing that the draining cost, at the utmost stretch, £10 an acre, the first crop, notwithstanding, not only repaid that cost, but left £22 an acre more than the whole crop per acre of the undrained land. What an encouragement does this simple fact and single instance of profit hold out to farmers to spare no expense and indulge in no hesitation in thorough-draining retentive-bottomed land? Although £45 an acre is a very large sum to obtain for an acre of potatoes, yet the crop was generally very deficient last year, and *good* potatoes were very scarce; but it must not be supposed that that amount was all profit, for the expenses of raising and driving the crop to market fall to be deducted from the value of the gross produce; still, £45 and £13 give the relative values of produce obtained from drained and undrained land. It is worthy of remark, that draining renders strong soil capable of raising a large green crop even in a wet season, whilst soil, in want of draining, is comparatively materially injured in a wet season. It is obvious that the soil here spoken of only required draining, to render it eminently qualified to raise green crops; and there is abundance of such soil in the country.—*Edinburgh Q. J. of Agriculture.*

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* Le Cultivateur for January, 1833.
† Id. for April, 1838.

* Le Cultivateur for March, 1838.
† A decalitre is equal to 15 pints.

Mode of Ascertaining the Milking Properties of Cows.

The French Agricultural Societies have been lately occupied in investigating the pretensions of a M. Guenon, who asserts that he can, by means of certain outward marks common to every cow, at once declare what quantity of milk she gives, of what quality it may be, and how long it will last after calving. In a late number of the *Annales de l'Agriculture Francaise*, we find the particulars of a report made to the Society of Agriculture at Rosoy, on an examination which took place of M. Guenon's system. The application of his plan was tried in the dairy of one of the chief proprietors of the place. It appears by the report, that out of 30 cows submitted to his examination, 25 were perfectly well described as to their milking qualities, and in the other 5, the differences from the truth were of such a nature, as to leave room for doubting whether they were not apparent rather than real differences. In two cases only was M. Guenon altogether in error. Afterwards, 20 milking cows were brought under his notice, and, in thirteen cases, his declarations agreed perfectly with those of the steward of the farm; three of the others to which he had attributed a greater quantity of milk than they really produced, were declared to have diminished from age, for which he, having made the examination with great rapidity, had not made any allowance.—With respect to two others, the steward was not able to declare positively as to the produce which they gave; for the other two, there were several quarts difference from the quantity named by M. Guenon.

In making his examination, M. Guenon more than once declared, that when he was required to name the quantity of milk exactly in measure, it might occur that his declaration was less than that which the animal produced, but that if the whole of the judgments which he gave were compared, it would be found that the relative proportions held good throughout the whole dairy. Besides, he does not maintain that he may not sometimes be in error; he thinks that it arises from the imperfect mode of applying the system, and not from the system itself. A circumstance occurred on this occasion, which serves to confirm the certainty of M. Guenon's judgment. He had to examine in a stable apart two heifers, of whose mothers he knew nothing: he declared that they ought to give certain quantities of milk, differing altogether from each other other, but agreeing perfectly with the nature of their mothers. An individual, not belonging to the farm, asked permission to bring in a cow whose produce he knew perfectly well, and of which he named beforehand, the quantity of milk, its continuance, and its quality. M. Guenon's account agreed in all parts with the person's statement. M. Guenon was afterwards taken to the farm of M. Gibert, and five cows were submitted to his examination. He was perfectly correct as to the quantity of milk they gave, and its duration; as to its quality, the servant who was in charge of the place, could not declare any thing with certainty. Amongst these cows was one which was an exceedingly bad milker; on her appearing M. Guenon uttered some exclamations on her beauty. The persons present thought he was on the point of making some mistake. On examining her nearer, he at once declared her not equal by half in produce to the rest, and retaining her milk for five months only. In both respects he was perfectly correct.

The following article appeared in the *Gardener's Gazette* of the 4th May last, which gives an account of the discovery of M. Guenon's, as far as it has been made known.

MODE OF JUDGING OF THE MILKING QUALITIES OF COWS.

The Minister of Public Works and Agriculture in France, was lately applied to by a M. Guenon, a landowner at Libourne, respecting a new method which he had discovered for classing the cows of every description, according to the quantity of milk which they can give per day, the quality of their produce, and the time they can keep it. The minister requested the Society of Agriculture to take charge of the necessary experiments to test the value of the discovery; and, in consequence, certain members were appointed to investigate the matter. M. Guenon, previous to his arrival at Paris, tried to obtain a remunerating number of subscribers to a pamphlet of his, containing full particulars of his discovery. When the total of the subscribed sums would amount to what he thought a sufficient reward for his secret, he proposed to send each subscriber a copy. This work he shewed at once to the gentlemen appointed by the society. In their report, they allude to the work, but very cautiously abstain from disclosing the mode of M. Guenon's procedure. They presented lately a report of what they did, from which we gain the following information:

M. Guenon's declaration goes so far as to assert that he can decide respecting the quality as well as the quantity of the milk. He asserts, besides, that his system applies to calves, no matter how young; so that, from examining one of the bovine race, he can predict with certainty the qualities which the animal, whether male or female, must be marked by. This part of his plan could not be tested, as it demands an examination extending to several years. M. Guenon gave an opinion before the gentlemen appointed by the society to act as a committee, on 149 cows giving milk, on 17 bulls and male calves, and 30 females. The whole experiments lasted four days. It would appear from the terms of the report, that M. Guenon, in deciding on the quantity of milk in those cases, only approximated, but did not often hit on the exact number of quarts. Out of the 149 cases, only 21 were exactly corresponding with the declarations of the owners of the cows. Also, in speaking of the time during which the cow holds her milk before calving, M. Guenon was seldom exact; the most he did was to come near the mark. On 2,573 quarts of milk given in three dairies, he was wrong in 514, or a fifth of the whole. The committee declare that the characters which serve as the foundation of the system are easy to be understood. The only fault they find is in the number of divisions and subdivisions which his system includes. First of all, he makes eight classes, and to each of these, the mark which serves as a guiding star may be varied frequently, according to the age and form of the animal. This gives eight subdivisions to each, which at once gives sixty-four different orders.—Again, in each of these there are three degrees, according to the age of the cows; so that we have thus 192 different kinds. But, omitting this drawback, it must be acknowledged that the character which directs him, and which is common to the whole of the race, must be considered of some value. He was incorrect in several instances, no doubt; but his method of deciding is new, and may be carried much farther. The sign by which he judges has been altogether unperceived up to the present time. In theory, it is such as may be admitted; and the presumption is, that it is of some value.

M. Guenon's discovery is applicable to every country, and the publication of his pamphlet is the only means of ascertaining (by a number of persons observing closely at the same time in different places) whether the method is as valuable as he asserts. One thing is certain, that he appears convinced that the principle upon which he judges is unerring. He acted most fairly and openly before the commission, and secured the approbation of each and all by his straightforward conduct. Their report may be thus summed up:—That the discoverer did not prove all he asserted, but the subject was worthy of further investigation. In pointing out bad milkers, M. Guenon was mistaken only in one instance, and then by omission rather than false declaration. At Rambouillet, there was one bad milker in the number, and that he pointed out at once; and at Alfort one which gave infinitely less milk than the rest was instantly discovered. The commission also declare that the mark by which he judges can be used approximately, in every form and every age.*—*Ib.*

Crossing the Musmon with the Sheep.

The Edinburg Quarterly Journal of Agriculture, says—"It is known that many naturalists, amongst others Cuvier, have presumed that the Musmon of Corsica (*Ovis Musmon*†) may be the stock from whence our domestic sheep have sprung. On this supposition, it would be a curious thing to ascertain if a reconcilement could be made between the wild and domesticated races of so useful an animal as the sheep."

"To attain this object, M. Durieu, receiver-general of the finances at Carcassonne," says M. Marcel de Serres, "has imported musmons from Corsica, and when a female of them has been in season, she has been put to a merino ram. These two animals, deprived of their liberty, and coupled, have produced a female cross, which was much more like the sire than the dam (that is the merino than the musmon). Indeed, this hybrid was no longer covered over with course reddish hairs, such as those which characterize the musmon; but only whitish wool scattered singly and at intervals among the coarse hairs.

"This female cross was then put to a pure musmon ram, and the produce obtained resembled, this time, much more the sire than the dam, (that is, the musmon than the merino). It was reddish coloured like the musmon, and bore only some woolly patches mixed among the reddish hairs, principally upon the neck. This produce was a male.

"This new cross was put to a female merino, and from that union resulted this time an individual of the male sex, which retained all the characters of its dam. Like her, he was covered with thick enough wool, through which were scattered here and there, reddish hairs, that reminded of its origin.

In all these crosses, obtained as we have stated, the limbs remained always naked, without wool as without hair, and it was the same with the under part of the body. The limbs were remarkable for strength, thickness, and vigor. Their habits also retained those of the musmons; at least those wild, savage crosses do not walk with a proper step, but almost always bound or leap. They also climb with as much ease as dexterity, and, when pursued, dart forward with nimbleness, and readily and quickly fall again upon their four feet.

"Such attempts at crossing are continued in order to ascertain the certainty of the crosses being prolific, and if they can be led back to a fixed type, whether to that of the musmon or the sheep. Those researches have another object, and that is, to ascertain, by means of crossings, whether the middling size of the merino can be enlarged, and a greater quantity of wool obtained.

"We may mention, that every attempt has been made to cross the he-goat in season, deprived of its liberty, with the female musmon in the same state, but every such attempt to overcome the aversion which they shew for each other has failed.

"It seems to result from these facts, that it is not always possible to triumph over the repugnance which different species feel against mutual crossing; and since the musmon and sheep do cross with one another, it is probable that both belong to one and the same species."—*Comptes Rendus, 15th October*, 1838.

Poudrette and Farm-Yard Manure.

M. Hermbstädt gives, in the monthly journal of the Economical Society of Potsdam, these as the results of his experiments instituted with the view of ascertaining the comparative fertilizing powers of farm-yard manure and poudrette, one of the new compound manures made in France, it is supposed, principally of night-soil.—*Ed. Q. J. Ag.*

"1. Poudrette is a perfect substitute for common dung, whether with respect to price or quality. 2. Its favorable effects essentially depend on the moisture of the season. 3. In dry years it is less efficacious upon sandy soils than upon very greasy or medium clays. 4. It is particularly suitable to very greasy clays. 5. By virtue of the lime and ammonia which it contains, it quickens and developes the inert humus, and the humic acid which often accumulates in the soil. 6. The poudrette combined with organic matter, or in the state it is actually made, is a powerful means of rendering clay land friable."—*Le Cultivateur for August*, 1838.

Extraordinary Crop.

We are informed that George C. Harness, Esq. of Hardy county, raised the past season, from *one acre of ground*, one hundred and seventy-eight bushels of corn. Mr. H. cultivated the same with a view for a premium at the approaching Agricultural Exhibition of Hardy county, and the husking and measuring of the corn was attended to by a disinterested, intelligent, and highly respectable citizen of Moorefield. This is the most extraordinary yield, from one acre of ground, that we have ever heard of. Truly, may the South Branch Bottoms, be termed the "garden spots of the Union."—*Romney Intelligencer.*

The Late Jesse Buel.

The following resolutions were unanimously adopted by the Northanna Agricultural Association, at its first meeting after the death of the late J. Buel, Esq. They would have been transmitted sooner for publication, but it was not known until the last number of the Cultivator was received, that the paper would be continued.

Resolved, That the public spirited, able and successful exertions of J. Buel, the late Editor of the Cultivator, to improve the agriculture of the country, have merited the highest praise, and entitled him to the gratitude of every friend of agriculture, and that this association deplores his death as a public loss.

Resolved, As a testimonial of the estimation in which we held him, and of our regret for his loss, that these resolutions be transmitted to the Cultivator, and the Farmers' Register, for publication.

W. HOLLADAY, *Sec'y.*
Spottsylvania co. Va. Nov. 18, 1839.

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* Horticultural Journal for July, 1839.

† "This sheep, now, we may say, so comparatively little known, inhabits the mountainous wilds of Corsica and Sardinia, and has there only to contend against man as its enemy, no large carnivorous animals existing which would carry destruction among its herds; and it is to this circumstance probably that these islands are indebted to the remnant of the flocks which appear to have formerly existed among the mountains of Spain, and some neighboring parts of the continent of Europe.

"The flocks consist sometimes of a hundred or more, placed under the guidance of some old and courageous male. In a domestic state, the young males and females are docile and gentle; but the old males became subject to ill-natured fits, and sometimes assail children, women, and even men, attempting to bear them down by butting."—*The Naturalists' Library*, vol. iv. *Mammalia.—Editor Q. J. Ag.*

Young Men's Department.

The Close of the Year 1839.

(Written for the Cultivator.)

As the labors of the season draw to a close, it is natural and proper for us to take a review of the past, and examine our prospects for the future. The rapid flight of time has brought us to the termination of another year—a year fraught with interest pleasing and painful.

In taking a retrospective survey of the past, we may learn some very important lessons, to guide our course for the future. Three years since, we were all buoyancy and hope; the acquiring a fortune was then but the work of a day; a few successful operations in speculation, were to complete the climax of prosperity, and conduct whoever ventured to embark in it, at once to wealth and fame. The past year has been one of unparalelled commercial revulsion. We are now in gloom and despondency. Many have learned, by painful experience, that industry and frugality are the only avenues to wealth. We have learned that a fictitious value set upon property does not enhance its real worth.

Although many have suffered severely from this blight of their golden dreams, its influence, it is believed, will be beneficial rather than injurious to community. Not that we should rejoice over the calamities of any men; far from it; but when men venture beyond the soundings of reason, they must expect to bring up upon the lee shore of bitter experience. It will check in some degree the strong anxiety, so prevalent among us, to become *quickly* rich. It will convince us of the greater security of property acquired by persevering manual labor, over that accumulated by gambling speculation. It will hold up to our view, the vast importance of agriculture, and the dignity of its pursuit. It will teach us, it is hoped, effectually, that luxury and extravagance are the bane of prosperity, as well as of morality and honesty.

Notwithstanding the melancholy gloom which has spread so extensively throughout the land as to affect all classes of the community, the promise of the Great Ruler of the Universe, that "seed time and harvest should not fail," has this year been most bountifully fulfilled. Nature has not been unmindful of our wants; but, as if to show the superiority of her resources over those of commerce and the arts, we have occasion to rejoice over an unusual abundance of her productions, while the other branches of industry suffer an unusual depression.

In our recollections of the past, there is one event which we cannot but look upon as a public calamity—the death of the respected Editor of the Cultivator. The agricultural community, in particular, must feel severely the loss of one so zealous and so efficient in their cause. In him, the young found a faithful and disinterested counsellor: the farmer an able and practical adviser, and all a warm and generous friend. His energetic pen and extensive influence, were exerted for the agricultural and intellectual improvement of his countrymen. His great aim appears to have been to induce the yeomenry of his country to assume the rank, intellectually and morally, which they hold politically: to make the employment of agriculture more honorable, and success in its pursuit more certain—in a word, to render man better and happier. Cut off so suddenly in the midst of a career of so extended usefulness, his loss cannot but be felt by all who value the interest of their country, or the prosperity and happiness of their fellowmen.

The removal from the stage of action, of men so prominent for their usefulness, reminds us, as young men, of the duty of preparing ourselves to fill their stations. On us is soon to devolve the responsibility of giving cast to a nation's character:—to the character of a nation already occupying a conspicuous rank among the empires of the earth; one to which the eyes of all the world are turned, to mark its success or overthrow, in the bold course it has struck out for itself. It will depend on us, whether the free institutions of our happy Republic shall descend in all their original purity to succeeding generations, or whether man is yet to mourn the unsuccessful attempt to govern himself.

There appears to be springing up in our country the germ of principles antagonist to our republican institutions, and it would be well for us to take warning, and shun their evil consequences. Among these, I would mention a passion for extravagance, and aping the practices and manners of European aristocracy—a desire prevalent with the young particularly, to live without manual labor; and the idea that it is degrading to be employed in any kind of productive industry.

The destruction of most of the nations of antiquity, celebrated for the impartial justice of their laws, and the wisdom of their legislators, can be traced to luxury and extravagance. The celebrated historian, Rollin, says in his history of the Persians, "the most judicious historians, the most learned phiosophers, and the profoundest politicians, all lay it down as a certain, indisputable maxim, that whenever luxury prevails, it never fails to destroy the most flourishing states and kingdoms; and the experience of all ages and all nations does but too clearly demonstrate the truth of the maxim." We may boast the most profound statesmen, and the most wise legislators, but whether our nation is to maintain its rank among the most favored of the earth for prosperity and happiness, depends upon *ourselves.* As our government is constituted, we must govern ourselves well to make it a good government. If we fail here, there is no potency in our institutions to make us prosperous; no efficiency in our laws to render us happy.

The desire to be independent of manual labor—to be employed in some occupation more honorable, is becoming prevalent in our community. It perhaps arises out of our spirit of improvement—from our aspirations after greater and higher attainments; but its effects are prejudicial to our welfare and happiness, individually and collectively. I would not check the desire for improvement: it is only this unnatural tendency of it that I would correct. There is a dignity in industry aside from its usefulness, that should commend it to all. The situation of the industrious agriculturist, particularly, is one which all might desire. Yours, my young friends, is a noble pursuit. Allied to nature in her operations, your labors are amid her genial influences, to mould and direct her expanding forms to suit the wants of man. The All-Wise Creator has so formed our material frames, that labor is necessary not only to continue our existence, but to promote our happiness. We very much mistake our own welfare, therefore, if we would aim to live without it.

Thus much our public—let us now attend to our social and individual duties. Let us labor individually to cultivate those virtues which exalt human nature. Let us remember, that without self-improvement, there can not be general or mutual improvement. Let us labor to improve our intellects by making ourselves acquainted with the natural sciences—with the operations of nature, in the various departments of the physical, the vegetable and the animal world. If we once awaken our minds to what is boundless and vast in the physical world, by taking a view of the unnumbered suns that exist in the regions of space and the worlds that roll around them: to what is beautiful and harmonious in the vegetable world, by observing the form and proportions of plants, and the adaptedness of nature's means to the end in view; and to the symmetry and order in the animal world, by observing the agility of animals, and their fitness to the situations they occupy, and the circumstances under which they are placed; we shall be furnished with motive to still higher improvement—that of the moral and religious faculties: for it is believed, no man in his sober senses, can take a rational view of these sublime productions of nature, and not be convinced of his obligations to Nature's Great Author, and feel a desire to fulfil those obligations.

Without the cultivation of the moral and religious faculties, we fail to accomplish the great end of our being; for, as man stands highest in the scale of animal existences, so these faculties occupy the highest rank in the mind of man. His other faculties render him a noble animal; these assimilate him to God. It is a duty, therefore, we owe both to our Creator and to ourselves, to bestow upon the culture and development of these, more abundant attention. As the plants we value most, receive in proportion a greater share of our labor, so these faculties should be nurtured and cherished with assiduity proportionate to their importance.—Let us be reminded, by the events of the past years, that we are destined to an existence beyond the present, compared with which, in duration and importance, this dwindles into insignificance; and let us so act as most effectually to secure our greatest good, both here and hereafter. C. P. W.

Albany, December, 1839.

Chemical Catechism—Chapter IX.

[From Parkes' Chemical Catechism.]

OF SIMPLE COMBUSTIBLES—*concluded.*

Does carbon enter into any mineral combinations?

It is imagined that most of the metals may be combined with carbon: but at present we know only of its combinations with iron.

What does carbon form when combined with iron?

In one proportion it forms cast iron; in another steel; and in a third proportion plumbago, generally, though improperly, called black lead.(1)

What is the proportion of carbon in cast iron?

Upon an average, cast iron contains, according to the analysis of Bergman, about one forty-fifth of its weight of carbon.(2)

What quantity of carbon enters into the composition of steel?

Steel is iron, combined with about one part of carbon in two hundred of iron.(3)

How is carbon combined with iron so as to form plumbago?

Carburet of iron, or plumbago,(4) has been found to consist of nearly nine parts carbon to one of iron.

You said that carbon formed an acid by its union with oxygen: how is that effected?(5)

Carbon has so great an affinity to oxygen, that when assisted by heat, it will take it from most substances with which it may be combined; in certain proportions they then form carbonic acid gas.(6)

What quantity of oxygen is necessary to convert carbon into carbonic acid?

28 parts by weight of carbon require about 72 parts of oxygen to saturate them; so that 100 parts of carbonic acid are composed of nearly 28 parts of carbon and 72 of oxygen.(7)

What is the specific gravity of carbonic acid?

Carbonic acid can only be exhibited in the form of of gas; each cubical inch weighs about half a grain, 100 cubical inches having been found to weigh exactly 47.26 grains.(8)

What are the properties of carbonic acid gas?

Carbonic acid gas is invisible and elastic; is much heavier than atmospheric air;(9) will mix with vital air; may be combined with water, to which it gives a brisk and acidulous taste;(10) is destructive of flame, and will occasion the death of animals that are obliged to breathe it.(11)

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(1) The name which plumbago has so long borne shows how necessary it was to give a new nomenclature to the science. It is now known that its metallic appearance is owing to iron; and that there is no lead in its composition. Many other instances might be adduced in which the names of substances have given false ideas of their nature and properties:—thus, white and green copperas contain no *copper*, but are formed the one with zinc, the other with iron.

(2) Cast iron does not owe its brittle qualities to the carbon which is combined with it; for that iron which contains most carbon is found to be the best metal. Cast iron generally contains some phosphuret of iron, and frequently a portion of oxygen: these substances give it its hard brittle quality. To convert cast iron into wrought iron the metal is submitted to a long intense heat, by which means, the carbon burns; and, uniting with the oxygen, both go off in the state of carbonic acid gas. The iron is then carried to the forge hammer, which beats out the phosphuret of iron, and brings the particles closer together. When the iron is required to be pure and good, it undergoes repeated hammering till it is brought to the desired quality.

(3) To procure steel, nothing more is necessary than to heat good pure iron for several hours in a proper furnace, with charcoal, or any substances proper for furnishing a sufficient quantity of carbon, which is absorbed by the iron in the process. Iron has so great an affinity for carbon, that it is even capable of decomposing carbonic acid in a high temperature. See *Philosophical Magazine*, vol. ii. where there is an account of a late mode of making steel by fusing soft iron in crucibles with carbonate of lime. The diamond, which is pure carbon, will also convert iron into steel. This was proved by the ingenius Mr. Children, who enclosed a diamond within a slit which he had made in one end of a large iron wire, and having submitted it to the action of galvanism, the diamond disappeared, and the iron was found to be changed into steel.

(4) Plumbago is found in great plenty, at a place called Borrowdale, in Cumberland. Besides making pencils, it is likewise useful to rub over wooden machinery, to prevent friction.

According to Fabroni, plumbago is formed in the humid way, at the bottom of certain wells in the kingdom of Naples, from whence it is regularly collected every six months.

Carburet of iron is found also in various parts of the continent. It often occurs in mountains, in the midst of beds of quartz, or calcareous earth. It has sometimes been found crystallized in octahedrons.

Plumbago, like charcoal, is indestructible by heat, unless with the presence of atmospheric air. It is therefore much used for making crucibles and portable furnaces. It protects iron from rust, and on that account is rubbed on various ornamental cast iron works, such as the fronts of grates, &c.

(5) Take one of those glass receivers generally used for deflagrating the gases; fill it with oxygen gas, and invert it in a shallow pan of water. Then having a piece of ignited cortical part of charcoal ready, suspend it by a wire to the stopper of the receiver, and immerse it quickly in the gas. The charcoal will be seen to burn for a considerable time with the greatest splendour, throwing out the most beautiful coruscations. When the inflammation is over, the oxygen gas will be consumed, and the water will be found to be impregnated with carbonic acid; and if some transparent lime-water be poured in, the whole will become opaque from the carbonate of lime now formed.

(6) There can be no doubt that carbonic acid is formed by the union of carbon with oxygen; for steel may be made as effectually by the decomposition of carbonic acid, as it can by the direct union of iron with carbonaceus matter.

Carbon takes a gaseous form also by combining with hydrogen and caloric, and forms what is called carburetted hydrogen gas; likewise in the gas discovered by Dr. Priestley, and which Mr. Cruikshank named the *gaseous oxide of carbon.*

(7) Oxygen has a greater affinity for carbon than for most other substances. Lavoisier burned small quantities of charcoal in pure oxygen gas in close vessels, and found that a part of this gas was converted into fixed air, or carbonic acid. He separated this from the rest of the oxygen by means of caustic alkali, and weighed the alkali after it had attracted the fixed air. He also expelled the air again by an acid, and examined its bulk. Thus he learned the weight of the air, and what measure of it had been produced. Then, comparing this weight with that lost by the charcoal which had been consumed, he found it to exceed greatly the weight of the charcoal; and that it was exactly equal to the weight of the charcoal added to that portion of the oxygen gas which had been changed into fixed air. Dr. Black's *Lectures on Chemistry*, vol. ii. page 100.

The composition of carbonic acid has been further proved by analysis, as it has actually been decomposed, and the charcoal exhibited entire. See Mr. Tennant's experiments on fixed air, in *Philosophical Transactions*, vol. lxxxi. page 181. When a diamond is burnt, the proportions are similar to the above, for diamond is the purest carbon we are acqainted with.

Carbonic acid gas may be readily procured for experiment by pouring a little diluted sulphuric acid into a phial, or a retort, upon a little pulverized chalk. An action will immediately commence; and if one end of a bent tube be made fast in the neck of the phial, and the other brought under the mouth of a jar filled with water, and inverted in a vessel of water, the gas will pass from the mixture into the inverted jar.

(8) When charcoal is burnt in oxygen gas, every 100 cubical inches of the gas, which originally weighs 33.75 grains, will then weigh 47.26 grains; and as the gas acquires no alteration in volume, this shows that 100 cubical inches of oxygen will combine with 13.51 of charcoal.

(9) This gas, on account of its density, may be poured from one vessel to another, like water; or may be drawn from a cask by a cock like other fluids. In consequence of its great

In what state does carbonic acid exist in nature?

Carbonic acid is found in three different states, viz. in gas, in mixture, and in chemical combination: it is, perhaps, the most abundant of all the native acids.(12)

What instances are there of its natural existence in the state of gas?

It is found in the proportion of about one part by measure in every thousand parts of atmospheric air; also in caverns and mines where it is called the choke-damp.(13)

What instances are there of carbonic acid being found mixed with fluids?

It is abundant in Spa-water, and in some other acidulous waters.(14)

In what substances is carbonic acid found chemically combined?

Carbonic acid is found in all parts of the world in great plenty, in combination with the alkalies, with some metallic oxides, in earths, and in stones; particularly in chalk, limestone and marble.(15)

What is the effect *of the combination of carbonic acid?*

Carbonic acid renders mild and salutary some of the most acrid and destructive of all known substances.(16)

How is the carbonic acid separated from the alkalies and earths?

Carbonic acid may be disengaged by most of the other acids; but it is usually separated from alkalies by the addition of quick lime, which absorbs this acid, and thus is converted into carbonate of lime.(17)

How is carbonic acid usually procured for chemical purposes?

Carbonic acid gas may be collected in abundance from the surface of fermenting liquors; but it is more commonly obtained by pouring sulphuric acid upon a mixture of chalk, or marble and water.

How do you account for the production of carbonic acid gas in the process of fermentation.

In all vinous fermentations a decomposition of the saccharine matter takes place; and a part of the disengaged oxygen, uniting with a part of the carbon of the sugar, forms carbonic acid. A decomposition also of a part of the water of solution perhaps promotes the process.

What is the cause of vinous fermentation?

The cause of vinous fermentation is not well understood; though it is a process which nature employs and which art can imitate, for the decomposition of certain vegetable substances,(18) (when in favorable circumstances of temperature and solution,) and also for their recomposition to form new products.

What circumstances are necessary to produce vinous fermentation?

The presence of vegetable matters, of water, of sugar,(19) a certain degree of heat, and free escape for the carbonic acid as it is generated.(20)

Can you at all account for the change which is effected in saccharine liquors by fermentation?

By the process of fermentation the sugar, which is a vegetable oxide,(21) parts with a portion of its oxygen to form carbonic acid, and becomes converted into alcohol(22) by being thus partially deoxidized.

Does sugar then become spirit of wine, or alcohol, merely by losing a part of its oxygen?

No: it parts with a portion of its carbon at the same time, in the form of carbonic acid gas, and a new arrangement of the principles, both of the sugar, and of the water in which it is dissolved, taking place, furnishes an increased proportion of hydrogen, in order to form vinous liquor.(23)

Endeavor to recollect the different properties of charcoal, which you have enumerated in this chapter.

Charcoal appears to be indestructible by age; it is not in the least altered by the most intense heat, if heated in *closed* vessels; when burnt in atmospheric air it becomes converted into carbonic acid gas; it is a valuable antiseptic; it is the basis of all vegetables; it is one of the component parts of wax, oils, gums, and resins; and from its affinity to oxygen it has the property of decomposing many substances in which oxygen constitutes a material part.

How did chemists become acquainted with all these properties of charcoal?

Formerly, nothing was known of charcoal but its indestructibility and its antiseptic qualities. The other peculiar and surprising properties of charcoal were reserved for the discoveries of the present age; for these we are most especially indebted to the labours and genious of Black,(24) Priestly,(25) Cavendish, Lavoisier, Guyton, Tennant and Berthollet, and to the gradual development of the present improved system of chemistry.

What reflections naturally present themselves on the consideration of the various properties of charcoal and the other simple combustibles?

This subject, when considered in all its connexions, is calculated to produce the most profound admiration; and serves to convince us of the unbounded comprehension of the Divine mind, which, in the act of creation, could foresee and appoint such important effects to result from the combinations and changes of the most inodorous and insipid substances. We also learn, that all the works of the Creator are perfect; and perceive with astonishment, that they are composed of elements which are in themselves incapable of destruction.

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specific gravity it is frequently found at the bottom of mines, wells, &c.

(10) In order to saturate water with this gas, it is necessary to subject it to a considerable degree of pressure. The persons who are engaged in making the acidulous soda water have peculiar conveniences for this purpose. Cider, perry, bottled beer, and other fermented liquors, owe their briskness and sparkling to the presence of this gas.

(11) Carbonic acid has also the property of rendering lime soluble in water. As the carbonic acid escapes by exposure to the air, the calcareous matter is precipitated from the water which held it in solution; whence arise the various earthy incrustations found in different parts of the world. Fourcroy has very aptly remarked, "that when natural history was less enlightened by chemistry, springs of this kind were called *petrifying* waters, and were by the vulgar reckoned among the number of miracles.

(12) Plants of all kinds give out carbonic acid gas, while growing in the shade: but when assisted by the rays of the sun, there is reason to think, that the plants have the power of decomposing this acid; for then the leaves give out only oxygen gas. *Annales de Chimie*, tome xiii. page 318.

Mons. Saussure has shown, that when vegetables decompose carbonic acid gas, they throw off only half of the oxygen; and that the other half, with the whole of the carbon, enters into the composition of the plant. He also says, that the leaves absorb oxygen gas in darkness, and emit an equal quantity when exposed to the light. If this account of vegetation be correct, growing vegetables deteriorate the atmosphere in the night, and purify it in the day. The roots, wood, and petals perform no inspiration. See *Philosophical Magazine*, vol. xx. page 308.

(13) The floor of the Grotto del Cane, in Italy, is lower than the door, and this hollow is always filled with fixed air, which can rise no higher than the threshhold, but there flows out like water. It has been a common practice to drive dogs into this cavern, where they suffer a temporary death for the entertainment of the passengers; but a man enters with safety, because his mouth is far above the surface of this deleterious air. From the loss of so many dogs, in this cavern, it acquired the name of the Grotto del Cane. The lake of Averno, which Virgil supposed to be the entrance to the infernal regions, evolves so large a quantity of this gas, that birds, flying over it, drop with suffocation.—Fatal accidents have happened to persons who have incautiously descended into brewers' vats and wells, before they have been purified from this gas.

Carbonic acid gas so often occupies the bottoms of wells, that workmen ought never to venture into such places without previously letting down a lighted candle. If the candle burns they may enter it with safety; if not, a quantity of *quick-lime* should be let down in buckets, and gradually sprinkled with water. As the lime slakes, it will absorb the carbonic acid gas, and the workmen may afterwards descend in safety.

Fatal accidents often happen from burning charcoal in chambers; because wherever charcoal is burned this gas is always formed. Workmen have also lost their lives by sleeping too near lime-kilns, where this gas is extricated in abundance. Whenever persons are discovered in such situations, or are suffering from the effects of carbonic acid gas, the same means should be made use of as are directed by the Humane Society in cases of apparent death from drowning: or when it can be done without loss of time, atmospheric air, or even pure oxygen gas, should be forced into the lungs. I have known galvanism sometimes employed in such cases with the best effects.

Dr. Henry has suggested to naturalists, that butterflies and other insects, the colours of which it is desirable to preserve, for the purpose of cabinet specimens, may be suffocated in carbonic acid gas, better than by the common mode of killing them with the fumes of sulphur.

(14) These waters have a pleasant light acidity and briskness, and sparkle in the glass, like fermented liquors; which is well known to be the case with water, when artificially impregnated with fixed air. Dr. Percival esteems it highly medicinal in pulmonic consumptions, and in malignant fevers.

By great pressure, water may be combined with more than twice and a half of its own bulk of carbonic acid gas. Such waters are considerably more acidulated than those afforded by nature, and have much greater medicinal effects.

(15) Carbonic acid is found combined with alkalies, and with several metallic oxides. These combinations are called carbonates.

A cubic inch of marble contains as much carbonic acid in combination as would fill a six gallon vessel, when in the state of gas.

(16) We all know the causticity of pure quick-lime, and the corrosive qualities of the fixed alkalies; but whenever these substances are *fully* saturated with carbonic acid, the first forms mild calcareous earth (or chalk,) and the others mild neutral salts, applicable to many purposes of medicine and domestic economy.

(17) Though the alkalies readily part with their carbonic acid to caustic calcareous earth, yet they have a great affinity to this acid, as may be shown by the following interesting experiment:—Fill a jar with carbonic acid gas, then pour into it a small quantity of a solution of *caustic* potash or soda; and having tied the mouth over with a wetted bladder, move the vessel so as to spread the alkali over its inner surface, when a vacuum will be quickly formed by the absorption of the gas, which will appear by the bladder being pressed inwards by the weight of the atmosphere. If this experiment be made in a glass vessel, its surface will be seen covered with crystals of the alkali, as the carbonic acid always promotes the crystallization of the fixed alkalies.

(18) Fourcroy admits five distinct species of vegetable fermentation, viz. the saccharine (or that which forms sugar,) the vinous, the acetous, the colouring (or that which is developed by the maceration of the indigo plant,) and the putrid. See Fourcroy's *System of Chemical Knowledge*, vol. viii. page 148. Some writers have spoken of another kind of vegetable fermentation, viz. the panary, or that which manifests itself in making bread; but surely this is a species of the acetous, for its tendency to acidify is very evident.

(19) It appears from several late experiments carefully made, that sugar is composed entirely of hydrogen, oxygen and carbon. Mr. Cruickshank made many experiments on fermentation, and invariably found, that whenever he added a fourth substance to the three which compose saccharine matter, no fermentation took place. He tried lime, and at another time a small quantity of potash; and the addition of either prevented fermentation.

(20) To produce vinous fermentation, it is necessary that the matters subjected to that process should be placed in a temperature not lower than about 55 degrees of Fahrenheit. No kind of fermentation is ever known below the freezing point.

(21) Lavoisier, having analyzed sugar, found that it was composed of hydrogen, oxygen and carbon, in the following proportions:—Hydrogen 8lbs. oxygen 64lbs. carbon 28lbs. in every 100 pounds weight of sugar. Lavoisier's *Elements of Chemistry*, page 188. Having subjected 100lbs. of sugar to fermentation, he found the products (alcohol, carbonic acid, and acetous acid,) when analyzed, contained the precise quantities of hydrogen, oxygen and carbon, which were contained in the original sugar. The particular detail which he has given of these experiments is extremely interesting. Ibid, page 185 to 197. In consequence of the results which were obtained, he remarks, "The effect of the vinous fermentation upon sugar is thus reduced to the mere separation of its elements into two portions: one part is oxygenized at the expense of the other, so as to form carbonic acid; while the other part being deoxygenized in favor of the former, is converted into the combustible substance called alcohol." Ibid, page 196. The strongest alcohol of commerce is seldom of a less specific gravity than that of 0.825. Proof spirit, or the spirit of wine employed in pharmacy, has a specific gravity of 0.930.

(22) Alcohol, according to the analysis of Lavoisier, is composed of

Carbon about - - - 30 parts.
Hydrogen, - - - - 7.5 parts.
Water, - - - - - 62.5 parts,
100.0

But as this analysis was made by burning alcohol in oxygen gas, it is probable that the greater part of the water was formed during combustion. Hence the real component parts of alcohol are not accurately known.

(23) The spirituous or intoxicating quality of all fermented liquors is owing to the alcohol they contain, whether it be malt-liquor, wine or spirits. Alcohol expands by slight degrees of heat more than any other fluid;—hence the propriety of employing it in forming thermometers. The same degree of heat which expands glass *one* degree will expand alcohol 180 degrees.

Alcohol has various uses in pharmacy and chemistry. It dissolves the resins and volatile oils. Hence its employment in the preparation of spirit varnishes. It is employed also in chemistry, in separating those salts from each other which cannot easily be separated by any other means. It dissolves the oxalic, tartaric, and some other acids. The salts which are dissolved in the greatest quantity by alcohol are the muriates of magnesia and of lime, and the several nitrates of magnesia, lime, alumina, ammonia, and soda.

(24) In the year 1755, Dr. Black discovered the acid gas which is thrown off from fermented liquors and from mild calcareous earth. He called it fixed air.

(25) Dr. Priestly explained the effect of charcoal in decomposing nitrous acid, examined the gas that is thrown off in this decomposition, and pointed out the necessity of distinguishing the different gases from common air; for which the Royal Society awarded him an honorary prize.

In the years 1766 and 1767, Mr. Cavendish published papers in the *Philosophical Transactions*, on the nature of elastic fluids, in which he announced that he had produced fixed air by the burning of charcoal. This assurance called the attention of all chemists to that surprising substance, and was the forerunner of the many discoveries which have since been made respecting its properties, &c.

Lavoisier pointed out the nature of the action of charcoal in reducing metallic oxides; investigated the nature of the combustion of the diamond; announced the exact quantity of carbon in carbonic acid, and the production of carbonic acid by the decomposition of water with ignited charcoal.

PRICE CURRENT.

ARTICLES.	New-York, Dec. 20.	Boston. Dec. 20.	Philadelphia. Dec. 17.	Baltimore. Dec. 20.
Beans, white, per bushel,	1 25— 1 50	1 75— 2 00	1 25— 1 50	1 50— 1 75
Beef, per cwt	6 50— 7 00	6 70— 7 00	7 00— 9 00	6 25— 7 50
Bacon, western, per lb	0 09— 0 10	0 80— 0 10	7 50— 8 00	0 09— 0 10
Butter, fresh, per lb	0 12— 0 15	0 11— 0 23	0 14— 0 16	0 15— 0 22
Cheese, per lb	0 08— 0 10	0 10— 0 12	0 10— 0 11	0 09— 0 10
Cotton, best per lb	0 11— 0 12	0 11— 0 16	0 13— 0 16	0 14— 0 15
Flour, best, per barrel,	6 00— 6 50	6 25— 6 50	6 00— 6 25	6 00— 6 25
GRAIN—Wheat, per bushel,	1 10— 1 15	1 28— 1 33	1 18— 1 22	1 20— 1 30
Rye, per bushel,	0 70— 0 71	0 88— 0 90	0 70— 0 71	0 73— 0 75
Oats, per bushel,	0 31— 0 41	0 40— 0 52	0 63— 0 73	0 30— 0 31
Corn, per bushel,	0 63— 0 66	0 78— 0 86	0 68— 0 75	0 67— 0 73
Hams, pork, per lb	0 10— 0 13	0 10— 0 11	0 09— 0 11	0 12— 0 13
Pork, in hog, per cwt	6 50— 7 25	5 50— 7 00	7 00— 8 00	7 00— 7 50
SEEDS—Red Clover, per bushel,	....	8 00— 9 00	5 25— 5 75	2 00— 2 50
Timothy, per bushel,	2 75— 3 00	2 75— 3 00	2 75— 3 00	2 00— 2 50
WOOL—Saxony, fleece, per lb	0 55— 0 60	0 58— 0 62	0 55— 0 60	0 60— 0 70
Merino, per lb	0 50— 0 55	0 55— 0 63	0 50— 0 55	0 50— 0 55
¼ and common, per lb	0 37— 0 40	0 45— 0 48	0 37— 0 50	0 47— 0 42
Sheep, per head,	2 00— 5 50	1 50— 2 50	2 50— 3 60	1 50— 3 25
Cows and Calves, each,	23 00—30 00	35 00—55 00	23 00—33 00	34 00—40 00

Prospectus of the Cultivator, Vol. VII.

A CONSOLIDATION OF

Buel's "Cultivator" and the "Genesee Farmer."

Willis Gaylord and Luther Tucker, Editors.

Jesse Buel & Co. Proprietors.

THE first number will be issued in January, 1840, at which time all existing subscriptions will terminate, and the paper will be discontined, unless the subscriptions shall have been or are renewed. The price, as heretofore. will be *One Dollar* a year, payable in advance. Postmasters, agents and others, who will obtain subscribers, and transmit the subscription moneys free of charge, will be allowed commissions at the following rates:

For ten subscribers or over, - - - -	10	per cent.
twenty or over, - - - - - -	15	"
fifty or over, - - - - - - -	20	"
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On ten or more copies for schools, or agricultural premiums, a discount will be made of 33 per cent.

It has been decided by the Postmaster-General, that postmasters have the right to enclose money to the publishers of newspapers, for third persons. This liberal construction of the post-office law, we hope, will induce postmasters to take an interest in the circulation of the Cultivator, which we may assume, without vanity, will tend to improve agriculture wherever it circulates, and consequently to benefit the neighborhood.

The publication of the Cultivator was commenced at 25 cents per volume; the price was afterwards advanced to 50 cents, and at the commencement of the fifth volume, to one dollar per annum. It is due to our patrons and ourselves to explain the cause of this increase in price. The size of our pages has been enlarged, the quantity of matter increased, and the quality of the paper improved, until the expense of type-setting and paper, the two prominent items of our expense, is now more than double what it was when the price was fifty cents, and four times as great as it was when the price was but twenty-five cents. To enable the reader to judge of its now relative cheapness, compared with literary periodicals, we state for their information, that a volume of the Cultivator, including its usual extra sheet, contains about double the quantity of matter that is contained in two volumes (published in a year) of the North American Review. The subscription price of the two volumes of the Review is five dollars—that of the Cultivator one dollar. To be equal, in proportion to the quantity of matter, the price of the Cultivator should be ten dollars a year.

We are enabled only to print the Cultivator at this small price, from the extent of our subscriptions; and we are indebted for our liberal subscription to the kind offices of our correspondents and agents. To these we tender again our hearty thanks, and respectfully invite a continuance of their favors, both in behalf of the publishers and their patrons.

No papers will be forwarded to any subscriber, unless paid in advance, either to the proprietors, or to their authorized agents.

Should any gentleman to whom the Prospectus may be sent lack leisure to present it to his neighbors, he will do us a favor, and we think a public service, by placing it in the hands of some one who will take an interest in soliciting subscriptions.

☞ Agents will please number the subscribers whose names they send us, from one onwards, the more readily to determine the total, and to assist in keeping accounts correct.

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For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

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CULTIVATOR ADVERTISING SHEET.

FARMERS' DIRECTORY.

We give below, according to promise, such references as have been forwarded to us, of venders of FARM STOCK, FARM IMPLEMENTS, FARM and GARDEN SEEDS, and of PUBLIC NURSERIES. Its advantages to the public at large, even on this limited scale, will be apparent to all; but we hope another year to be furnished with the means of greatly enlarging and improving it.

Venders of Farm Stock, &c.

JOHN COWLEN, Truxton, Cortland, N. Y. Imported New-Leicester Sheep, Bucks and Ewes.

SAMUEL LOOK, West-Schuyler, Herkimer, N. Y. Thorough-bred Improved Short-Horn Cattle.

MARK R. COCKRELL, near Nashville, Tenn. Saxony and Bakewell Sheep, Durham Cattle and Blood Horses.

A. B. ALLEN, Buffalo, Erie, N. Y. Berkshire and China Pigs, pure breed.

T. F. NELSON, near Milwood, Clarke county, Va. Berkshire Pigs.

B. F. JOHNSON, Rome, Oneida, N. Y. Berkshire and China Pigs.

B. C. STANTON, seven miles east of Edwardsville, Madison co. Ill. Durham Cattle, Berkshire Pigs, South-Down, Saxony, Bakewell and Merino Sheep.

WM. B. MOAKLAR, Maysville, Ky. Berkshire, Irish Grazier, Byfield and Berkshire cross, and Belmont Pigs.

DR. S. D. MARTIN, near Colbyville, Clarke co. Ky. thorough-bred and grade Durham Cattle and Woburn Pigs.

WM. WHITE and AMOS FISHER, Medway, Mass. will sell Berkshire Pigs.

ROBERT M. SCOTT, Locust Hill, Frankfort, Ky. Improved Short Horned Durham Cattle. [Three fine lithographic portraits of Mr. S.'s stock may be seen at the Cultivator office.]

C. N. BEMENT, Three Hills Farm, near Albany, N. Y. thorough bred "Improved Durham Short Horned Cattle," pure Berkshire Pigs, Neapolitan and China cross do. and South-Down Sheep.

JOHN COWLEN, Trenton, Oneida, N. Y. imported New-Leicester Bucks and Ewes.

L. D. CLIFT, Carmel, Putnam, N. Y. Lincolnshire Sheep, Bucks and Ewes.

E. CORNELL, Ithaca, Tompkins, N. Y. sells Dutton Corn and Berkshire Pigs.

JOHN LOSSING, Albany, N. Y. pure Berkshire Pigs.

W. KILBURN, Lawrenceville, Tioga, Pa. Durham and grade Cattle, and Mocho and Berkshire cross Pigs.

JOSEPH HASTINGS, Brunswick, Rensselaer, N. Y. grade Berkshire and grass breed Pigs.

H. D. GROVE, Buskirk's Bridge, Washington, N. Y. Saxony Rams and Ewes, of the pure race.

S. M. MITCHELL, Norwich, Conn. breeds and sells Stock of various choice breeds.

M. HUDSON, East-Windsor, Conn. pure improved Durham Short Horned Cattle, (Herd Book animals,) Berkshire Pigs, and New-Leicester or Bakewell Sheep.

DANIEL S. CURTIS, Canaan Centre, Columbia, N. Y. choice Bucks, Ewes and Lambs, full blooded Saxony Sheep.

JOSEPH TYREE, Jr. Bordley, King and Queen co. Va. sells Herd's Grass and Timothy Seed, Dutton and Baden Corn, Beeves, Cows, with or without Calves, and Oxen of blood.

HENRY RHODES, South-Trenton, Oneida, N. Y. a full blood Improved Short Horned Bull, grade Calves and Berkshire Pigs.

GEORGE VAIL, Troy, Rensselaer, N. Y. a number of Berkshire Pigs.

THOMAS DUNN, Albany, N. Y. New-Leicester Sheep, Bucks and Ewes.

S. CHAPIN, City Hotel, Albany, N. Y. choice Berkshire Pigs.

L. F. ALLEN, Black Rock, Erie, N. Y. pure Improved Durham Short Horned Cattle.

Venders of Farm Implements.

W. THORBURN, Albany, N. Y. Farm Implements in general, including Bement's and other Drill Barrows.

RUGGLES & NOURSE, Worcester, Mass. general assortment of Farm Implements.

JOSEPH BRECK & Co. Boston, Mass. general assortment of Farm Implements.

R. SINCLAIR, Jr. Baltimore, Md. general assortment of Farm Implements.

A. WAKEMAN, American Institute, Broadway, N. York, several patented Implements.

S. W. BOYNTON, South Coventry, Ct. Boynton's Patent Straw Cutter.

JASON SMITH, Tyre, Seneca, N. Y. Improved Contracting and Expanding Cultivator.

PUDNEY & COWLEY, Stamford, Delaware, N. Y. Pudney's Revolving Horse Rakes.

N. R. & O. G. MERCHANT, Guilford, Chenango, N. Y. Drill Barrows.

S. H. BUSHNELL, Sheffield, Mass. Bushnell's Drill Barrows, and also for sale by W. Thorburn.

D. & J. R. HADDEN, Mamaroneck, Westchester, N. Y. Patent Ground Mole Traps.

W. & J. BRYANT, Buffalo, Erie, N. Y. Garden and Farm Seeds, and Implements.

Venders of Farm and Garden Seeds, &c.

W. THORBURN, Albany, N. Y. general dealer, including Rohan Potatoes, Dutton and Tree Corn, Italian Wheat, &c. Cultivator agent.

D. LANDRETH & Co. Philadelphia, general dealers in Seeds. Cultivator agents.

ALEX. SMITH, Broadway, New-York, general dealer in Seeds and Green-House Plants. Cultivator agent.

GEORGE C. THORBURN, John-street, N. York, general dealer in Seeds and Green-House Plants.

R. SINCLAIR, Jr. Baltimore, Md. general dealer in Seeds and implements.

REYNOLDS & BATEHAM, Rochester, Monroe, N. Y. general dealers in Seeds.

J. R. BRECK, Boston, Mass. general dealer in Seeds and Implements.

HOVEY & Co. Boston, Mass. general dealers in Seeds and Green House Plants. Cultivator agents.

M. S. POWELL, Market-st. Philadelphia, general dealer in Seeds. Cultivator agent.

W. DINN, 17 Commerce-street, New-Orleans, La. general dealer in Seeds. Cultivator agent.

S. C. PARKHURST, Cincinnati, Ohio, general dealer in Seeds, &c. Cultivator agent.

JOHN THORBURN, St. Louis, Mo. general dealer in Seeds, and agent for the Cultivator.

W. BRISTOL, Utica, Oneida, N. Y. Druggist and Seedsman. Cultivator agent.

J. F. CALLAN, corner of E and Seventh streets, Washington city, Druggist and Seedsman.

G. GLASCOCK, Westmoreland C. H. Va. Superior Potato Oats.

J. A. THOMPSON, Catskill, Greene, N. Y. two hundred bushels of Rohan Potatoes.

J. BUEL, Jr. Cultivator Office, Albany, N. Y. seed of Dutton Corn.

GEORGE CHURCHILL, Ridge Prairie, Madison, Ill. Baden Seed Corn; for sale also, by Marsh, Hankinson & Co. Alton, Ill. and J. Lockwood, St. Louis, Mo.

P. B. JOHNSON, Rome, Oneida, N. Y. Rohan Potatoes and seed of early Corn.

W. KILBURN, Lawrenceville, Tioga, Pa. Dutton Seed Corn.

HENRY REED, Waterville, Ohio, Italian Spring Wheat and Dutton Corn.

N. SILL, Warren, Warren co. Pa. cultivates Madder and sells roots.

Public Nurseries, &c.

J. BUEL & Co. Albany, general assortment of Fruit and Ornamental Trees, Shrubs, Green-House Plants, Brussa Mulberry, &c.

W. PRINCE & SON, Flushing, L. I. general assortment of Trees and Plants.

J. BLOODGOOD & Co. Flushing, L. I. general assortment of Fruit Trees.

R. SINCLAIR. near Baltimore, Md. general assortment of Fruit Trees.

A. ROWE, Rochester, Monroe, N. Y. general assortment of Fruit and other Trees, Green-House Plants, &c.

C. & A. J. DOWNING. Newburgh, Orange, N. Y. Fruit Trees, Green-House Plants, Brussa Mulberry, &c.

B. HODGE, Buffalo, Erie, N. Y. general assortment of Fruit Trees, &c.

W. KENRICK, Newtown, near Boston, Mass. Fruit Trees, Ornamental Plants and Mulberries.

MESSRS. WINSHIPS, Brighton, near Boston, Mass. general assortment of Trees, Plants, &c.

DR. GEORGE GREER, Belvidere, Warren co. N. J. Morus Multicaulis Trees.

J. FORD MORRIS, Mendham, Morris co. N. J. Morus Multicaulis Trees.

L. LYMAN, Manchester, Ct. Fruit Trees, Morus Multicaulis Trees and Cuttings, Silk Worm Eggs and Corn Cultivators.

D. STEBBINS, Northampton, Mass. Manilla, Alpine, Smyrna, Dandolo, Brussa, Multicaulis, Asiatic, and other Mulberries.

CHINESE TREE PROLIFIC CORN.—The subscriber has for sale at his store, No. 11, John-street, New-York, a supply of this new and excellent variety of corn, (some account of which will be found in the November number of the Cultivator,) price 25 cents per ear. Also, Rohan potatoes and Baden corn, with a full supply of garden, field and flower seeds, growth of 1838. Also a famous early pea, called the Early Cedo Nulli, which are fit for table 20th May, dwarf and very productive. Price 50 cents per quart.

George C. Thorburn.

NEW ENGLAND AGRICULTURAL WAREHOUSE and Seed Store, No. 51 and 52, North-Market-street, Boston; Joseph Breck & Co., proprietors, also publishers of the New England Farmer. We have one of the most extensive agricultural implement and seed stores in the United States. For particulars we refer to our catalogue which we send gratis, to all who apply postage paid.

Joseph Breck & Co.

HOVEY & Co.'s Seed Store and Agricultural Warehouse, No. 7, Merchants' Row, Boston, Mass., sell at wholesale and retail, all kinds of garden, grass and flower seeds, agricultural implements, books on farming and gardening. Also, fruit and ornamental trees, greenhouse plants, splendid double dahlias, bulbous roots, &c. They likewise publish the Magazine of Horticulture, a monthly periodical devoted to the cultivation of fruits, flowers and vegetables, at $3 per year.—Vol. 5th commenced Jan. 1st, 1839.

A FARM of about 90 acres is offerred for sale. It is in Watervliet, near the western bridge, on the Albany and Schenectady Rail Road. It has upon it a good barn, a small dwelling house and an apple orchard. Apply to J. Buel, Albany.

A FARMER WANTED, who can understand instructions, and will execute them. A single man, who can bring recommendations as being trusty, sober and industrious, will receive liberal wages, by applying soon, to J. Buel, Albany.

THE ORANGE FARM.—This highly improved farm situated two miles from the city, on the Philadelphia Turnpike road, is offered for rent. It contains about 300 acres of land, in the improvement of which, no expense has been spared for many years. In addition to a large quantity of barn yard manure, ashes, &c. 25,000 bushels of lime have been advantageously spread within the last four years. The improvements, consist of a plain DWELLING with ample accommodation for laborers, a costly Switzer Barn, stables for one hundred Cows, a well arranged and extensive dairy. Ice House, Steaming Room with boilers complete and every accommodetion for a Dairy Farm on the most extended scale. The House, furniture, farming utensils and horses will be let with the farm. S. W. Smith, Monument Square, Baltimore.

BONE MILL.—The subscriber has erected a mill for grinding bones for manure, at Waterford, N. Y. where those wishing to purchase may be supplied, on liberal terms.

R. Burke.

LIST OF AGENTS.

MAINE.

Centre Montville	J. Bean, p. m.
East Bethel	T. Carter, p. m.
North Searsmont	E. Knowlton, Jr.
Saco	W. J. Conden, p. m.

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Bath	J. Patterson,
Charleston	V. W. Sumner, p. m.
Dublin	A. Heald, p. m.
Danbury	A. Pittsbury, p. m.
Hancock	A. Whitcomb, p. m.
Keene	J. B. Elliott,
Lancaster	A. Perkins,
Lisbon	O. S. Hollister, p. m.
New Alstead	G. Bidwell, p. m.
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Newington	J. L. Pickering,
Oxford	J. W. Evans,
Portsmouth	R. Kittridge,
Sullivan	D. J. W. Wardwell,
Walpole	J. Bellows, p. m.

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Bennington	J. W. Vail.
Clarendon	J. W. Hodges
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Chelsea	J. Stearns, p. m.
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Grafton	L. C. Alexander, p. m.
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Hartford	J. Grout.
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Montpelier	A. L. Carter, p. m.
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Passumpsic	N. P. Parks, p. m.
Rutland	T. J. Ormsbee, p. m.
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Shaftshury	J. M. Olin.
Virgennes	E. Sherrill
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West Rutland	F. Slason.
Warren	F. A. Wright.

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Braintree	B. V. French.
Belchertown	T. Bridgeman.
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Dorchester	R. Vose, p. m.
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East Granville	J. Root, p. m.
Easthampton	W. Lyman.
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Great Barrington	C. Hopkins.
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New-Bedford	G. Randall.
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Pittsfield	E. R. Colt.
Sherburn	O. Everett, p. m.
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Sandisfield	J. M. Scars.
Sheffield	E. F. Ensign, p. m.
South Tyringham	G. Fargo.
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Westfield	S. Harrison.
Williamstown	A. B. Cole.
West Springfield	H. Cooley, p. m.
Warwick	W. Colt.

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Portsmouth	O. D. Green,
Warwick	B. R. Greene.

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Brooklyn	A. White, p. m.
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Bristol	C. Matthews.
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East Windsor Hill	E. Ellsworth.
East Haddam	O. Greene, p. m.
Enfield	G. Terry, p. m.
East Hartford	S. Olmstead.
Farmington	S. Whitman, p. m.
Goshen	M. Bartholomew.
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Hartford	E. W. Bull.
Had Lyme	W. Spencer.
Lisbon	M. Safford.
Litchfield	F. Buel.
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New-Canaan	A. D. Pennoyer.
Naugatuck	J. D. Meers, p. m.
North Haven	W. Hartley.
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Norwich Town	J. Hyde.
Norwich	S. M. Mitchell.
Poquonock	E. Phelps, p. m.
Plymouth	C. Butler.
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Salsbury	C. Benton, p. m.
Scotland	B. Webb, p. m.
Stonington	W. W. Woodbridge,
Stanwich	C. Hoit.
Vernon	L. P. Tinker, p. m.
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Willington	J. Weston, p. m.
Westport	W. Platt, p. m.
Weathersfield	J. Goodrich.

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Alfred	C. D. Langworthy,
Amsterdam	G. H. Burch,
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Appling	D. J. M. Howard, p. m.
Ames	W. R. Wheeler, p. m.
Bainbridge	D. Newell, p. m.
Broadalbin	H. G. Hawley,
Black Rock	E. A. Burnham, p. m.
Binghamton	J. Robinson, p. m,
Buskirk's Bridge	J. Allen, p. m.
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Benton	M. Gage, p. m.
Butternuts	A. C. Moore, p. m.
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Cooperstown	S. Doubleday, p. m.
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Coldbrook	S. Smith, p. m.
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Cabin Hill	A. Marshall, p. m.
Clyde	J. Humeston,
Canaan Centre	Daniel S. Curtis,
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Delhi	Paine & Clarke,
Durham	A. Marks,
Dryden	A. Philips, p. m.
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East Groveland	J. Whitman, p. m.
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Fonda	J. M. Tubbs.
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Goshen	H. W. Elliot, p. m.
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Havana	S. C. Ayres.
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Hartwick Seminary	C Davidson, p. m.
Hosick Falls	H. W. Herrington,
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Kinderhook	J. Bain, p. m.
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Lafayette	N. Sterling,
Little-Falls	A. Petrie.
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Lima	W. Edwards.
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Lewiston	S. Barton, p. m.
Lairdsville	G. B. Peabody, p. m.
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do	A. Wakeman, Am. Institute.
do	P. Pratt, cor. Fulton & Water-sts.
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Sag-Harbor	O. O. Wickham,
Sherburne	A. Holmes, p. m.
Salem	J. Hawley,
Stuyvesant	A. S. Peters,
Smithtown	G. S. Philips, p. m.
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Stokes	J. M. Husted, p. m.
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Springville	S. Lake,
Schenectady	S. Riggs,
Sangerfield	D. North, p. m.
Truxton	A. Babcock, p. m.
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Troy	Elias Gates,
do	I. McConihe, p. m.
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Virgil	J. Edwards,
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do do	D. C. Cowan, p. m.
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Wheatland	C. Hall, p. m.
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York	D. McDonald, p. m.

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Deckertown	A. Fitsworth,
Flemington	J. Callis, p. m.
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Hackensack	J. Dickinson, p. m
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Kingwood	H. Tomlinson, p. m.
Kingston	J. Van Tilburgh, p. m.
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Millstone	J. S. Annin, p. m.
Marksboro'	J. Blair, p. m.
Middletown	W. Murray, p. m.
Metuchen	J. G. Hall,
New-Brunswick	W. Myers, p. m.
Newton	G. H. McCarty, p. m.
New Egypt	G. F. Foot, p. m.
New Germantown	J. Bartles, p. m.
Plainfield	D. L. Dodge,
Pennington	A. P. Willing,
Rockaway	J. H. Jackson,
Rahway	S. Crowell, p. m.
Ringoes	H. S. Hunt,
Somerville	W. J. Hughes, p. m.
Suckasunny	W. Patterson, p. m.
Shrewsbury	R. White, Jr.
Swedesboro'	W. Keyser, p. m.
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Trenton	J. Cunningham.

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Brownsville	J. Burns.
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Butler	P. Kelby, Jr. p. m.
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Connellsville	J. Herbert, p. m.
Dilworthstown	G. Brinton, Jr.
Danville	W. Donaldson,
Easton	C. L. Evans.
Foxburgh	J. M. Fox, p. m.
Huntington	J. Miller.
Jersey Shore	W. Bobb, p. m.
Lewistown	E. L. Benedict.
Lawrenceville	W. Kilburn.
Meadville	D. Andrews, p. m.
Mauch Chunk	S. Lippincott.
Milton	J. Ketchum.
New Holland	R. Diller, p. m.
New-Troy	A. C. Philips.
Pittsburgh	L. Wilcox, Jr.
do	O. P. Shiras.
Philadelphia	J. Dobson, Chesnut st.
do	D. Landreth & Co. Chesnut-st.
do	M. S. Powell, Market st.
Reading	S. Ritter, p. m.
Stroudsburgh	W. P. Vail.
Shepherdstown	D. Sheffer, p. m.
Shrewsbury	J. Koller, p. m.
Selim's Grove	H. W. Snyder.
Warren	N. Sill.
West Haverford	S. Trimble.

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Camden	S. Dickson, p. m.
Delaware city	W. Reybold,
Frederica	J. E. Price, p. m.
Lewes	J. D. Rodney,
Milton	J. Ponder, p. m.

Milford	C. Mason, p. m.
Smyrna	B. Benson,
St. George's	J. M. Sutton, p. m.

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Brookville	T. McCormick,
Bladensburgh	H. Penn,
Bell-Air	J. W McCracken,
Centreville	J. Tilghman,
do	M. Pearce, p. m.
Cecilton	C. C. Murphey,
Clear Spring	C. Johnson,
Chestertown	G. W. Thomas.
Cambridge	E. P. Le Compte, p. m.
Church Hill	V. W. Devorix, p. m.
Churchville	John McKinney,
Denton	W. Bailey, p. m.
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Easton	H. Thomas, p. m.
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JAN.	—	—	1	2	3	4	5	JULY.	—	1	2	3	4	5	6
	6	7	8	9	10	11	12		7	8	9	10	11	12	13
	13	14	15	16	17	18	19		14	15	16	17	18	19	20
	20	21	22	23	24	25	26		21	22	23	24	25	26	27
	27	28	29	30	31	—	—		28	29	30	31	—	—	—
FEB.	—	—	—	—	—	1	2	AUG.	—	—	—	—	1	2	3
	3	4	5	6	7	8	9		4	5	6	7	8	9	10
	10	11	12	13	14	15	16		11	12	13	14	15	16	17
	17	18	19	20	21	22	23		18	19	20	21	22	23	24
	24	25	26	27	28	—	—		25	26	27	28	29	30	31
MAR.	—	—	—	—	—	1	2		—	—	—	—	—	—	—
	3	4	5	6	7	8	9	SEPT.	1	2	3	4	5	6	7
	10	11	12	13	14	15	16		8	9	10	11	12	13	14
	17	18	19	20	21	22	23		15	16	17	18	19	20	21
	24	25	26	27	28	29	30		22	23	24	25	26	27	28
	31	—	—	—	—	—	—		29	30	—	—	—	—	—
APRIL.	—	1	2	3	4	5	6	OCT.	—	—	1	2	3	4	5
	7	8	9	10	11	12	13		6	7	8	9	10	11	12
	14	15	16	17	18	19	20		13	14	15	16	17	18	19
	21	22	23	24	25	26	27		20	21	22	23	24	25	26
	28	29	30	—	—	—	-		27	28	29	30	31	—	—
MAY.	—	—	—	1	2	3	4	NOV.	—	—	—	—	—	1	2
	5	6	7	8	9	10	11		3	4	5	6	7	8	9
	12	13	14	15	16	17	18		10	11	12	13	14	15	16
	19	20	21	22	23	24	25		17	18	19	20	21	22	23
	26	27	28	29	30	31	—		24	25	26	27	28	29	30
JUNE.	—	—	—	—	—	—	1		—	—	—	—	—	—	—
	2	3	4	5	6	7	8	DEC.	1	2	3	4	5	6	7
	9	10	11	12	13	14	15		8	9	10	11	12	13	14
	16	17	18	19	20	21	22		15	16	17	18	19	20	21
	23	24	25	26	27	28	29		22	23	24	25	26	27	28
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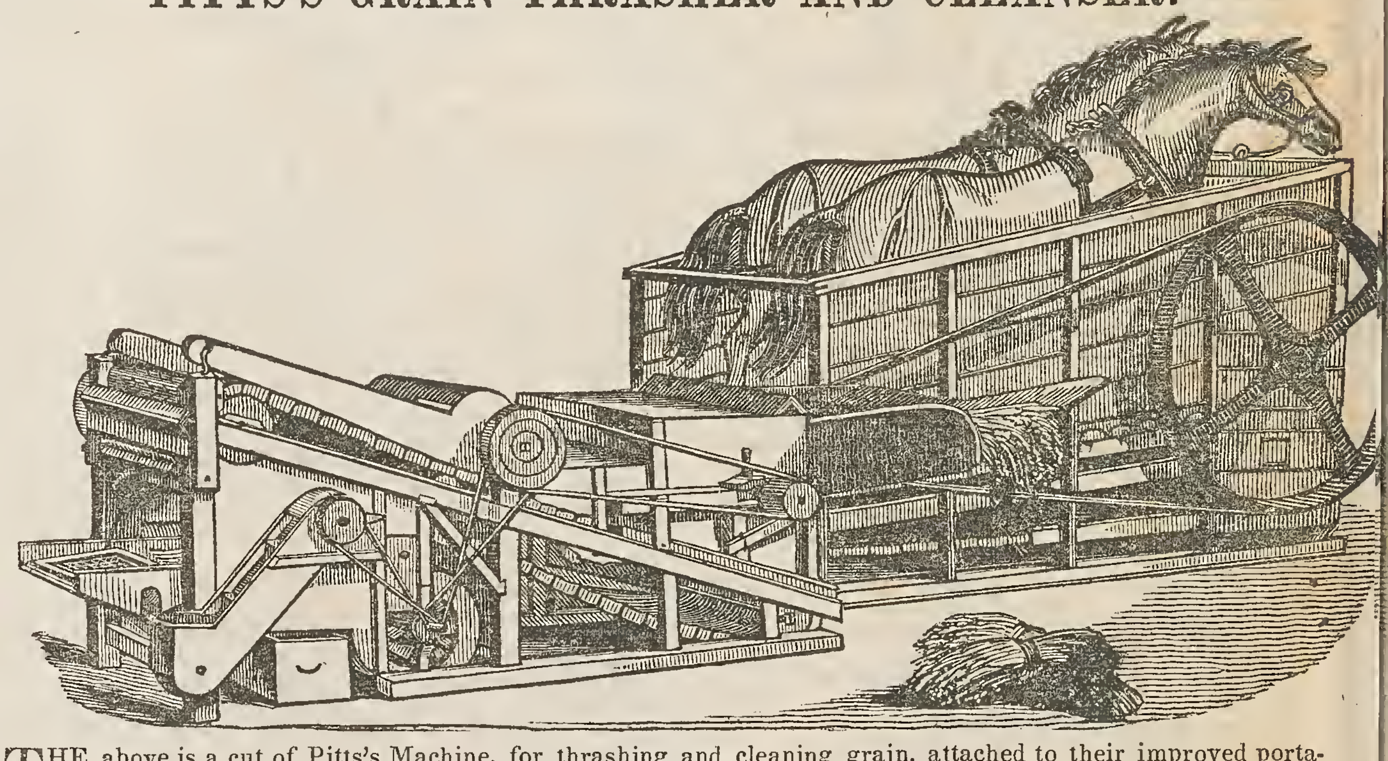

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